The "Year 2000" (Y2K) Computer Problem Guideline For Businesses To Draft A Contingency Plan

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Advanced Information And Telecommunications Society
Promotion Headquarters
Conference To Promote Y2K Measures
(Government Of Japan)

Preface

- The "Advanced Information and Telecommunications Society Promotion Headquarters" was, in response to the initiative of Prime Minister Obuchi, established in September of last year with a view to deal with issues related to the Y2K problem. It comprises all Cabinet ministers, with the Prime Minister serving as its Headquarters' Director, and it has already decided upon an "Action plan" to deal with the Y2K computer bug problem. Measures in accordance with this plan are, at present, under implementation by central government agencies, special corporations, regional public organizations, and private organizations.

- This action plan calls for the government, regional public organizations and industries to conduct thorough inspections, including simulation tests, with a view to determine as to whether computer systems will function normally, and also to formulate contingency plans, in order to deal with such problems as system stoppages and malfunctioning.

- Prime Minister Obuchi issued a directive in January of this year that a guideline for industry is to be prepared, in order to assist them in formulating contingency plans for the case that problems caused by the Y2K computer bug do occur. This directive was followed by the establishment of a "Working Subgroup of the Y2K Advisors' Conference", which comprises representatives of both, public and private organizations. It held a series of 5 conferences, at which the details were elaborated upon.

- This led to the establishment of a "Conference to Promote Y2K Measures" comprising Vice-ministers of central government agencies, which is headed by the Deputy-Ministers of central government agencies. This body has issued a "Guideline for Businesses to Draft A Contingency Plans to Deal with the Y2K Problem".

- We would be delighted, if industry managers and employees concerned with this problem alike utilize this guideline to the extent ever possible, and make their best efforts in dealing thoroughly with the Y2K problem.

This Guideline's Target Group Companies

■ Small and medium size enterprises(SMEs) are the target group

- This guideline is designed mainly for SMEs that should draft and/or revise an existing contingency plan, but it is also helpful for other types of businesses.

■ All businesses should be prepared

- “The Y2K problem” is something that mankind will experience for the first time in its history. The contingency plan is designed in a way so that your company will be in a position to prepare for and to confirm how to address this problem properly when an unexpected incident occurs, and to subsequently continue normal operations. All companies should, therefore, prepare a "contingency plan", and they should expect the unexpected.

- Please use the check lists contained in Chapter 5 for scrutinizing the prevailing status quo in the drafting of your company's contingency plan.

Misunderstandings about the Contingency Plan

Please read carefully the following sentences. If your own perception coincides with one of those ideas, you must by all means read this manual thoroughly. It will enable you to be well prepared for the Y2K problem.

- We will draft a contingency plan, although we have not, in relation to the Y2K problem, undertaken any specific investigation of or adjustment in our company's computer system and equipment with a microcomputer inside.
- We do not need a contingency plan, since we have already, in relation to the Y2K problem, implemented the investigation, adjustment and testing of the computer system and equipment containing a microcomputer; and we have confirmed that there is no problem.
- We do not need to draft a contingency plan until just before the year 2000, since we still have plenty of time.
- Our computer system does not use date transactions. It will, therefore, not be affected by the problem.
- We have drafted preventative manuals, and we train and implement measures against accidents on a daily basis. We do not need, therefore, to prepare a new contingency plan for the Y2K problem.
- I do not belong to the Information Division of the company. It is the responsibility of that division to take care of the problem.
- It is a plan that large-scale companies have to prepare. SMEs do not have to take such complex measures.

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Introduction

To Business Managers

- This guideline was designed mainly to provide instructions to the personnel in charge of drafting a contingency plan on the methods for preparing such a plan. However, such plan has to be drafted under the responsibility of business owners.

- The Year 2000 Computer Problem (thereafter referred to as the Y2K problem) is not simply a problem of a computer system and equipment containing a microcomputer (thereafter referred to as microcomputer equipment), but it is an issue related to business management in the sense that it determines, whether normal business operations are affected, when an unexpected incident occurs.

- It should be normal to adopt all measures for adjusting computer systems and microcomputer equipment. However, there is a chance that you will be affected by an unexpected incident, because today's companies' activities depend on other companies and computer systems and microcomputer equipment connected with each other through networks.

- You must, therefore, undertake a thorough adjustment of the computer systems and microcomputer equipment in your company and appoint a person, who is in charge. This will enable you to comprehend adequately the influence of the problem, and to prepare a plan to continue normal operations, in case an unexpected incident occurs.

This Guideline's Target Readers

This guideline(Guideline for Businesses To Draft A Contingency Plan) is targeted at,but not necessarily limited to, the following readers:

- Business owners, who wish to understand the outline of the contingency plan addressing the Y2K problem

  ➔ Please refer to the Sections“ To Business Managers ”and “ Misunderstandings about the Contingency Plan ”

- System supervisors, who need, in order to deal with the Y2K problem, information regarding the planning, installation, adjustment and testing of current computer systems and microcomputer equipment.

  ➔ Please refer to Chapter 1 onwards.

- The person(s) in charge of the Y2K problem, and/or the sales personnel, who are assigned to provide information inside the company and to outsiders in response to requests regarding the problem

  ➔ Please refer to Chapter 1 and understand the conditions of engagement of your company. Keep yourself up-to-date about the latest information as and when progress is made on the contingency plan as well as adjustments of computer systems and microcomputer equipment.

Misunderstandings About the Contingency Plan

Please read the following sentences carefully. If your own perception coincideswith one of those ideas, you must by all means read this guideline thoroughly. It will enable you to be well prepared for the Y2K problem.

- We will draft a contingency plan, although we have not, in relation to the Y2K problem, undertaken any specific investigation of or adjustment in our company's computer system and microcomputer equipment.

  - You must start the investigation addressing the problem, and adjust the computer systems and microcomputer equipment of your company immediately. The affects of the problem will not end after January 1st, 2000, but will continue forever after that day, if you fail to implement the corrections. However, you may be able to avoid the risk of not being able to continue operations after the year 2000, if you make continuous efforts to adjust the system and such equipment.

- We do not need the contingency plan, since we have already, in relation to the Y2K problem, implemented the investigation, adjustment and testing of our company's computer system and microcomputer equipment; and we have confirmed that there is no problem.

  - The contingency plan should be prepared, even after the system and microcomputer equipment of your company were adjusted. It is possible, in spite of all the efforts made, that one fails to recognize something or makes a mistake in the adjustment. Your company may cause, in such a case, damage to your client or partner. Even though your own system and microcomputer equipment do not have any problems, your company's operations may be affected by lack of preparedness of your client or partner in addressing the Y2K problem.

  - Therefore, even if you have already taken action to prevent any problems with your computer systems and microcomputer equipment, you still need to prepare the contingency plan for dealing with an unexpected incident.

- We do not need to prepare the contingency plan until just before the year 2000, since we still have plenty of time.

  - It is possible that the Y2K problem will occur before January 1st, 2000. For instance, a computer system, which makes a purchase order, the payment of which is due after that date, may already cause a problem before that date. Therefore, one has to be ready by preparing the contingency plan for " the presumed day, on which the problem may occur".

- Our computer system does not use date transactions. It will, therefore, not be affected by the problem.

  - Even if nothing is controlled by the date within the computer system, microcomputer equipment, such as product line or controlling equipment, may cause the problem. You must confirm first of all that all the equipment, including microcomputer equipment, is not controlled by date. If you use microcomputer equipment, you must investigate and adjust the system with the support of the manufacturer or the vender, and draft a contingency plan simulating the possible occurrence of the problem when using the equipment.

- We have drafted preventative manuals, and we train and implement measures against accidents on a daily basis. We do not need, therefore, to draft a new contingency plan for the Y2K problem.

  - The ideas determined in an ordinary preventative manual, and plans regarding the initial organization, structure of emergency contacts, and restoration measures are considerably helpful at the time of contingency plan preparation. However, the Y2K problem differs significantly from incidents, such as natural disasters, since it is possible to identify the date, on which the problem will occur, and hence to prepare a definite plan to prevent its occurrence.

  - The Y2K problem also differs significantly from usual natural disasters, since it will occur on a nation-wide scale (not limited to a certain area) at almost the same time. Duplication or a backup to ensure the computer systems' reliability may not function after the incident has occurred. A contingency plan addressing the Y2K problem is, therefore, needed in addition to an ordinary preventative plan.

- I do not belong to the Information Division of the company. It is the responsibility of that division to prepare the contingency plan.

  - It is normally the case that a company's Information Division is responsible for adjusting the computer system to make it compatible with the Y2K problem. However, it is you, who will be affected, when the problem occurs in the computer system and microcomputer equipment, because you are executing your duties using the system.

  - In most cases, those, who use the system for executing their daily duties, and not the people in the Information Division, are knowledgeable about the contents of their duties and they understand more about the possible implications involved. The Information Division and the actual users should, therefore, cooperate in preparing the contingency plan, which will determine the preventative measures and the course of action needed when the problem occurs in the computer system and microcomputer equipment.

- It is a plan that large-scale companies have to establish. SMEs do not have to take such complex measures.

  - Regardless of the size of the company, if they use computers at all, they should have a contingency plan to minimize the possible damages, which may be caused by the Y2K problem.

  - You will understand when reading this guidebook, that the contents of a contingency plan could be simple or complex, depending on the scale, type of business, and field or policy of the company's owner. The managers of SMEs should also be aware of the problem, and draft a plan, which is compatible with the condition of the company.

1. What Is The Contingency Plan For The Y2K Problem?

What Is The Y2K Problem?

1-1 What Is The Y2K Problem?

- It implies various problems and ripple effects, as a computer treats usually the last two digits of a year as an identifier (for example“ 98 ”for the year 1998). According to the system, the year 2000 will be identified as "00", which will potentially cause various problems.

- This problem does not occur only with computers themselves. Microcomputer equipment are used in various machines and plants in a company or a factory. Some microcomputer equipment has a software program inside, and the system might be controlled by date.

- The purpose of this guideline is not to explain the technical details of the Y2K problem, which will be left to be specified by other documentation. The above mentioned problems have occurred already with some computers well in advance of the year 2000.

- The mistake of a date controlled transaction may cause abnormalities in purchase order systems between your company and the clients, or in lines in a factory. Your business could suffer substantial damage, if you do not take any precautions against the Y2K problem.

What Needs To Be Implemented Prior To The Contingency Plan?

1-2 What Needs To Be Implemented Prior To The Contingency Plan?

- The more you adopt precautionary measures, the more you can reduce the probability of occurrence of the problem.
- It is most important to undertake a general inspection of all kinds of property (computer systems, producing equipment, and so on) used in your company and the possibilities, with which that property may be affected by the Y2K problem, and then to render the computer systems and microcomputer equipment compatible with the problem.
- If you do not know how to undertake such general inspection, you can refer first to the "General Inspection Items for Public Enterprises in Relation to the Y2K Problem" published by the Action Plan of the Government, or refer to various check lists, which other companies provide, and then start the inspection. You may contact a toll free telephone number (0120-200-451), which has been set up for you, if you are a SME. Please do call that number. You will be provided with any kind of advice, since that special toll free number has been established for assisting in dealing with the Y2K problem.
- After having undertaken a thorough action plan to prevent the occurrence of the problem, the contingency plan is to be prepared for dealing with an emergency situation affecting the priority operations in your company; and it then has to be implemented.

When Should The Contingency Plan Be Drafted

1-3 Schedule For Drafting The Contingency Plan

- It is desirable to complete the first version of the plan well in advance, probably before June 1999, and not in the last part of the year.

● When should one draft the initial contingency plan?

- It is not only on January 1st, 2000, that the "Y2K" problem occurs. Various institutions and companies have already specified certain dates before January 1st, 2000, which may be potentially hazardous.
- A specific time frame will also be necessary, in order to organize the supply of materials and resources for plan implementation.

● Is it enough to make the plan just once?

- It is difficult to establish a highly sophisticated contingency plan in just one time. It is necessary, therefore, to observe and monitor carefully the progress of the initial plans of your own company and that of your clients/partners. Also, the first possible date of the problem, as well as the mobility of the social infrastructure, should be taken into account in preparing gradually a concrete and sophisticated plan.

To What Extent Should The Social Infrastructure Find Consideration?

1-4 Idea About The Social Infrastructure

- Each important institution in the area of the social infrastructure, such as electricity, gas, and water supply and sewerage, communication and public transportation, have implemented countermeasures at an early stage. It is, therefore, generally considered so far that these parts of the social infrastructure may not, due to the Y2K problem, cause any significant damage to business operations or the lives of people. However, the institutions, which are responsible for the important social infrastructure, are still in the process of updating their efforts in dealing with the problem, in order to raise their credibility. All of us should be aware of the latest information, when we prepare our contingency plan.

● Can we expect that the social infrastructure will not be affected?

- The contingency plan should be designed as an action plan that counters "an un expected incident". Therefore, it is necessary that we include plans in case problems arise caused by interruptions in the social infrastructure, which may in turn cause obstacles for the continuation of business operations.

- It is possible that confusion may result or disruptions arise from the social infrastructure, due to a natural disaster, if not the Y2K problem. Companies, the operation of which may be affected significantly by this confusion in the social infrastructure, should prepare power generating equipment, industrial water, fuel, and so on, in order to cope with such situations. It is realistic to implement countermeasures against disruptions in the social infrastructure, which are based on such daily preparations. One does not have to restrict this idea solely to the Y2K problem.

- Method for confirming the progress achieved by the social infrastructure in implementing countermeasures

  - It is necessary during contingency plan preparation to confirm the on-going progress, which has been achieved in the implementation of countermeasures against problems, which may arise from the social infrastructure, which your company utilizes.

  - The most common method is to make phone calls to the related institutions, and there is also the means of using the Internet to check the home page of the enterprises. The Internet shows often detailed documentation of their continuing realization of countermeasures against the Y2K problem. This may provide you with more information than a simple phone inquiry, and you will be able to continually update your own information.

  - You will be able to check, whether the institution, which is in charge of the public utility your company uses, has made a home page concerning progress achieved in implementing countermeasure against the Y2K problem. You may also refer to the general home page created by the association or institution, not only by one of them, to show their engagement and progress on the issue.

[Industrial organizations and associations]

The Federation of Bankers Associations of Japan	http://www.zenginkyo.or.jp/y2k/y2k4.html
Regional Bankers Associations	http://www.chiginkyo.or.jp/oshirase/news05.html
Bank of Japan	http://www.boj.or.jp/seisaku/99/y2k_f.htm
Japan Securities Dealers Association	http://www.jsda.or.jp/html/2000/index.html
The Marine and Fire Insurance Association of Japan, Incorporated	http://www.sonpo.or.jp/y2k/00_y2k.html
The Federation of Electric Power Companies	http://www.fepc.or.jp/2000y.html
Japan Gas Association	http://www.gas.or.jp/2000/y2k.html
Petroleum Association of Japan	http://www.paj.or.jp/html/year2000/index.html
Tele-communications Careers' Association	http://www.tca.or.jp
Telecom Services Association of Japan	http://www.telesa.or.jp
Japan Water Works Association	http://www.mmjp.or.jp/jwwa/index.html
Japan Information Service Industry Association	http://www.jisa.or.jp/2000year/index-j.html
Japan Electronic Industry Development Association	http://www.jeida.or.jp/2000
Information-Technology Promotion Agency, Japan	http://www.ipa.go.jp/CG/2000.html
Japan Chamber of Commerce and Industry	http://www.cin.or.jp/y2k/y2k.html

[The Government of Japan, the central governmental agencies, and other agencies]

Official Residence of the Prime Minister	http://www.kantei.go.jp/jp/pc2000/
Prime Ministers' Office	http://www.sorifu.go.jp/information/year2000.html
Ministry of Justice	http://www.moj.go.jp/PRESS/981204-1.htm
Ministry of Foreign Affairs	http://www.mofa.go.jp/gaiko/economy/2000/index.html
Ministry of Finance	http://www.mof.go.jp/y2000.htm
Ministry of Education and School Systems	http://www.monbu.go.jp/special/2000nen/
Ministry of Health and Welfare	http://www.mhw.go.jp/topics/c2000/tp0911-1.html
Ministry of Agriculture, Forestry, and Fisheries	http://www.maff.go.jp/work/2000nen.html
Ministry of International Trade and Industry	http://www.miti.go.jp/2000-j/n-menu-j.htm
Agency of Natural Resources and Energy	http://www.enecho.go.jp/dayori/2000/index.html
Small and Medium Enterprise Agency	http://www.sme.ne.jp/sesaku/cmenu.html
Ministry of Transport	http://www.motnet.go.jp/koho98/com2000_.html
Ministry of Posts and Telecommunications	http://www.mpt.go.jp/whatsnew/y2000/index.html
Ministry of Labor	http://www.mol.go.jp/tokusetu/2000.htm
Ministry of Construction	http://www.moc.go.jp/policy/y2k/2000.html
Ministry of Home Affairs	http://www.mha.go.jp/2000.html
Fair Trade Commission	http://www.jftc.admix.go.jp/guidline/2000.html
National Police Agency	http://www.npa.go.jp/joukan2/2000top.htm
Management and Coordination Agency	http://www.somucho.go.jp/soumu/2k.htm
Hokkaido Development Agency	http://www.hda.go.jp/contents/chou/topics/oshirase/pc2000/pc2000.htm
Economic Planning Agency	http://www.epa.go.jp/98/a/2000nentaiou.html
Science and Technology Agency	http://www.sta.go.jp/info/prob2000.html
Environment Agency	http://www.eric.or.jp/eanet/2000/2000.html
Okinawa Development Agency	http://www.oda.go.jp/year2000a.html
National Land Agency	http://www.nla.go.jp/intro/2000year.html
Financial Inspection Agency	http://www.fsa.go.jp/2000/2000-j.html

Figure 1-4-1 List of Home Pages, of the main industrial organizations,local governments, and the central governmental agencies regarding the Y2Kproblem

2. Ten Steps For Drafting the Contingency Plan

Outline of the Procedure For Drafting the Contingency Plan

- The following steps should be observed in drafting the contingency plan for the Y2K problem (Figure 2-0-1 refers). Concrete explanations are provided for on each of these steps in the following pages.

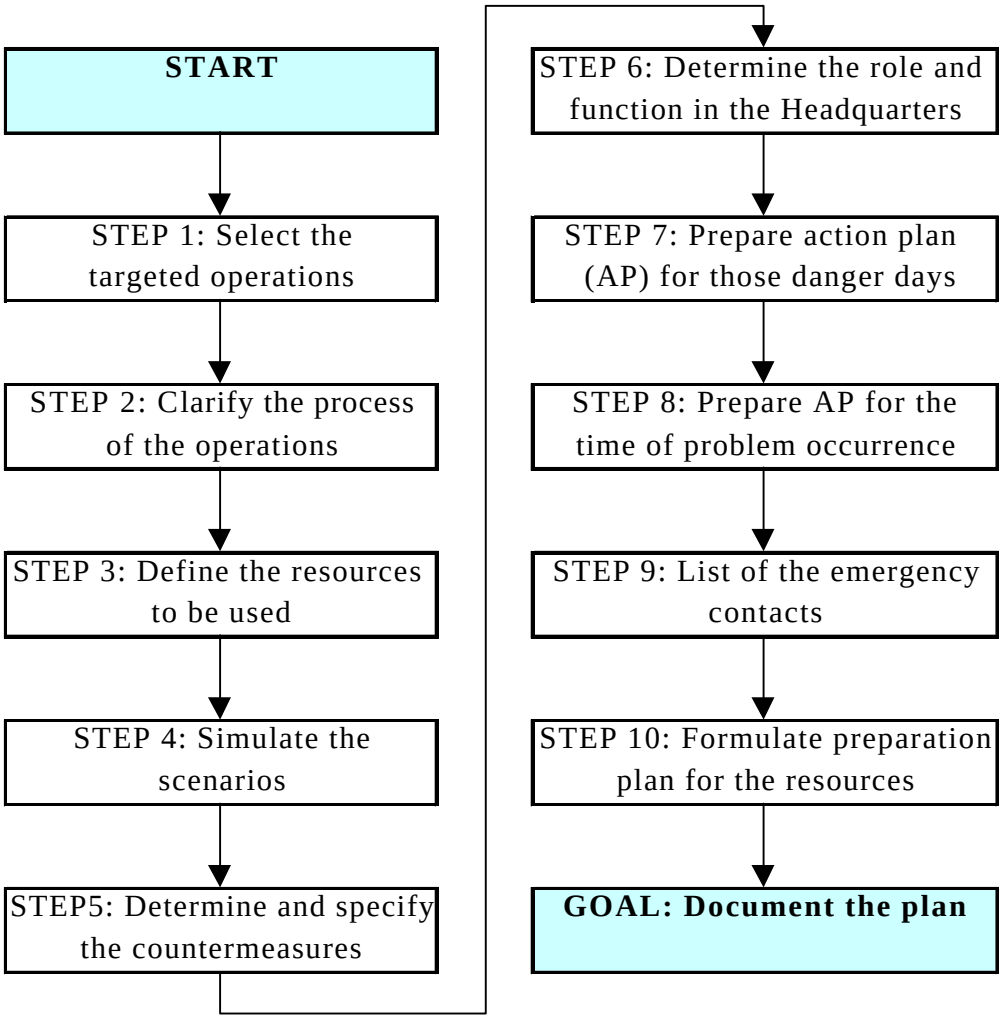
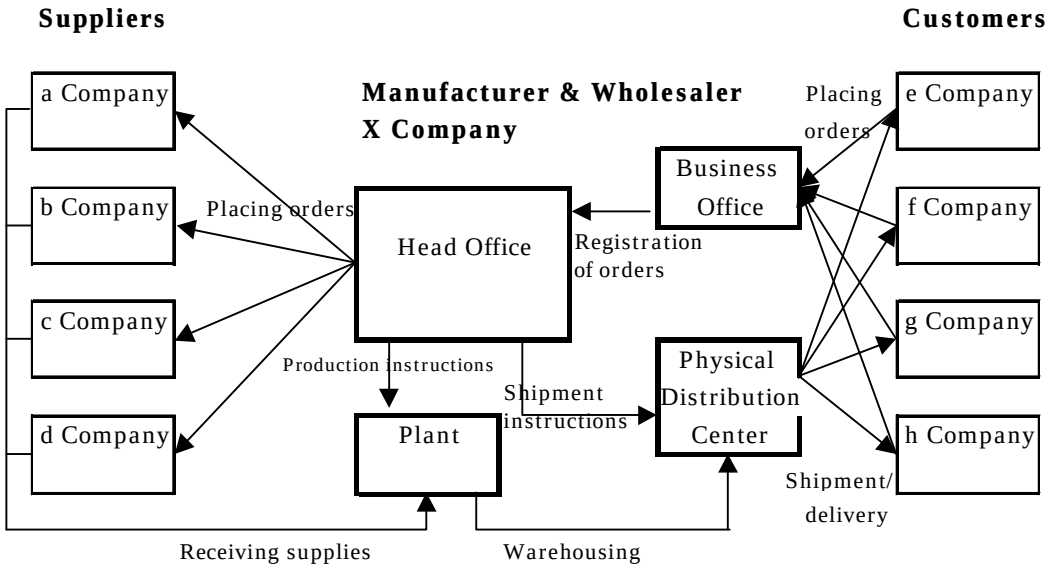


Figure 2-0-1 Ten Steps for Drafting the Contingency Plan

Establishment Of The Fictitious X Company

- This guideline establishes a fictitious company as an illustrative example so that guideline users can have the image of a concrete case.
- Although the types of businesses may differ, the basic idea is common to every company. Please use the idea when you prepare your own plan.

[Main Characters of this guidelines and structural flow chart of X Company's business environment]



[COMPANY OUTLINE]

Type of business:	Manufacturer & Wholesaler (parts manufacturer)
Office:	Head Office, plant, physical distribution center, business office.
Organization:	Physical Distribution Division, General Affairs Division, Systems' Division.
Systems:	Order control system, purchase control system, physical distribution system, production control system, accounting system.

Figure 2-0-2 Main characters of this guideline and structural flow chart of X Company business environment

【STEP 1】 Select The Respective Operations To Be Subjected To The Contingency Plan

2-1 Selection Of The Operations

- The main purpose of the contingency plan is to avert that your company gets into a position where it becomes unable to continue business (especially, the vital business operations of your company) due to the Y2K issue.
- The operations, which must be protected by all means, should take priority over other operations.
- In order to minimize the loss when an incident occurs, it is meaningful for all those companies, which can afford the time, to work out as well the contingency plan for the other lower priority operations.
- In general, the operations (which should be secured in the first place) are typically among the operations listed in the following Figure (Figure 2-1-1 refers). However, it depends also on the environment and the management strategy of the company. The proprietor should, therefore, select the operations.
- Decide upon the operations, for which your company will prepare the contingency plan.

【Procedure】

- Identify the main operations of your company by using Worksheet No. 1.
- Categorize each operation into one of the three ranks (A/B/C) according to their importance (priority) for your company.
- Select the target operations taking your company's prevailing status into consideration. For example, the contingency plan should be worked out for A rank operations, and the plan would likewise be made, if time permits, for B and C rank operations .

Type of Business	Operations
Wholesaler	Receiving orders - Shipments - Delivery
Manufacturer	Receiving orders - Manufacturing - Delivery
Retailer	Sales affairs
Constructor	Building material procurement Construction
Carrier	Collecting - Transportation - Delivery

Figure 2-1-1 Example Of Operations To Be Secured On Priority Basis

<The example of Company X>

- X Company selected the A rank operations, using the worksheet. It placed the "A" on operations of "receiving orders" from customers, "producing goods" and then "delivering" to the customers as "the operations, which should be secured on a priority basis", and it decided to prepare the contingency plan covering these operations. (Operations: "receiving orders", "purchase", "production", "shipment/delivery")

[Worksheet No.1]

Operations	Outline of Operations	Rank
Sales	Sales activity	B
Order receiving	Receiving orders from customers	A
Shipping nad delivery	Stock control Shipment Delivering to customers	A
Purchasing	Placing orders to suppliers	A
Production	Manufacturing	A
Accounting	Monthly accounts Annual accounts	B
…	…	…
Reporting	Writing management Reports	C
…	…	…

Figure 2-1-2 List of Main Operations

【STEP 2】
State The Flow Of The Targeted Operations

2-2 Clarifying The Flow of the Targeted Operations

- Write down the specific flow of the operations, which were selected in STEP 1.
- The management resources (in-house resources, outside resources) used in the main operations will become evident by writing down the flow of operations.

【Procedure】

- Write down the procedure of the selected operations as specifically as possible (See Worksheet No. 2). For example, if the selected operation is receiving orders, write down the details of the functions, which you will carry out after you have received orders from customers.
- Next, write down what kind of management resources (machinery, equipment, and systems for example) are used in each function. (See Worksheet No. 2).
- Write down every resource in case that more than two resources are used in the same operation (for example, write down both telephone and system, if orders are received, depending on the type of customers, by the way of either telephone or any system.).

【Note・Important Point】

- If the person(s), who is/(are) drafting the contingency plan do not know the details of the operations, he/she/they should obtain them from the people, who are actually undertaking the operations, or let them complete the worksheet.
- You should record the name of the service, which your company receives, as 'delivery from supplier a Company', if there is an outside resource (for example, supply or door-to-door delivery service from other companies) involved in the operation.
- It is timesaving to use it as the basis, if there is any material, such as an operational flowchart. It is also appropriate to record the necessary items into that material, instead of into the worksheet.

<The example of Company X>

- X Company selected "receiving orders", "purchase", "production", and "shipment/ delivery" as the operations, for which the contingency plan is to be drafted, and the company prepared the following figures.

1. Receiving orders

Worksheet No. 2-(1)

Operation : Receiving orders

Procedure Serial No.	Operational Procedure	Resource	Resource Serial No.	Notes
J-(1)	Receiving order from customers	Fixed telephone	S1	Customers, e Co., f Co.
		Fax	S2	g Co.
		Private line	S3	h Co.
J-(2)	Check the limit of order	Order control system	S4	
J-(3)	Inventory check	Order control system	S4	
J-(4)	Registration of orders	Order control system	S4	
J-(5)	Sending order confir-mation (automatic fax send back system)	Order control system	S4	
		Fax	S2	Our company to each customer
J-(6)	Shipment instructions	Order control system	S4	
		Private line	S3	Head Office to physical distribution center

Figure 2-2-1 List of operational procedures (Receiving orders)

【Note】

Procedure Serial No.: Serial numbers for every operational procedure.

Operational Procedure: Detailed accounts of operational procedures

Resource: The resources (equipment) used in the operational procedure

Resource Serial No.: Serial numbers for the resources used. The same number is attached to the same resource.

Notice: Comments, if necessary.

2. Purchasing

Worksheet No. 2-(2)

Operation : Purchasing

Procedure Serial No.	Operational Procedure	Resource	Resource Serial No.	Notes
K-(1)	Placing oders to suppliers	Private line	S3	Suppliers, a Co., b Co.
		Fax	S2	Suppliers, c Co., d Co
K-(2)	Registration of order control	Purchase control system	S11	
K-(3)	Delivery from the Supplier	Delivery a Co.	S12	a Co.
		Delivery b Co.	S13	b Co.
		Delivery c Co.	S14	c Co.
		Delivery d Co.	S15	d Co.
K-(4)	Warehousing	Personnel		
K-(5)	Transportation to storage	Warehouse elevator	S7	
K-(6)	Registration of Warehousing	Purchase control system	S11	

Figure 2-2-2 List of operational procedures (Purchasing)

3. Production

Worksheet No. 2-(3)

Operation : Production

Procedure Serial No.	Operational Procedure	Resource	Resource Serial No.	Notes
S-(1)	Registration of the production plan	Production control system	S16	
S-(2)	Processing of material 1	Processing machinery 1	S17	
S-(3)	Processing of material 2	Processing machinery 2	S18	
S-(4)	Assembling	Assembly machinery	S19	
S-(5)	Packing of goods	Packing machinery 1	S10	
S-(6)	Registration of production completion	Production control system	S16	
S-(7)	Delivery of goods	Company-owned truck	S8	Plant to physical distribution center
S-(8)	Warehousing	Personnel		
S-(9)	Transportation to storage	Warehouse elevator	S7	
S-(10)	Registration of warehousing	Order control system	S4	

Figure 2-2-3 List of operational procedures (Production)

4. Shipment/Delivery

Worksheet No. 2-(4)

Operation : Shipment/Delivery

Procedure Serial No.	Operational Procedure	Resource	Resource Serial No.	Notes
N-(1)	Output of shipment instructions	Order control system	S4	
N-(2)	Picking goods	Automatic warehouse system	S5	
N-(3)	Inspection of goods	Automatic warehouse system	S5	
N-(4)	Packing goods	Packing machinery 2	S6	
N-(5)	Transportation to the entrance	Warehouse elevator	S7	
N-(6)	Registration of completion of shipment	Order control system	S4	
N-(7)	Output of delivery note	Order control system	S4	
N-(8)	Loading goods on to trucks	Personnel		
N-(9)	Delivery of goods	Company-owned truck	S8	Customers, e Co. f Co.
		Door-to-door delivery	S9	Customers, g Co, h Co.
N-(10)	Handing over goods	Personnel		
N-(11)	Registration of completing delivery	Order control system	S4	

Figure 2-2-4 List of operational procedures

【STEP 3】
List The Management Resources To Be Used In The Targeted Operations

2-3 Listing of Resources

- Make a list of the management resources, which were clarified under the operational procedures in STEP 2.
- The list will clarify the management resources (both, in-house and outside of the company), for which the contingency plan will be prepared.

【Procedure】

- Complete Worksheet No. 3, by selecting the resources from Worksheet No. 2 in using 'Resource Serial No'.
- Write down the location of the resource, whether it exists in- or out house, such as that of suppliers, consignment services, social infrastructure. Write down the name of the provider of services.
- The significance of the resources will differ depending on the operation itself. Fill in every operation, in which the resource is used, because it will become necessary to decide on the measures (later).

【Note・Important Point】

- The name of providers of services are supposed to have been identified already by the teams, which have implemented the preventive measures against the Y2K problem. It is timesaving to use their information.

<The example of the Company X>

Worksheet No. 3

The List of Resources

Resource Serial No.	Resource	Location	Provider of Services	Operations
S1-1	Fixed telephone	Outside	A Phone (network)	J-(1)
S1-2		In-house	P Electric (telephone)	J-(1)
S2-1	Fax	Outside	A Phone (network)	J-(1)(5); K-(1)
S2-2		In-house	O Electronic (fax)	J-(1); K-(1)
S3	Private line	Outside	A Phone	J-(1) (6); K-(1)
S4-1	Order control system	In-house	In-house development (application)	J-(2)(3)(4)(5)(6); S-(10); N-(1)(6)(7)(11)
S4-2		In-house	B Electronic (hardware and so on)	J-(2)(3)(4)(5)(6); S-(1)(6)(10),N-(1)(2)(6)(7)(11)
S5	Automatic warehouse system	In-house	Q Machinery	N-(2) (3)
S6	Packing machinery 2	In-house	R Precision industry	N-(4)
S7	Warehouse elevator	In-house	S Heavy industry	S-(9); K-(5)
S8	Company owned truck	In-house	T Motor	S-(7); K-(9)
S9	Door-to-door delivery	Outside	L Transport	N-(9)
S10	Packing machinery 1	In-house	R Precision industry	S-(5)
S11	Purchase control system	In-house	In-house development (application)	K-(2) (6)
S4-2		In-house	Share with S4-2	
S12	Delivery from a Co.	Outside	a Co.	K-(3)
S13	Delivery from b Co.	Outside	b Co.	K-(3)
S14	Delivery from c Co.	Outside	c Co.	K-(3)
S15	Delivery from d Co.	Outside	d Co.	K-(3)
S16	Production control system	In-house	In-house development (application)	S-(1) (6)
S4-2		In-house	Share with S4-2	
S17	Processing machinery 1	Outside	U Machine industry	S-(2)
S18	Processing machinery 2	Outside	U Machine industry	S-(3)
S19	Assembly machinery	Outside	V Industry	S-(4)

Figure 2-3-1 The List of Resources

【Note】

- Resource Serial No., Resource, Operation: Is the same as that in Worksheet No.2
- Location: In-house, if the resource belongs to the company; outside, if the resource does not belong to the company
- The providers of services: The name of the providers of services, such as the vendor of equipment and service industry.

【STEP 4】 Investigate The Prevailing Status Of The Countermeasures Adopted Against The Y2K Problem For Each Resource And Simulate Occurrence Of The Problem For Each Resource

2-4 Scenario Simulation

1) Establishing The Allowable Stand Still Periods

- The ways to cope with the disruptions triggered by the Y2K problems as well as the levels of urgency will differ for each of the individual resources. It is necessary to define the frequency of use of the resources and the stand still period over which operations will be hampered.
- Based on 'The List of Resources' identified in STEP 3, identify 'the frequency of use' and 'the allowable stand still period', taking the character of the operations into full account.

【Procedure】

- Develop Worksheet No. 3, which was completed under STEP 3, into Worksheet No. 4 taking into full account the type of operations.
- Complete "frequency of use" assuming the operations of each resource.
- Define the allowable stand still period by referring to the "frequency of use" and write it down.

< The example of the Company X >

Worksheet No. 4

Resource Serial No.	Resource	Operation	Usage Frequency	Allowable Out-of-Order Period
S1-1	Fixed phone(equipment)	J-(1)	Everyday	Half a day
S1-2	Fixed phone(network)	J-(1)	Everyday	Half a day
S2-1	Fax (network)	J-(1)	Everyday	Half a day
		K-(1)	Everyday	Half a day
S2-2	Fax (equipment)	J-(1)	Everyday	Half a day
		J-(5)	Everyday	Half a day
		K-(1)	Everyday	Half a day
S3	Private Line	J-(1)	Everyday	Half a day
		J-(6)	Every evening	One day
		K-(1)	Every three days	Three days
S4-1	Order control system (application)	J-(2)	Every day	Half a day
		J-(3)	Every day	Half a day
		J-(4)	Every day	Half a day
		J-(5)	Every day	Half a day
		J-(6)	Every day	Half a day
		S-(10)	Every day	Half a day
		N-(1)	Every other day	Two days
		N-(6)	Every other day	Two days
		N-(7)	Every other day	Two days
		N-(11)	Every other day	Two days
S4-2	Order control system (hardware and so on)	J-(2)*	Every day	Half a day

*) Other lists are omitted about S4-2.

Figure 2-4-1 The List of allowable stand still period

Resource Serial No.	Resource	Operation	Usage Frequency	Allowable Out-of-Order Period
S5	Automatic warehouse system	N-(2)	Everyday	Half a day
		N-(3)	Everyday	Half a day
S6	Packing machinery 2	N-(4)	Everyday	Half a day
S7	Warehouse elevator	S-(9)	Everyday	Half a day
		K-(5)	Everyday	Half a day
S8	Company owned truck	S-(7)	Every other day	Two days
		N-(9)	Everyday	Half a Day
S9	Door-to-door delivery	N-(9)	Irregular (Upon request)	One day
S10	Packing machinery 1	S-(5)	Everyday	Half a day
S11	Purchase control system (application)	K-(2)	Everyday	Half a day
		K-(6)	Everyday	Half a day
S12	Delivery from a Co.	K-(3)	Every three days	Three days
S13	Delivery from b Co.	K-(3)	Every ten days	Ten days
S14	Delivery from c Co.	K-(3)	Every one month	One month
S15	Delivery from d Co.	K-(3)	Everyday	Half a day
S16	Production control system (application)	S-(1)	Everyday	Half a day
		S-(6)	Everyday	Half a day
S17	Processing machinery 1	S-(1)	Everyday	Half a day
S18	Processing machinery 2	S-(3)	Everyday	Half a day
S19	Assembly machinery	S-(4)	Everyday	Half a day

Figure 2-4-1 The List of allowable stand still period (Cont.)

【Note】

- Resource Serial No., Resource, Operation: Are the same as in Worksheet No. 3.
- Frequency of use: The frequency of use of the resource taking into full account the type of the operations.
- Allowable stand still period: The stand still period over which operations will be hampered.

2) Investigation of Existing Measures

- It should be checked, whether the management resources, which have been studied in STEP 1, 2, and 3 so far, will be obstructed by the Y2K problems, or not. The existing measures against the problems should be, if they will be affected negatively, surveyed by collecting information.
- There are two reasons, why the existent measures should be checked.
  1) Depending on the current measures, the underlying assumptions for the period of operational stand still caused by the Y2K problems will be changed. Countermeasures against the problems will be changed accordingly, because they are based on the assumptions for the operational stand still period.
  2) With regard to the resources, for which development of measures has been delayed, it may be necessary, besides measures against them, to determine a way to alleviate the effects of the problems.

【Procedure】

- Collect information on the measures against Y2K problems from the provider of services of each resource (Manufacturer, Vendor, Other Companies, and so on.)
- Try to utilize openly accessible information (Mass-media and Internet home page).
- It is timesaving to ask the in-house team, which has already implemented the preventive measures against the Y2K problem, to provide their information.
- Obtain the information on the results of the trial connection test from the aforesaid team preparing measures for the Y2K problem.
- Write down the results of the investigation in Worksheet No. 5.

【Note・Important Point】

- Remove at this stage the resources, which have apparently nothing to do with Y2K related problems, from the list of resources. (The aforesaid team might also have this information)

<The example of Company X>

Worksheet No. 5

Resource Serial No.	Resource	Provider of Service	Results of the Investigation		
			Date **)	Relation *)	Measures
S1-1	Fixed phone	A Phone (network)	m/d	Yes	Trial test. Completion scheduled for 04/99.
S1-2		P Electric (phone)	m/d	No	
S2-1	Fax	A Phone (network)	m/d	Yes	Trial test. scheduled for 04/99.
S2-2		O Electric (fax)	m/d	Yes	Complete in the measures.
S3	Private phone	A Phone	m/d	Yes	Trial test. Scheduled for '99.
S4-1	Order control system	In-house development (application)	m/d	Yes	Trial test. Scheduled for '99.
S4-2		B Electric (hardware and so on)	m/d	Yes	Trial test. Scheduled for '99.
S5	Automatic warehouse system	Q Machinery	m/d	Yes	Trial test. Scheduled for '99.
S6	Packing machinery 2	R Precision Industry	m/d	No	
S7	Warehouse elevator	S Heavy Industry	m/d	Yes	Finished with parts exchange & test in February '99.
S8	Company owned truck	T Motor	m/d	No	
S9	Door-to-door delivery	L Transport	m/d	Yes	Trial test. Scheduled for '99.
S10	Packing machinery 1	R Precision Industry	m/d	No	
S11	Purchase control system	In-house development (application)	m/d	Yes	Trial test. Scheduled for '99.
S12	Delivery from a Co.	a Co.	m/d	Yes	Completed with trial test.
S13	Delivery from b Co.	b Co.	m/d	Yes	Trial test. Scheduled for 04/99.
S14	Delivery from c Co.	c Co.	m/d	Yes	Trial test. Scheduled for '99.
S15	Delivery from d Co.	d Co.	m/d	Yes	Impossible to complete the measure by this year
S16	Production control system	In-house development (application)	m/d	Yes	Trial test. Scheduledfor '99.
S17	Processing machinery 1	U Machine Industry	m/d	No	
S18	Processing machinery 2	U Machine Industry	m/d	Yes	Finished with parts exchange in March '99.
S19	Assembly machinery	V Industry	m/d	No	

*) To Y2K problem.

**) Month/Day.

Figure 2-4-2 The List of Implemented Measures

【Note】

- Resource Serial No., Resource, Provider of Services :
  Are the same as in Worksheet No. 3.
- Date: The date, the measures have been investigated.
- Relation: The relation with Y2K related problems. Yes: The resource has certain relations with the problems. No: The resource has no relation with the problems (The box is slashed).
- Measure: Results of the investigation on how the measures to cope with possible disruptions are being implemented.

3) Scenario Simulation

- It is necessary to establish the probability for disruptions to occur, and it is also necessary to establish the duration needed for recovery in case of breakdown, in order to draft the specific plan for each resource.
- Prepare, based on the measures implemented so far to deal with Y2K related problems, which are confirmed in Section 2, a scenario for each resource (the probability of the occurrence of trouble).

【Procedure】

- Assume and write down in Worksheet No.6 a probability for the occurrence of trouble for each resource, which you confirmed in Section 2, and categorize it into 4 groups, namely very big, big, middle, and small, by referring to the existing measures as well as the target period needed for recovery.
- Assume and write down, based on the obtained information, the period needed for recovery in case of breakdown.

【Note・Important Point】

- The probability of occurrence of trouble is assessed to be high, when progress in the realization of measures (its implementation, trail test, and so on) is slow.
- Also, the probability of trouble is assessed to be high, because of a lack of awareness, that is when the implemented measure is not so much in the domain of public knowledge. On the contrary, any company, which has prepared the contingency plan, explained its progress in implementing measures, and announced the target period for recovery, is considered to have a low probability for being disrupted in operations.
- The period for recovery means the time span needed to replace it with equipment, to which the necessary changes have been made, or with substitute equipment, when the resource is microcomputer equipment.

<The example of Company X>

Worksheet No. 6

Resource Serial No.	Resource	Provider of Service	Results of Investigation	Appraisal	
			Implemented Measures	Occurrence	Day
S1-1	Fixed phone	A Phone (network)	Trial test. Completion scheduled for 04/99.	S	0.5
S2-1	Fax	A Phone (network)	Trial test. Scheduled for 04/99.	S	0.5
S2-2		O Electric (fax)	Measures completed.	S	7
S3	Private phone	A Phone	Trial test. Scheduled for '99.	S	0.5
S4-1	Order control system	In-house development (application)	Trial test. Scheduled for '99.	M	2
S4-2		B Electric (hardware and so on)	Trial test. Scheduled for '99.	S	5
S5	Automatic warehouse system	Q Software	Trial test. Scheduled for '99.	S	2
S7	Warehouse elevator	S Heavy Industry	Finished with parts exchange & test in February '99.	S	3
S9	Door-to-door delivery	L Transport	Trial test. Scheduled for '99.	B	2
S11	Purchase control system	In-house development (application)	Trial test. Scheduled for '99.	M	7
S12	Delivery from a Co.	a Co.	Completed with trial test.	S	3
S13	Delivery from b Co.	b Co.	Trial test. Scheduled for 04/99.	M	5
S14	Delivery from c Co.	c Co.	Trial test. Scheduled for '99.	M	10
S15	Delivery from d Co.	d Co.	Impossible to complete the measure by thi year.	VB	half month
S16	Production control system	In-house development (application)	Trial test. Scheduledfor '99.	M	2
S18	Processing machinery 2	U Machine Industry	Finished with parts exchange in March '99.	S	5

Figure 2-4-3 The List of Problem Occurrence Simulation

【Note】

- Resource Serial No., Resource, Provider of Services, Measure (implemented), Target period:
  They are the same as those in Worksheet No. 5.
- Probability (VB: very big, B: big, M: middle, S: small) :
  The expected chance of the occurrence of problems in reference to "Measure" and the "Target period".
- Day: The expected time span needed for recovery in reference to "Measure" and the "Target period".

【STEP 5】 Define And Specify The Details Of The Countermeasures To Be Adopted Against Occurrence Of The Problem

2-5. Defining and Detailed Specification of the Countermeasures

1) Define the countermeasures

- You should decide on the countermeasures to be adopted, taking into account the scenarios for problem occurrence at each resource (probability and stand still period) identified in Section 3 of STEP 4, as well as the allowable stand still period for every resource identified in Section 1 of STEP 4.

- The selected operations are basically defined as those, which must by no means be interrupted. It is necessary to continue operations by adopting alternative operations.

- Means should be worked out to ease the effect of the problems on the operations, if the resource can not be substituted for.

- If there are more than two measures, then there is a need to decide, which should be adopted, by taking into account the cost and effectiveness of the measures.

【Procedure】

- Decide upon the measures for each resource by taking into account the problem scenarios (probability and stand still period) identified in Section 3 of STEP 4 as well as the allowable stand still period of each resource identified in Section 1 of STEP 4.

- Write down the types and outlines of measures in Worksheet No. 7.

【Note・Important Point】

- Loss of a database in the system will have a tremendous effect on the whole management. It is essential to prepare backup data in advance, in order to ease the effect.

- It is effective to ensure a support system among suppliers in case of emergency, in order to prevent shortage of supply on the occasion of any disruption.

- It may be necessary to provide downgraded or simplified service, because it is somewhat implied by the alternative operations. Such type of operations should be decided upon, taking into account the complexity and the volume of work. (For example, accounting with a fixed rate, making the amount even, and so on).

Worksheet No. 7

<The example of Company X>

Resource Serial No.	Resource	Appraisal		Allowable Stand Still Period	Measure				
					Alternate Measure		Other Measure		
		Occurrence	Day		Implementation	Content	Implementation	Type of Measure	Content
S1-1	Fixed phone (network)	S	0.5	Half a day	Y	Mobile phone	N		
S2-1	FAX (network)	S	0.5	Half a day	Y	Mobile phone	N		
S2-2	FAX (equipment)	S	7	Half a day	Y	Fax of other company	N		
S3	Private phone	S	0.5	Half a day	Y	Through B Co.	N		
S4-1	Order control system (application)	M	2	Half a day	Y	Manual work	Y	Alleviation	Back up (file)
S4-2	Order control system (hardware and so on)	S	3	Half a day	Y	Manual work	N		
S5	Automatic warehouse system	S	2	Half a day	Y	Manual work	N		
S7	Warehouse elevator	S	3	Half a day	Y	Manual work	N		
S9	Door-to-door delivery	B	2	One day	Y	By other delivery Service company	N		
S11	Purchase control system	M	7	Half a day	Y	Manual work	Y	Alleviation	Back up (file)
S12	Delivery from a Co.	S	3	Three days	N		N		
S13	Delivery from b Co.	M	6	Ten days	N		N		
S14	Delivery from c Co.	M	10	One month	N		N		
S15	Delivery from d Co.	VB	half month	Half a day	N		Y	Alleviation	Stock adjustment (expected terms of damage)
S16	Production control system	M	2	Half a day	Y	Manual work	Y	Alleviation	Back up (file)
S18	Electronic processing machinery 2	S	5	Half a day	Y	Manual operation	N		

Figure 2-5-1 The List of Measures

【Note】

- Resource Serial No., Resource, Possibility of Occurrence, and Expectation of Duration: Are the same as in Worksheet No.6
- Allowable Stand Still Period: The same with No.4 (Write the shortest term in the same resource)
- Alternative measure "Implementation": Y: If the alternative measure will be implemented.
  N: If the alternative measure will not be implemented.
  "Content": The specific plan
- Other measure "Implementation": Y: If the alternative measure will be implemented.
  N: If the alternative measure will not be implemented.
- "Type of measure", "Content": The kind of measure and specific plan.

2) Specification of the countermeasures

- Detail the operational working procedures, in order to implement the measures.
- The procedures should be described specifically in an instruction book, since alternative manual work will be done by people, who are unaccustomed to such work.
- In detailing procedures, the necessary resources needed for the alternative plan (equipment, handwritten slips and ledgers, and so on) will become clear.

【Procedure】

- Complete Worksheet No. 8 with the detailed operational working procedures, which have been selected to be implemented with the alternative plan (refer to Section 1 of STEP 5) among all the operations contained in Worksheet No. 2, which you completed in STEP 2.
- At the same time, write down 'the necessary resources' (equipment, material, furniture, list, and so on), which will be required for the work.

【Note・Important Point】

- ・Complete the Worksheet No.8 as well, when it is necessary to detail the procedures (mainly for operational works) of the measures (to minimize the effect of problems) besides alternative operations determined in Section 1 of STEP 5.

<The example of Company X>

Worksheet No. 8

Operation: Receiving orders
Operation Procedure Serial No. : J-(3)
Operational Procedure : Inventory check
Resource : Order control system
Measure : Manual work

Order	Person in Charge	Procedure	Necessary Resource
1	Receiver of order	Check the code, the name, and the amount of the requested goods.	Order slip
2	Receiver of order	Check the stock ledger to see whether there are enough goods in stock.	Stock ledger (Division receiving orders)
3	Receiver of order	Fill customer's name and date of order received into the ledger. Check, if there are the goods in stock.	Stock ledger
4	Receiver of order	Subtract the order amount from the number of remainders in the ledger.	Stock ledger

The worksheet of alternative measures is omitted.

Fifgure 2-5-2 List for Specifying the Countermeasures

【Note】

- Operation : The same as in Worksheet No. 2.
- Operation Procedure Serial No., Operation Procedure: The same as in Worksheet No. 2.
- Resource : The same as in Worksheet No. 2.
- Measure : Taken from Worksheet No. 7, using 'Resource' as a keyword.
- Order : Serial number.
- The Person in Charge : The person, who is in charge of operations.
- Procedure: The detail of operations.
- Necessary resource: All equipment, materials and devices necessary for work.

【STEP 6】 Define The Structure Of And Roles In Headquarters

2-6 Defining Of The Structure Of And Roles In Headquarters

- An Emergency Headquarters is to be established with the view to mobilize the strength of the full company to deal with a problem immediately after it has occurred, and also to permit rapid judgment to be made. For these purposes, it is necessary to establish a thorough system so that all information will be gathered by such Headquarters, immediate management decisions can be sought, and appropriate directions for action given.

- There will be a critical delay in taking action, if time is required for deliberations over whether or not to establish an Emergency Headquarters after a problem occurs. It is important to decide on the criteria for establishing an Emergency Headquarters in advance so that it can become operational quickly.

- Whether or not the Emergency Headquarters is in a position to function effectively depends critically on gathering accurate information rapidly. For this purpose, this Headquarters should be organized so as to permit direct communication, without interference by others, between the on-site people and top management. (If information must pass through mid-level intermediaries, not only will it take too long to reach top management, but there is danger that it will be manipulated.)

【Procedure】

- Decide on the functions, divisions, and responsibilities for the Y2K problem in your company's Emergency Headquarters, and enter them into Worksheet No.9.

- Include an organizational chart, names of responsible people, and names of whom to contact into Worksheet No. 10.

【Note・Important Point】

- It is important to have all of the equipment needed to gather and analyze information in place at the location where the Emergency Headquarters will be located, and to give orders in advance.

- The Emergency Headquarters will be located under normal circumstances inside Company Headquarters, but it must also be taken into account that Company Headquarters functions might be paralyzed. It is necessary to prepare for an alternate Emergency Headquarters location elsewhere, for example at a company branch office, if necessary.

- If a company has widely separated branches, then each branch should have its own Emergency Headquarters, with a General Headquarters within the Company Headquarters.

<Example of Company X>

Worksheet No. 9

Function	Responsible Division	Roles
Director of Emergency Headquarters	Company president	Sets important policies relating, for example, to system restoration.
Emergency Headquarters	Comprising employees, who have important responsibilities in the Emergency Headquarters	Actual working level decisions. Coordination among responsible individuals.
Responsibility for systems	Systems Division	Investigation of the cause of the problem (system). System emergency action. Contact with manufacturers and vendors.
Responsibility for facilities	Materials Division General Affairs Division	Investigation of causes of trouble (individual items of equipment, and so on). Contact with manufacturers and vendors. Obtaining replacement equipment.
Responsibility for customer contact	Sales Division	Contact with and explanations to customers.
Responsibility for supplier contact	Purchasing Division	Contact with suppliers. Securing alternate sources of supply.
Responsibility for public relations	General Affairs Division	Public relations. Contact with mass media.
Responsibility for legal affairs	Legal Division	Legal regulations check Contact with consulting lawyers
Responsibility for operations	Division concerned with the particular operation	Obtaining replacement equipment.
Business office	General Affairs Division	Organizing and managing emergency headquarters. Collection of information.

Figure 2-6-1 Functions and Roles in an Emergency Headquarters

【Notes】

- Functions: The structure of the Emergency Headquarters.
- Responsible Divisions: Divisions (persons) responsible for the functions.
- Roles: Responsible items.

Worksheet No. 10

<Example of Company X>

Organizational Chart of Emergency Headquarters for Dealing With the Y2K Problem

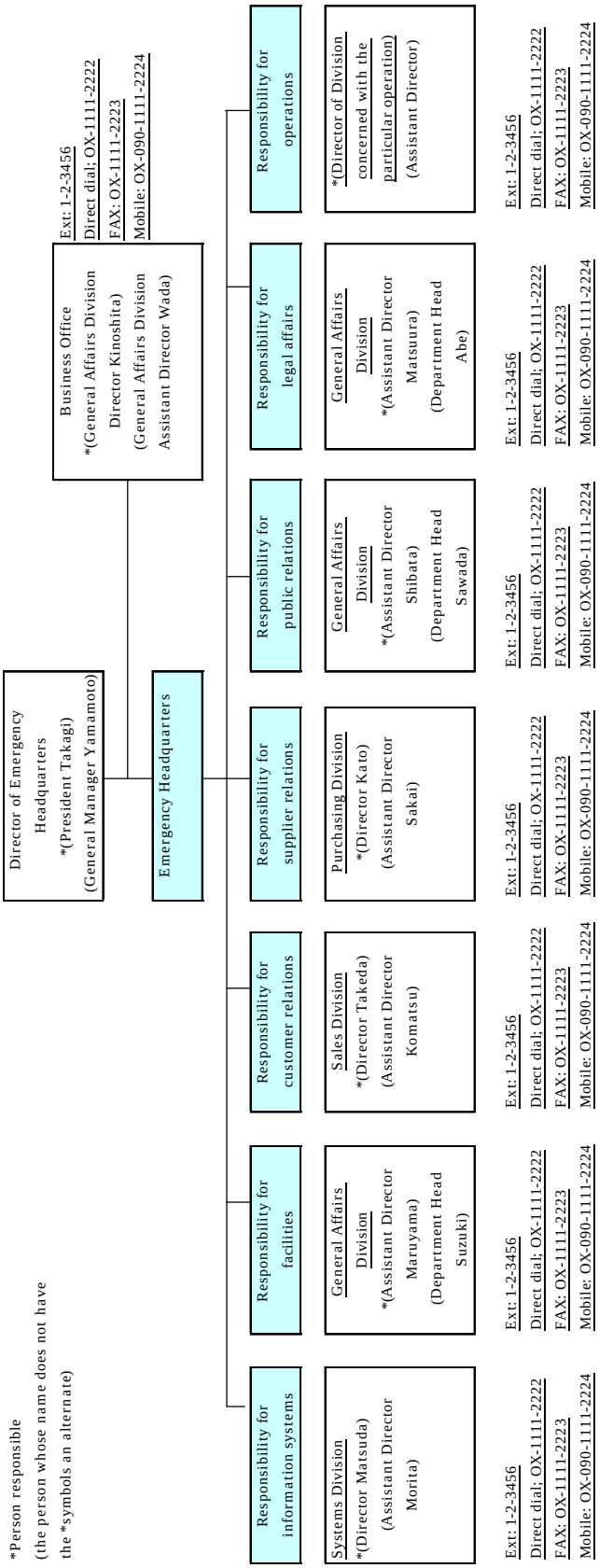


Figure 2-6-2 Organizational Chart of Emergency Headquarters Dealing with the Y2K Problem

【STEP 7】 Prepare An Action Plan Covering The Danger Days

2-7 Drafting Of An Action Plan For "Danger Days"

1) Designating "Danger Days"

- Days, on which serious problems could occur in your company, should be thought of as important management days. The problems could affect not only your own systems and equipment, but also your customers' and even the social infrastructure.

- January 1st, 2000 is not the only a day, on which the Y2K bug can occur. Problems occur only when your chips and software are in operation. It is necessary to take measures to deal with possible problems the first time your systems and equipment operate in 2000.

- The dates given in Figure 2-7-1 below are commonly thought of as days, on which problems can occur. These days, and the days on which systems and equipment will first operate in your company in 2000, should be designated as days, on which problems are likely to occur.

【Procedure】

- Designate, based on reference information and the particular circumstances in your company, "danger days" in Worksheet No. 11, such as the ones given in the figure below.

【Note・Important Point】

- In some cases, "danger days" have already been designated by a team assigned to carry out preventive measures for simulated tests. In such a case, those days should also be designated as "danger days".

Year	Month	Day	Day of Week	Significance	Remarks
1999	12	12	Thursday	The last day of 1999	Control system is necessary as well as 1st January, in case operational management continues the next day.
2000	1	1	Saturday	The first day of 2000	Will systems and equipment operate normally?
		4	Tuesday	The first business day of 2000	Will systems and equipment operate normally?
		8	Saturday	The first Saturday of 2000	Will weekly processing be done normally?
		31	Monday	The first end-of month day of 2000	Will monthly processing be done normally?
	2	29	Tuesday	Leap year	Will the system recognize 2000 as a leap year?
	3	31	Friday	End of Japanese fiscal year (for businesses that end their business year in March)	Will end of fiscal year processing be done normally?

Source: Extracted from the Y2K problem related materials of FFIEC.

Figure 2-7-1 Days on which it is expected commonly that problems are likely to occur

<Example of Company X>

Worksheet No. 11

Year	Month	Day	Day of Week	Working day	Significance as a "danger day"	Resources in which trouble could occur
2000	1	1	Saturday	no	First day of 2000	Business partners in operation
2000	1	4	Tuesday	yes	First business day of 2000	Virtually all resources including ordering system
2000	1	17	Monday	yes	First bill processing day of 2000	Billing system (nighttime batch)
2000	1	31	Monday	yes	First end-of month day of 2000	Accounting system (nighttime batch)
2000	2	29	Tuesday	yes	Leap year	Order system Purchasing system
2000	3	31	Friday	yes	End of fiscal year processing	Accounting system (nighttime batch)
.....	.....	.....	.....	.....	.....	.....

*This is a partial listing.

Figure 2-7-2 List of Days Designated as Danger Days

【Note】

- Company X does its billing once a month in nighttime batch processing. Since its system will start operating for the first time in 2000, Monday, January 17th, has already been designated as a "danger day".

2) Drafting Of An Action Plan For "Danger Days"

- Having a plan of action for the danger days will permit rapid response to the problem, if a problem should occur.
- Decide on and write down the details of your company's actions to be taken on the danger days, which you designated in Section 1 of STEP 7.

【Procedure】

- Prepare Worksheet No. 12 for each of the "danger days" designated in Section 1 of STEP 7.
- For each of the "danger days" and each resource that is affected, decide on, and write down, what items have to be checked, who will be responsible for performing the checks, and when and where the work will be done.
- Decide on, and write down, the criteria for deciding whether a problem exists during the checks, and the channels through which notices of problems are to be circulated.

【Note・Important Point】

- Companies that have overseas branches can use the time difference to detect in part problems of systems and microcomputer equipment early, and take quick action to prevent the whole system from being shut down.
- Checking output on the danger days, such as the operational results (results of system management or products) by sampling will enable you to remove the cause of the problem before its impact affects your customers or business partners, and to respond quickly to the problem, which it has caused, although one can not see it at a glance.
- Whether or not it is necessary for someone to report to work on a "danger day" that is not an official working day, such as New Year's Day, to perform checks will vary from one company to another, depending on the type of industry the way the company operates, the probability of a problem occurring, and management's policy. Decide on whether or not it will be necessary for someone to report for work in your company, considering these factors.

Worksheet No. 12-(1)

<Example of Company X> (January 1st, 2000)

Date: January 1, 2000

Resource Serial No.	Resource name	Work to be performed	Check method	Responsible employee	Work time	Work location
S1-1	Fixed telephone network	Check, whether problem occurred	Mass media	Administration Division. Department Head, Yamada	Morning	Home
S2-1	FAX network	Check, whether problem occurred	Mass media	Administration Division. Department Head, Yamada	Morning	Home
S2-2	FAX equipment	No work on that day				
S3	Exclusive line	Check, whether problem occurred	Internet Home page	Administration Division. Department Head, Yamada	Morning	Home
S4-1	Order receiving supervision system (application)	No work on that day				
S4-2	Order receiving supervision system (hardware and so on)	No work on that day				
S6	Automated warehouse system	No work on that day				
S7	Warehouse elevator	No work on that day				
S9	Delivery service	Check, whether problem occurred	Telephone call to home if problem occurres	Administration Division. Department Head, Yamada	All day	Home
S11	Purchasing supervision system	Check, whether problem occurred				
S12	Products to be shipped from Company a	Check, whether problem occurred				
S13	Products to be shipped from Company b	Check, whether problem occurred				
S14	Products to be shipped from Company c	Check, whether problem occurred				
S15	Products to be shipped from Company d	Check, whether problem occurred	Telephone call to home if problem occurres	Administration Division. Department Head, Yamada	All day	Home
S16	Production supervision system	Check, whether problem occurred				
S18	Processing machinery 2	Check, whether problem occurred				

Figure 2-7-3 Action Plan for Danger Days

【Notes】

•Resource ID number and Resource name:
These are to be copied from Worksheet No. 6.

•Work to be performed:
Whether or not there will be work that day, and if so, the nature of the work is to be entered.

•Check method: Enter the method by which the check is to be performed.

•Employee responsible for check, Work time and Work place:
Enter the name of the person responsible for doing the work, when it is to be done and where it is to be done.

•Criterion for assessing that a problem has occurred:
Enter the specific criterion for assessing that a problem has occurred.

•Route for circulating notice of problem:
Enter the channel by which notice is to be circulated, if a problem should be rediscovered.

Worksheet No. 12-(2)

<Example of Company X>(January 4th, 2000)

Date: January 4th, 2000

Resource Serial No.	Resource name	Work to be performed	Checking method	Responsible employee	Work time	Work location
S1-1	Fixed telephone network	Check, whether operation is normal	Mass media	Administration Division. Department Head, Yamada	5:00	Company headquarters
S2-1	FAX network	Check, whether operation is normal	Mass media	Yamada	5:00	Company headquarters
S2-2	FAX equipment	Check, whether operation is normal	Check operations of equipment	Yamada	7:00	Company headquarters
S3	Exclusive line	Check, whether operation is normal	Internet home page	Yamada	5:00	Company headquarters
S4-1	Order receiving supervision system (application)	Check system start up and system operations	Check operations of equipment	System Division, Department Head, Sato	7:00	Company headquarters
S4-2	Order receiving supervision system (hardware and so on)	Check system start up and system operations	Check operations of equipment	System Division, Department Head, Sato	7:00	Company headquarters
S5	Automated warehouse system	Check, whether operation is normal	Check operations of equipment	Distribution Department Head, Hayashi	7:00	Distribution Center
S7	Warehouse elevator	Check, whether operation is normal	Check operations of equipment	Hayashi	7:00	Distribution Center
S9	Delivery service	Check, whether work is proceeding normally	Telephone	Hayashi	7:00	Distribution Center
S11	Purchasing supervision system	Check system start up and system operations	Check operations of equipment	Sato	7:00	Company headquarters
S12	Products to be shipped from Company a	No work on that day	Telephone	Purchasing Department Head, Tanaka	7:00	Company headquarters
S13	Products to be shipped from Company b	No work on that day	Telephone	Tanaka	7:00	Company headquarters
S14	Products to be shipped from Company c	No work on that day	Telephone	Tanaka	7:00	Company headquarters
S15	Products to be shipped from Company d	No work on that day	Telephone	Tanaka	7:00	Company headquarters
S16	Production supervision system	No work on that day	Check operations of equipment	Sato	7:00	Company headquarters
S18	Processing machinery 2	No work on that day	Check operations of equipment	Factory Department Head, Nakata	7:00	Factory

*) Details for other "danger days" are omitted here.

Figure 2-7-4 Plan for Action on Danger Days

【STEP 8】 Prepare An Action Plan Addressing The Problems' Occurrence

2-8 Plan Of Action If A Problem Should Occur

- If a problem should occur, having a plan of action that clearly defines each person's responsibilities will permit rapid response and minimize losses due to ripple effects caused by the problem.
- There will be in the action plan some actions that will change depending on the timing with which they are taken. Consider the actions to be taken at each of the important transition times: [initial action], [allowable time limit of system stoppage], [time of restoration from the trouble], and [between initial action and allowable time limit of system stoppage]. It is important to decide in advance on the timing of the various actions.

【Procedure】

- Prepare Worksheet No. 13 for each of the resources designated in Worksheet No. 6.
- The actions, which each responsible employee is to take at each of the points in time [initial action], [allowable time limit of system stoppage], [time of restoration from the trouble], and [between initial action and allowable time limit of system stoppage] should be decided upon and written down.
- The "allowable time limit of system stoppage" is the time entered in Worksheet No. 4. It is expected that there will be many cases, in which it is essential to take action before this time.

【Note・Important Point】

- A separate sheet shall be prepared for each person detailing his/her specific responsibilities, if a more specific action plan is necessary.

Worksheet No. 13

<Example of Company X>

Name of resource in which problem occurred: Order receiving supervision system
Allowable time limit of system stoppage: half day

Responsibility	Division	Responsible employee	Specific action plan			
			Initial action	Between initial action and a allowable time limit of system operation	Allowable time limit of system stoppage	Time of system restoration
Responsibility for operations	Sales Division	Head of XX Department	Investigate extent of effect on the operations. Start to look into possibility of switching to an alternate method of doing the work.	Determine timing of switching to an alternate method. Set up of resources necessary for alternate method.	Switch to alternate method.	Switch to system input.
Responsibility for system	System Division	Head of XX Department	Start to look into the cause of the trouble. Seek help from external vendors and technicians.	System repair work. Testing of repaired system. Notification of anticipated system restoration.		Restarting of system. Check,whether operation is normal. Support of input of data not yet input.
Responsibility for contact with customers	Sales Division	Head of XX Department	Responses to inquiries from customers. Notification to customers.		Notification of switching to alternate method.	Notification of return to normal method.
Responsibility for public relations	General Affairs Division	Head of XX Department	Information gathering. Preparation of statements for restoration of normal system operations.		Announcements outside the company. Announcement of prospects for restoration of normal system operation. Announcement of what work is continuing.	Announcement of system restoration.

*Action plans regarding other resources are omitted here.

Figure 2-8-1 Plan for Action When a Problem Occurs

【Notes】

- Responsibility, Responsible Division and Responsible employee:
  Enter these into the worksheet.
- Initial action, Time between initial action and allowable time limit of system stoppage, Allowable time limit of system stoppage and System restoration time:
  Enter the action plan for each point in time from immediately after the problem occurs until the system is restored.

【STEP 9】 List The Emergency Contacts Within The Company

2-9 Organizing In-house Contacts

1) Prepare A System For In-house Contacts

- It is necessary to prepare a list of contact information for key company employees, including Emergency Headquarters' members, and employees, who would be involved in restoring the system to normal and switching to alternate interim means of doing the work.
- It is also important to determine the schedules on the designated "danger days" of these key employees.

【Procedure】

- Using Worksheet No. 14, list the contact information for key company employees, who would be involved in crisis management.
- Contact information should include secondary contact information, such as mobile telephone numbers.
- This worksheet should also be used to supervise schedules on designated "danger days".

【Note・Important Point】

- The list must include top management officials (or alternates), who have the necessary authority to make in an emergency decisions quickly.

<Example of Company X>

Worksheet No. 14

Responsibility		Name	Primary contact	Secondary contact	Whereabouts on designated "danger day"	
					1996/1/3	
General Category	Detailed				Time	Place
Systems	Responsible for system operations	Division Director, Matsuda	03-1111-2222	090-33334444	7:00-22:00	Emergency Headquarters
Systems	Responsible for system restorations	Group Leader, Miyata	03-1111-2222	090-33334444	7:00-22:00	Computer Room

*) Examples relating to days other than the designated "danger date" are omitted here.

Figure 2-9-1 List of Employees With Emergency Responsibilities

【Notes】

- General category: Enter the responsibility at Emergency Headquarters' level.
- Detailed: Enter the responsibility on a detailed level.
- Name: Enter the name of the responsible person.
- Primary contact: Enter the person's primary contact information, such as home telephone number or mobile telephone number.
- Time and place of whereabouts on the designated "danger date": Enter the person's schedule (whereabouts) on each designated "danger date".

2) List Contact Information For Service Providers.

- If an emergency occurs, it will become necessary to quickly contact service providers for each resource (manufacturer, vendor, external service provider, and so on) for help in determining the cause of the trouble, information on the prospects for system restoration and starting the restoration work.
- For this reason, it is necessary to prepare for each resource a list of contact information on the service providers.

【Procedure】

- Enter the contact information on the service providers into Worksheet No. 14, which were obtained in the survey of service providers carried out in Section 2 of STEP 4.

【Note・Important Point】

- If a problem actually occurs, service providers should be contacted from the Emergency Headquarters, NOT from the work site. (This procedure permits all of the relevant information to be coordinated at Emergency Headquarters.)
- If a problem occurs in a resource, which is used by many industries, such as the social infrastructure, there is danger that the public contact office of the industry concerned will be deluged with inquiries to the point that normal telephone contact will be obstructed. For this reason it is necessary to designate a single person to be responsible for contacting that service provider and, if the line is busy, to wait for a while before attempting to contact them again.

<Example of Company X>

Worksheet No. 15

List of contact information on service providers

Resource Serial No.	Resource name	Name of service provider	Responsible Division	Responsible individual	Contact information
S1-1	Telephone	Telephone company A (network)	XX Division	Mr. XX	XXX-555-6667
S2-1	FAX	Telephone company A (network)	XX Division	Mr. XX	XXX-555-6668
S2-2		O Electronics (Fax Equipment)	XX Division	Mr. XX	XXX-555-6669
S3	Exclusive line	Telephone company A	XX Division	Mr. XX	XXX-555-6670
S4-1	Order receiving supervision system	Developed in-house (application)	XX Division	Mr. XX	XXX-555-6671
S4-2		B Electronics (hardware and so on)	XX Division	Mr. XX	XXX-555-6670
S5	Automated warehouse system	Q Software	XX Division	Mr. XX	XXX-555-6672
S7	Warehouse elevator	S Heavy Industries	XX Division	Mr. XX	XXX-555-6673
S9	Delivery service	L transport	XX Division	Mr. XX	XXX-555-6674
S11	Purchasing supervision system	Developed in-house (application)	XX Division	Mr. XX	XXX-555-6676
S12	Products shipped from Company a	Company a	XX Division	Mr. XX	XXX-555-6677
S13	Products shipped from Company b	Company b	XX Division	Mr. XX	XXX-555-6678
S14	Products shipped from Company c	Company c	XX Division	Mr. XX	XXX-555-6679
S15	Products shipped from Company d	Company d	XX Division	Mr. XX	XXX-555-6680
S16	Production supervision system	Developed in-house (application)	XX Division	Mr. XX	XXX-555-6680
S18	Processing machinery 2	U Machinery	XX Division	Mr. XX	XXX-555-6680

Figure 2-9-2 List of Contact Information for Service Providers

【Notes】

- Resource Serial No., Resource name and Name of service provider:
  Enter these from Worksheet No. 6.
- Responsible Division and Name of responsible individual:
  Enter the names of the responsible Division and the responsible individual.
- Contact information: Enter the contact telephone number.

【STEP 10】 Prepare A Preparatory Plan Covering The Resources Necessary For Implementing The Countermeasures

2-10 Plan For Resources To Deal With The Emergency

- Organize the equipment, supplies, records, and so on the detailed emergency plan sheet which was prepared in Section 2 of STEP 5, and prepare a plan.
- In some cases, the plan for dealing with an emergency will involve not only a plan for switching to alternate means of doing the work, but also a plan for reduced operations that require advance preparation (Section 1 of STEP 5). Such plans should also be included in the list.
- Depending on the kind of preparation involved, it might sometimes be necessary to place orders with suppliers and wait up to several months for delivery. It is important to make such preparations well in advance so that there will be no difficulty in meeting any deadline.
- It is necessary to begin preparations well in advance to allow time for training, including dry runs.

【Procedure】

- Copy the "Necessary resources" section of Worksheet No.8 that was prepared in Section 2 of STEP 5, into Worksheet No. 16.
- Copy the "Operations reduction plan" section of Worksheet No. 7 that was prepared in Section 1 of STEP 5 into Worksheet No. 16.
- Designate a time limit for preparations and the responsible Divisions and individuals.
- Use the "Progress" column in Worksheet No. 16 to monitor the progress of preparations.

【Note・Important Point】

- If the system data base is to be used as a source record and printed out, portions of the data base that are updated every day could become meaningless as time passes after the data are printed out. An example is the inventory supervision records. It is necessary to obtain the latest versions immediately before the designated "danger days" (for example after work is finished on the immediately preceding work day).

Worksheet No. 16

<Example of Company X>

Preparatory operation ID number	Purpose	Name of resource to be prepared or preparatory work	Procedural step number	Preparation method	Responsibility for work and time limit			Progress
					Time limit	Responsible Division	Responsible individual	
1	Substitution	Record of orders received	J-1	Prepare with word processor	August 30	Sales Division	Department Head Ito	In preparation
2	Substitution	Customer records	J-2	Print out from system	Designated 30-Dec	Systems' Division	Department Head Nomura	Not yet done
3	Substitution	Inventory records	J-3	Print out from system	Designated 30-Dec	Systems' Division	Department Head Nomura	Not yet done
4	Substitution	Order supervision records (for inquiries)	J-2	Print out from system	Designated 30-Dec	Systems' Division	Department Head Nomura	Not yet done
5	Substitution	Order supervision records (for new recording)	J-4	Prepare with word processor	29-Aug	Sales Division	Department Head Ito	Completed (August 15)
6	Substitution	Mobile telephone	J-1	Contract with provider	29-Aug	General Affairs Division	Department Head Yamada	Not yet done
.....	.....	.....	.....	.....	.....	.....	.....	.....
A	Work reduction	Stock up on supplies from supplier d		Place orders with Company d	29-Nov	Purchasing Division	Department Head Tanaka	Not yet done
.....	.....	.....	.....	.....	.....	.....	.....	.....

*) This is a partial listing.

Figure 2-10-1 List of Resource Preparation Plan

【Notes】

- Preparation ID number: Numbers are assigned for administrative purposes. In this example, a different series of identification numbers is assigned to operations to be performed for work reduction.
- Purpose: Whether a particular operation is for switching to an alternate means of working or for work reduction is entered, in order to make it easier to distinguish among the purposes of the operation.
- Procedural step number: Enter the procedural step number of every step that will use resources.
- Remarks: Enter the necessary quantities, and so on. If additional details are needed, they might best be entered on a separate appended sheet.

【GOAL】
Document The Plan

2-11 Document The Plan

- Prepare a "contingency plan" that incorporates all of the details prepared thus far as a completed document.
- After the plan that was prepared has received the approval of management, distribute it to the relevant Divisions and company employees.
- Double check to make sure that everybody who needs to have a copy of the plan, receives one.
- It is also necessary to consider producing crisis management manuals that contain only those items from the danger management plan that will be needed to permit employees at their work stations to respond effectively in case of a crisis. ・There should be one for supervisors that includes the crisis response policies, responsibilities of supervisors and specific actions, which they will be required to take; and another for ordinary employees that contains basic precautions and simplified descriptions of the roles that each employee must play.

【Procedure】

- Organize the contents of the worksheets prepared in accordance with this guideline, referring to Chapter 4 (Example of A Contingency Plan), into a formally written Contingency Plan.
- It is also possible to prepare from the basic Contingency Plan detailed plans, for example for alternate work procedures, as separate documents.

3. Steps To Be Taken After Having Drafted The Contingency Plan

Approve And Budget The Plan

3-1 Approval And Budgeting Of The Plan

- Once the plan has been formulated, it must be approved by the CEO and then announced within the company in the name of the CEO. Announcing it in the CEO's name will put all employees on notice that the plan is official and that it must be implemented. It also serves to inform employees that the company is determined to deal effectively with the Y2K bug problem and make it into the 21st century.

- A budget must be provided for, at the same time, for preparatory measures, employee training and awareness activities. It is important that this matter be approved by the CEO as a special budget. If budgeting is left to the Divisions, there is a danger that preparations will be incomplete.

Implement Advance Preparations Prior To Countermeasures

3-2 Implementation Of Advance Preparations

- Implement the prior preparations planned in STEP 10 (Plan For Resources To Deal With The Emergency).
- Check the progress of the preparations periodically to make sure that all of the preparations will be completed in time.

Review And Revise The Plan

3-3 Review And Revision Of The Plan

- It is necessary to review the Contingency Plan that has been prepared within appropriate time intervals.
- Information regarding the readiness of systems and microcomputer equipment, and the situation regarding customers and the social infrastructure, as well as information concerning the probability of a problem occurring, will be announced from time to time, as the year 2000 approaches. It is possible that it will become necessary to strengthen elements of the plan; conversely, it might become possible to relax elements of the plan.
- It is important to review and revise your contingency plan into an upgraded version that focuses on the most serious risks, as updated information becomes available.
- Aside from substantive developments regarding the Y2K bug problem and preparations, it is possible that, for example, reassignments of employees might make it necessary to change the names of responsible individuals in the plan. It is necessary to update the plan based on the latest information, and make sure that the updated information is distributed to all employees.

Educate And Train

3-4 Implementation Of Education And Training

- It is necessary that the plan be executed effectively in case an emergency occurs. An armchair theory is meaningless. It is important to train employees for the realization of the plan.
- Training makes all employees aware of their roles and responsibilities.
- Training also exposes inadequacies in the Contingency Plan, making it possible to revise the plan as it becomes necessary.
- Training is an activity that makes all employees aware of their roles as well as the purpose of the Contingency Plan, using the Contingency Plan and the Crisis Management Manuals based on it. Hold explanatory meetings and implement exercises using electronic media to accomplish these purposes.
- Training can be divided into desktop training and practical training. Desktop training involves members of the Emergency Headquarters, who assemble and simulate their responses to an actual emergency. The advantages of doing this are that it does not take much time, and it is possible to simulate a variety of scenarios. Practical training tests the ability of the individuals, who will have to respond to the crisis to do their respective jobs, using actual equipment. In particular, if the plan calls for some jobs that are normally computerized to be done manually on an emergency basis, it is likely that the people, who have to do the work, will not be accustomed to doing it manually, and that they will need practice.

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4. Sample Of A Contingency Plan

4. Sample Of A Contingency Plan

- An example of a Contingency Plan of the hypothetical Company X, which is based on this guidelines, is presented below. This example is for reference only. The actual content and format must be matched to the circumstances of your company.

Contingency Plan for the Y2K Problem

Month Day, 1999

Company X; K.K.

<Contents>

1. Purpose of the Contingency Plan
2. Operations that are affected by the Plan
3. Resources that are affected by the Plan
4. Anticipation of problems that might occur
5. Policy toward dealing with the problems
6. Designation of "danger days"
7. Establishment of the system and role of an Emergency Headquarters
8. Action plan for the designated "danger days"
9. Action plan for when a problem occurs
10. Plan for prior preparations
11. Employee training
12. Revision of the plan

Annex)

Annex 1: List of affected work operations

Annex 2: Detailed plans to be carried out when a problem occurs

Annex 3: List of emergency contact telephone numbers within the company

Annex 4: List of telephone numbers of service providers

1. Purpose of the Contingency Plan

This plan aims at keeping the core operations of this company going in case the computer Y2K bug problem connected with the year 2000 occurs, and it aims at minimizing the damage to this company by restoring to normal affected operations.

2. Affected operations

This plan aims mainly at the following core operations of this company.

1) Order receiving

2) Purchasing

3) Production, and

4) Shipping and delivery.

3. Resources that are affected

The plan concerns the management resources listed below, which are essential for carrying out the core operations listed above, which are vulnerable to being affectedby the Y2K bug problem. It includes both, in-house resources and external resources (other companies, with which we do business, and the social infrastructure).

The List of Resources

Resource Serial No.	Resource	Location	Provider of Services	Operations
S1-1	Fixed telephone	Outside	A Phone (network)	J-(1)
S1-2		In-house	P Electric (telephone)	J-(1)
S2-1	Fax	Outside	A Phone (network)	J-(1)(5); K-(1)
S2-2		In-house	O Electronic (fax)	J-(1); K-(1)
S3	Private line	Outside	A Phone	J-(1) (6); K-(1)
S4-1	Order control system	In-house	In-house development (application)	J-(2)(3)(4)(5)(6); S-(10); N-(1)(6)(7)(11)
S4-2		In-house	B Electronic (hardware and so on)	J-(2)(3)(4)(5)(6); S-(1)(6)(10),N-(1)(2)(6)(7)(11)
S5	Automatic warehouse system	In-house	Q Machinery	N-(2) (3)
S6	Packing machinery 2	In-house	R Precision industry	N-(4)
S7	Warehouse elevator	In-house	S Heavy industry	S-(9); K-(5)

(The remainder of the list is omitted here.)

4. Anticipation of problems that might occur

The problems that can be anticipated in the resources, which are addressed in this plan, as well as the time span over which they would stop functioning, if a problem occurs, are listed below.

List of Problem Occurrence Simulation

Resource Serial No.	Resource	Provider of Service	Results of Investigation	Appraisal	
			Implemented Measures	Occurrence	Day
S1-1	Fixed phone	A Phone (network)	Trial test. Completion scheduled for 04/99.	S	0.5
S2-1	Fax	A Phone (network)	Trial test. Scheduled for 04/99.	S	0.5
S2-2		O Electric (fax)	Measures completed.	S	7
S3	Private phone	A Phone	Trial test. Scheduled for '99.	S	0.5
S4-1	Order control system	In-house development (application)	Trial test. Scheduled for '99.	M	2
S4-2		B Electric (hardware and so on)	Trial test. Scheduled for '99.	S	5

(The remainder of the list is omitted here.)

5. Policy regarding actions to be taken, if a problem occurs

The actions that are to be taken in case a problem occurs in any of the resourcescovered by this plan are described below. These actions include not only theactions to be taken after the occurrence of a problem, but also the actions to betaken in advance, in order to minimize the impact of a problem, if one should occur.The preventive actions, which were taken in advance, in order to prevent problemsfrom occurring in the first place, have been omitted here, because they are covered in the separate "Plan to deal with the Y2K bug problem".

1) Basic policy

The resources that are affected by this plan are essential to the conduct of business.It is necessary, in principle, to prepare a plan for continuing the conduct of businessby alternate means, if necessary. It is necessary for the case of all those resources, in which the probability of a problem occurring is considered very high, to take specific action with a view to reduce the impact, and it is as well necessary to prepare a plan for continuing the conduct of business by alternate means.

2) Policies regarding actions to be taken for each affected resource

The following actions shall be taken for each affected resource.

List of Measures

Resource Serial No.	Resource	Appraisal		Allowable Stand Still Period	Measure				
					Alternate Measure		Other Measure		
		Occurrence	Day		Implementation	Content	Implementation	Type of Measure	Content
S1-1	Fixed phone (network)	S	0.5	Half a day	Y	Mobile phone	N		
S2-1	FAX (network)	S	0.5	Half a day	Y	Mobile phone	N		
S2-2	FAX (equipment)	S	7	Half a day	Y	Fax of other company	N		
S3	Private phone	S	0.5	Half a day	Y	Through B Co.	N		

(The remainder of the list is omitted here.)

6. Designation Of "Danger Days"

In contrast to ordinary disasters, it is possible to anticipate the days, on which theY2K bug problem is likely to occur. This hypothetical company has designated the following "danger days", on which there is a relatively high probability of problemsoccurring, and it is conducting checks and making preparations with emphasis onthese dates.

List of days designated as "danger days"

Year	Month	Day	Day of Week	Working day	Significance as a "danger day"	Resources in which trouble could occur
2000	1	1	Saturday	no	First day of 2000	Business partners in operation
2000	1	4	Tuesday	yes	First business day of 2000	Virtually all resources including ordering system
2000	1	17	Monday	yes	First bill processing day of 2000	Billing system (nighttime batch)
2000	1	31	Monday	yes	First end-of month day of 2000	Accounting system (nighttime batch)

(The remainder of the list is omitted here.)

7. Establishment And Role Of The Emergency Headquarters

An Emergency Headquarters is to be established so that, when a problem occurs, the whole company can be mobilized and swift judgment exercised.

1) Location at which Emergency Headquarters is to be established

The Emergency Headquarters shall be established in the conference room next to the President's office on the 3rd floor of the Company Headquarters building. If it is impossible for the Emergency Headquarters located there to function, then the Factory Director's office on the 1st floor of the factory shall be used as an alternate location.

2) Criteria for establishing the Emergency Headquarters

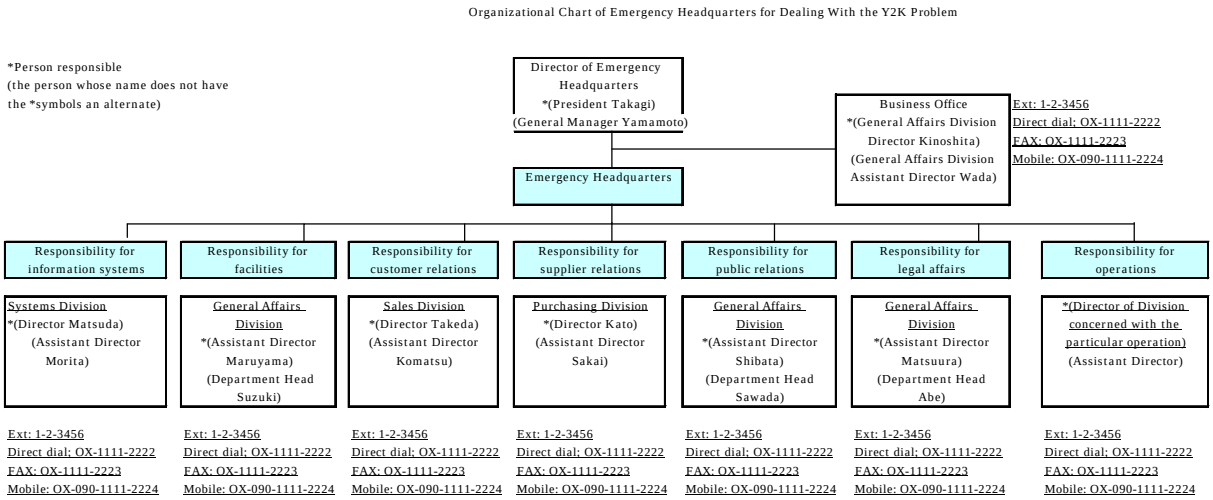
The Emergency Headquarters shall be established in the following cases.

(1) From the start to the end of business on all designated "danger dates".

(2) If a problem occurs in any of the resources covered by this plan.

3) Organization of the Emergency Headquarters

The Emergency Headquarters shall be organized as illustrated in the following Figure.



4) Functions of And Roles within Emergency Headquarters

The functions and roles of each member of the Emergency Headquarters are as indicated in the following Figure.

Functions of and roles in an Emergency Headquarters

Function	Responsible Division	Roles
Director of Emergency Headquarters	Company president	Sets important policies relating, for example, to system restoration.
Emergency Headquarters	Comprising employees, who have important responsibilities in the Emergency Headquarters	Actual working level decisions. Coordination among responsible individuals.
Responsibility for systems	Systems Division	Investigation of the cause of the problem (system). System emergency action. Contact with manufacturers and vendors.
Responsibility for facilities	Materials Division General Affairs Division	Investigation of causes of trouble (individual items of equipment, and so on). Contact with manufacturers and vendors. Obtaining replacement equipment.
Responsibility for customer contact	Sales Division	Contact with and explanations to customers.
Responsibility for supplier contact	Purchasing Division	Contact with suppliers. Securing alternate sources of supply.

(The remainder of the list is omitted here.)

8. Action Plan For The Designated "Danger Dates"

Checks related to the designated "danger dates", on which there is a high probability of a problem occurring, should be performed according to the following schedule.

1) January 1st, 2000

Action Plan for Designated "Danger Dates" (1)

Date: January 1, 2000

Resource Serial No.	Resource name	Work to be performed	Check method	Responsible employee	Work time	Work location
S1-1	Fixed telephone network	Check, whether problem occurred	Mass media	Administration Division. Department Head, Yamada	Morning	Home
S2-1	FAX network	Check, whether problem occurred	Mass media	Administration Division. Department Head, Yamada	Morning	Home
S2-2	FAX equipment	No work on that day				
S3	Exclusive line	Check, whether problem occurred	Internet Home page	Administration Division. Department Head, Yamada	Morning	Home
S4-1	Order receiving supervision system (application)	No work on that day				
S4-2	Order receiving supervision system (hardware and so on)	No work on that day				
S6	Automated warehouse system	No work on that day				

(The remainder of the list is omitted here.)

2) January 4th, 2000

Action Plan for Designated "Danger Dates" (2)

Date: January 4th, 2000

Resource Serial No.	Resource name	Work to be performed	Checking method	Responsible employee	Work time	Work location	Criterion for judging that a problem exists
S1-1	Fixed telephone network	Check, whether operation is normal	Mass media	Administration Division. Department Head, Yamada	5:00	Company headquarters	Network stoppage in area, where office is located
S2-1	FAX network	Check, whether operation is normal	Mass media	Yamada	5:00	Company headquarters	Network stoppage in area, where office is located
S2-2	FAX equipment	Check, whether operation is normal	Check operations of equipment	Yamada	7:00	Company headquarters	Impossible to send or receive
S3	Exclusive line	Check, whether operation is normal	Internet home page	Yamada	5:00	Company headquarters	Network stoppage in area, where office is located
S4-1	Order receiving supervision system (application)	Check system start up and system operations	Check operations of equipment	System Division, Department Head, Sato	7:00	Company headquarters	Erroneous system operation or stoppage
S4-2	Order receiving supervision system (hardware and so on)	Check system start up and system operations	Check operations of equipment	System Division, Department Head, Sato	7:00	Company headquarters	Erroneous system operation or stoppage
S5	Automated warehouse system	Check, whether operation is normal	Check operations of equipment	Distribution Department Head, Hayashi	7:00	Distribution Center	Erroneous system operation or stoppage

(The remainder of the list is omitted here.)

3) The remaining items in this document have been omitted here.

9. Plan For Action When A Problem Occurs

If a problem occurs in any of the resources covered by this plan, the responsible individuals shall deal with it according to the following procedure.

1) Resource Serial Number S4 (Order receiving supervision system)

Plan for Action when a Problem Occurs

Name of resource in which problem occurred: Order receiving supervision system
Allowable time limit of system stoppage: half day

Responsibility	Division	Responsible employee	Specific action plan			
			Initial action	Between initial action and allowable time limit of system operation	Allowable time limit of system stoppage	Time of system restoration
Responsibility for operations	Sales Division	Head of XX Department	Investigate extent of effect on the operations. Start to look into possibility of switching to an alternate method of doing the work	Determine timing of switching to an alternate method. Set up of resources necessary for alternate method.	Switch to alternate method.	Switch to system input.
Responsibility for system	System Division	Head of XX Department	Start to look into the cause of the trouble Seek help from external vendors and technicians.	System repair work. Testing of repaired system. Notification of anticipated system restoration.		Restarting of system. Check,whether operation is normal. Support of input of data not yet input.
Responsibility for contact with customers	Sales Division	Head of XX Department	Responses to inquiries from customers. Notification to customers.		Notification of switching to alternate method.	Notification of return to normal method
Responsibility for public relations	General Affairs Division	Head of XX Department	Information gathering. Preparation of statements for restoration of normal system operations.		Announcements outside the company. Announcement of prospects for restoration of normal system operation. Announcement of what work is continuing.	Announcement of system restoration.

2) Additional items in this listing are omitted here.

10. Plan For Advance Preparations

The operations listed below shall be carried out, in order to prepare the resources, for which there is a need to respond to problems as set forth in this plan.

List of Plans for Preparation of Resources

Preparatory operation ID number	Purpose	Name of resource to be prepared or preparatory work	Procedural step number	Preparation method	Responsibility for work and time limit			Progress	Remarks (quantities etc)
					Time limit	Responsible Division	Responsible individual		
1	Substitution	Record of orders received	J-1	Prepare with word processor	August 30	Sales Division	Department Head Ito	In preparation	XX orders
2	Substitution	Customer records	J-2	Print out from system	Designated 30-Dec	Systems' Division	Department Head Nomura	Not yet done	XX records
3	Substitution	Inventory records	J-3	Print out from system	Designated 30-Dec	Systems' Division	Department Head Nomura	Not yet done	XX records
4	Substitution	Order supervision records (for inquiries)	J-2	Print out from system	Designated 30-Dec	Systems' Division	Department Head Nomura	Not yet done	XX records
5	Substitution	Order supervision records (for new recording)	J-4	Prepare with word processor	29-Aug	Sales Division	Department Head Ito	Completed (August 15)	XX records
6	Substitution	Mobile telephone	J-1	Contract with provider	29-Aug	General Affairs Division	Department Head Yamada	Not yet done	XX records
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
A	Work reduction	Stock up on supplies from supplier d		Place orders with Company d	29-Nov	Purchasing Division	Department Head Tanaka	Not yet done	XX days supply
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

11. Employee Training

1) Employee Awareness Education

Based on this plan, a "Y2K Bug Danger Response Manual" with regular employees as the target group should be prepared and distributed, in order to deepen understanding of the Contingency Plan. In addition, regular employees must be made thoroughly aware of the necessary precautions.

2) Employee Training

Training based on this plan shall be conducted according to the following schedule.

(1) Emergency Headquarters simulation drill

Date: Month X Day X

Participants: Emergency Headquarters members Detailed plan: A desktop simulation drill shall be implemented, which envisions the occurrence of an actual problem.

(2) Alternate means of operation drill

Date: Month X Day X to Month Y Day Y

Participants: Divisions involved in implementing the alternate means of operations

Detailed plan: The procedure shall be tested that would be used to switch to alternate means of operations, should a problem occur, as well as the actual use of the alternate means of operations.

12. Revision Of This Plan

This plan shall be reviewed in Month X taking into full account the progress that hasbeen achieved in taking the necessary measures with regard to each resource and the probability of each type of problem occurring, and the response plan shall be strengthened or relaxed as indicated.

<Annex >

Annex 1: List of affected operational procedures

1) Order receiving operation

List of Operational Procedures

Operation : Receiving orders

Procedure Serial No.	Operational Procedure	Resource	Resource Serial No.	Notes
J-(1)	Receiving order from customers	Fixed telephone	S1	Customers, e Co., f Co.
		Fax	S2	g Co.
		Private line	S3	h Co.
J-(2)	Check the limit of order	Order control system	S4	
J-(3)	Inventory check	Order control system	S4	
J-(4)	Registration of orders	Order control system	S4	
J-(5)	Sending order confir-mation (automatic fax send back system)	Order control system system	S4	
		Fax	S2	Our company to each customer
J-(6)	Shipment instructions	Order control system system	S4	
		Private line	S3	Head Office to physical distribution center

(The remainder of the list is omitted here.)

2) Purchasing operations

Items on this list are omitted here.

Annex 2: Procedures for responding to problems

1) Order receiving and ordering systems (inventory checking)

List for Specifying the Countermeasures

Operation: Receiving orders
Operation Procedure Serial No. : J-(3)
Operational Procedure : Inventory check
Resource : Order control system
Measure : Manual work

Order	Person in Charge	Procedure	Necessary Resource
1	Receiver of order	Check the code, the name, and the amount of the requested goods.	Order slip
2	Receiver of order	Check the stock ledger to see whether there are enough goods in stock.	Stock ledger (Division receiving orders)
3	Receiver of order	Fill customer's name and date of order received into the ledger. Check, if there are the goods in stock.	Stock ledger

(The remainder of the list is omitted here.)

Annex 3: List of Emergency Contacts

List of Emergency Contacts

List of employees with emergency responsibilities

Responsibility		Name	Primary contact	Secondary contact	Whereabouts on designated "danger day"	
					1996/1/3	
General Category	Detailed				Time	Place
Systems	Responsible for system operations	Division Director, Matsuda	03-1111-2222	090-33334444	7:00-22:00	Emergency Headquarters
Systems	Responsible for system restorations	Group Leader, Miyata	03-1111-2222	090-33334444	7:00-22:00	Computer Room

Annex 4: List of Contact Numbers of Service Providers

List of Contact Numbers of Service Providers

List of contact information on service providers

Resource Serial No.	Resource name	Name of service provider	Responsible Division	Responsible individual	Contact information
S1-1	Telephone	Telephone company A (network)	XX Division	Mr. XX	XXX-555-6667
S2-1	FAX	Telephone company A (network)	XX Division	Mr. XX	XXX-555-6668
S2-2		O Electronics (Fax Equipment)	XX Division	Mr. XX	XXX-555-6669
S3	Exclusive line	Telephone company A	XX Division	Mr. XX	XXX-555-6670
S4-1	Order receiving supervision system	Developed in-house (application)	XX Division	Mr. XX	XXX-555-6671
S4-2		B Electronics (hardware and so on)	XX Division	Mr. XX	XXX-555-6670
S5	Automated warehouse system	Q Software	XX Division	Mr. XX	XXX-555-6672
S7	Warehouse elevator	S Heavy Industries	XX Division	Mr. XX	XXX-555-6673
S9	Delivery service	L transport	XX Division	Mr. XX	XXX-555-6674
S11	Purchasing supervision system	Developed in-house (application)	XX Division	Mr. XX	XXX-555-6676
S12	Products shipped from Company a	Company a	XX Division	Mr. XX	XXX-555-6677
S13	Products shipped from Company b	Company b	XX Division	Mr. XX	XXX-555-6678

(The remainder of the list is omitted here.)

5. Checksheets

The checksheets are for the purpose of scrutinizing relevant conditions in your company, and for using the results of this process in your Contingency Plan.

Check box	Items to be checked	Comments	References in this guidelines
	On the Y2K bug problem in general		
☐	Are managers in the company involved actively in determining the prevailing conditions with respect to the Y2K bug problem, and are they exercising the required judgements ?	The Y2K computer problem is not only a problem for the Systems' Division. It is rather a problem in the entire company's operations. Leadership exercised by managers is indispensible.	Introduction Chapter 1
☐	Are preventive measures to avert problems from occurring (modification, replacement and testing of hardware and software) under implementation according to a schedule ?	The essential element of efforts in dealing with the Y2K bug problem are preventive efforts to avert trouble from occuring in thr first place. Depending only on a contingency plan is very dangerous. Adopt preventive measures while there is still time.	Introduction Chapter 1
	On the contingency plan		
☐	Has a contingency plan to deal with the Y2K problem been prepared, or is preparation of such a plan scheduled ?	It is still possible that problems will occur, even if preventive measures have been realized. In such a case, a contingency plan will be needed to keep problems to a minimum.	Introduction Chapter 1
☐	Have priorities been assigned to your company's operations for the purpose of preparing a contingency plan ?	A major purpose of the contingency plan is to keep the core of your company's operations running in caase of an emergency. It is indispensable to assign an order of priority to operations, and prepare a contingency plan for the most important core operations.	**[STEP 1]**
☐	Has it been determined, in which of the company's business resources problems might occur ?	It is important to understand accurately and exactly, which of the company' business resources are likely to be affected by the Y2K bug problem. It must be considered that problems can occur not only in your company's information processing system, but also in any equipment that has a microprocessor, in outside business partners and in the social infrastructure.	**[STEP 2]** **[STEP 3]**
☐	Has consideration also been given to company equipment, outside business partners and the social infrastructure, since problems might not only occur in the company's in-house information system ?		**[STEP 2]** **[STEP 3]**
☐	Have the probabiities of problems occuring in the various business resources been estimated, and determinations reached as to what action should be taken in the event problems occur, or in some cases before they occur ?	It is necessary to decide on what action will be taken, in case problems occur in the business resources that are affected, to keep operations running and to return to normal operations as quickly as possible.	**[STEP 4]** **[STEP 5]**
☐	Is the plan for action in case trouble occurs sufficiently detailed so that it can be executed even under emergency conditions ?	In particular, in cases when operations that are normally done by the system have to be done manually, necessary for the instructions for that manual operation to be very specific.	**[STEP 5]**
☐	Have dates on which problems are likely to occur (designated danger dates) been anticipated, considering the particular circumstances in your company ?	The Y2K bug problem differs from most other disasters in that the dates on which it is most likely to occur can be anticipated. The loss in case trouble occurs can be kept very small by making careful and detailed plans for the designated danger dates.	**[STEP 7]**
☐	Have detailed action plans been prepared for the designated danger dates ?		**[STEP 7]**

Check box	Items to be checked	Comments	References in this guidelines
Continuation of : On the contingency plan.			
☐	Have plans been made for what each Division is to do in case trouble occurs ?	If specific actions to be taken by each responsible individual in the company in case trouble occurs are spelle out on a time chart, rapid and efficient action can be taken in a time of confusion.	**[STEP 8]**
☐	Have preparations been made to set up an Emergency Headquarters to make decisions and coordinate actions throughout the company in case trouble occurs ?	Establishing an Emergency Headquarters can be an effective way to preserve consistency of actions through-out the company.	**[STEP 6]**
☐	Has it been decided exactly who will do what in case trouble occurs ?	It is necessary to decide on a coordinated system for contacts with customers and other business partners, announcements to the media aand execution of the plan to keep operations running.	**[STEP 6]**
☐	Has a system been decided upon for contacts and communications within the company in case trouble occurs ?	It is necessary to decide on a system for contacts and communications within the company in advance to permit fast response if trouble occurs.	**[STEP 6]**
☐	Has a system been decided upon for contacts out-side the company in the event that trouble occurs (particulalrly contacts with service providers, such as manufacturers and vendors, whose assistance is needed to restore the system) ?	It is necessary to decide on aa system for contacts with manufacturers and vendors so that the situation can be clarified and the system restored quickly in case of trouble.	**[STEP 9]**
☐	Is there a plan to prepare the equipment, supplies, records, and so on that will be needed to carry out the contingency plan.	A preparatory period is needed before alternate means of continuinng business can be put into effect if trouble occurs. It is necessary to have a preparation schedule for this.	**[STEP 10]**
☐	Is there a plan to review the contingency plan that has been prepared ?	Information relevant to the probability that trouble will occur is changing all the time. It is necessary to partially review the plan based on the latest information.	Chapter 3-3
☐	Is there a plan to make all company employees aware of the contingency plan and educate them about it ?	Awareness activities, education and training are necessary so that all company employees will be able to function smoothly, based on the contingency plan, if trouble occurs.	Chapter 3-4
☐	Is there a plan to hold drills that envision trouble occurring. based on the contingency plan that has been prepared ?		Chapter 3-4

6.Worksheets

6. Worksheets

The following worksheets have been designed for use in the Contingency Plan. They are used in this guidelines as design samples for the X Corporation. Utilize those worksheets for designing your company's own Contingency Plan. The shadowed areas in the worksheets suggest that you can copy the last results into those areas.

Workseet No.1

List Of Main Operations (/)

Operations	Outline of Operations	Rank

Workseet No.2

List of Operational Procedures

Operation: (/)

Procedure Serial No.	Operational Procedure	Resource	Resource Serial No.	Notes

Workseet No.3

List of Resources (/)

Resource Serial No.	Resource	Location	Provider of Services	Operations

Workseet No.4

List of Allowable Stand Still Period (/)

Resource Serial No.	Resource	Operation	Usage Frequency	Allowable Stand Still Period

Workseet No.5

List of Implemented Measures (/)

Resources Serial No.	Resources	Provider of Services	Results of the Investigation		
			Date**)	Relation*)	Measure

*)To Y2K problem

**)Month/Day

Workseet No.6

List of Problem Occurence Simulation (/)

Resources Serial No.	Resource	Provider of Service	Results of Investigation Implemented Measures	Appraisal Occurence	Appraisal Day

Worksheet No.7

List of Measures (/)

Resources Serial No.	Resouce	Appraisal		Allowable Out-of-Order Period	Measure				
					Alternate Measure		Other Mesure		
		Possibility of occurrence	Restoration period in case of problem occurrence		Implementation	Content	Implementation	Type of Measure	Content

Workseet No.8

Operation: (/)
Operation Procedure Serial No.:
Operational Procedure:
Resource:
Measure:

Order	Person in Charge	Procedure	Necessary Resource

Workseet No.9

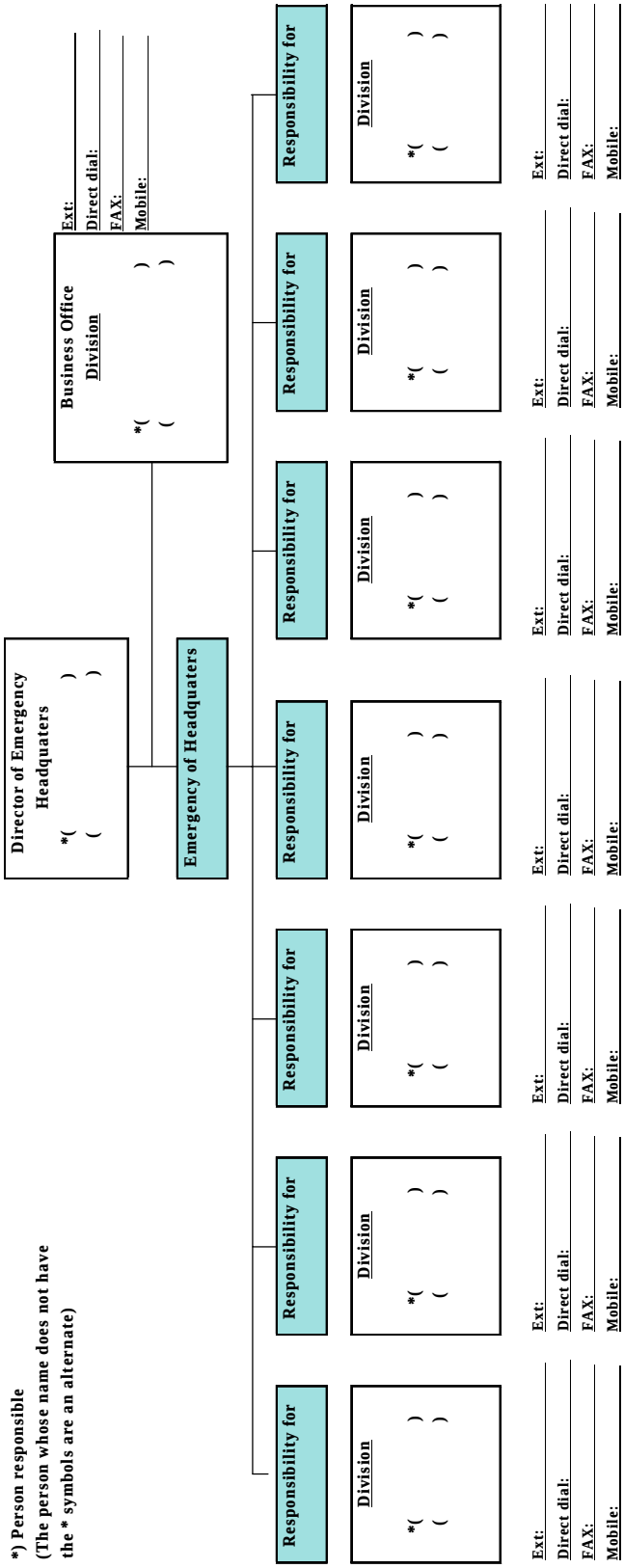
Functions and Roles in the Emergency Headquarters

(　　/　　)

Functions		Responsible Division	Roles

Worksheet No.10

Organizational Chart of Emergency Headquaters for Dealing With the Y2K Problem



*) Person responsible
(The person whose name does not have the * symbols are an alternate)

Workseet No.11

List of days designated as "danger days" (/)

Year	Month	Day	Day of the Week	Working day	Significance as a "danger day"	Resources, in which trouble could occur

Worksheet No.12

Action plan for "danger days"

Date: (　　/　　)

Resource Serial No.	Resource name	Work to be performed	Check method	Responsible employee	Work time	Work location	Criterion for judging that a problem exists	Route for notice of problem to be circulated

Worksheet No.13

Plan for action for when a problem occurs (/)
Name of resource, in which the problem occured:
Allowable time limit of system stoppage:

Responsibility	Division	Responsible employee	Specific action plan			
			Initial action	Between initial action and a allowable time limit of system operation	Allowable time limit of system stoppage	Time of system restoration

Workseet No.14

List of employees with emergency responsibilities (/)

Responsibility		Name	Primary contact	Secondary contact	Whereabouts on designated "danger day"	
					January 4th, 2000	
General Category	Detailed				Time	Place

Workseet No.15

List of contact information on service providers (/)

Resource Serial No.	Resource name	Name of service provider	Responsible Division	Responsible individual	Contact Information

Worksheet No.16

Resource preparation plan table (/)

Preparatory operation Serial No.	Purpose	Name of resource to be prepared or preparatory work	Procedural step number	Preparation method	Responsibility for work and time limit			Progress	Remarks (quantities etc)
					Time limit	Responsible division	Responsible individual		

7. Glossary

7. Glossary (in the Japanese alphabetical order)

- Designated "danger date" ... A date, on which there is a risk that a problem will occur in a resource that is being used. Also referred to as a ZERO-DAY.

- Maximum allowable stoppage ("stand still"; "out-of-order") time ... The maximum allowable time, after a problem occurs in a resource and the resource stops functioning, after which operations must be resumed. Determined by the frequency with which the resource is used.

- Impact reduction strategy ... A strategy formulated in advance, in order to minimize the loss, if a problem should occur.

- Service provider ... A manufacturer or vendor, which provides a system or equipment to one's own company, or an industry or business entity that provides a service, such as electricity or communications, is referred to in this guideline by the generic term "Service Provider".

- Resource ... Systems, equipment, services, social infrastructure, and so on that are used in business operations, are referred to in this guideline under the generic term "Resource" or "Business Resource".

- Progress in taking action ... Progress in taking preventive action to prevent the Y2K bug from occurring in a given resource or in taking other appropriate action (including the formulation of a Contingency Plan). The probability of a problem occurring in that resource and the time required after the problem occurs until the system is restored can be anticipated to some extent by checking on such progress.

- Alternate means of operations ... Means of operations, which are used as a substitute for a resource, in which a problem occurs, causing that resource to stop functioning.

- Vendor ... A business that supplies computer systems or other equipment to our company.

- Simulation test ... Testing of a resource, in which the Y2K bug might occur; the operation is tested by setting the date to a "danger date".

- Occurrence of a problem ... The occurrence of a condition, in which a resource cannot continue to function normally, with the Y2K bug being the cause of this problem. This is distinguished from a condition in which, if a system stops operating or an error occurs, one can at least expect some kind of output from the system.

- Preventive action against the Y2K problem... Actions that are taken in advance, in order to prevent the Y2K bug from occurring in a business resource. This refers specifically to such actions as having software or hardware modified or replaced, or running a simulation test.