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and the consumer



Final  
Report

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Directorate General XXIV

Consumer Policy and Consumer Health Protection

**INCLUDES OPINION OF CONSUMER COMMITTEE**

**SEE TAB**

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The year 2000 is approaching and the spectre of bug is looming on the horizon. While the awareness campaigns on risks to enterprises are accelerating, and their dramatisation is increasing, the importance of the bug for the consumer appears largely neglected.

It has however appeared evident that the problem could be only crucial for the consumer. Since the consumer is the end user of products and services, he is not content with noting the adaptation by enterprises of their computer and electronic systems. The enterprises' difficulties will reverberate on their customers, they will manifestly be the victims of difficulties of transition to the year 2000.

The first issue analysed is the extent of the risk, as critical dates. For that, the nature of the bug and its location in computers, programmes and embedded computer allow to define the bug problem, describe its symptoms and the necessary reaction. This shows how the computer experts, to save memory resources, have created a problem whose correction will in any case cost billions of dollars. But it appears that this correction will in any case not be perfect, and despite colossal efforts hunting the bugs, the bugs will continue to nest in hardware, programmes and micro-processors, with difficult to foresee effects propagated by networks. It is therefore necessary that enterprises make preparation and adaptation efforts by taking into account not only internal risks but also external risks. Similarly the consumer must make the necessary preparation and adaptation efforts.

The consumer is first of all directly vulnerable as user of a bug ridden product. It can either be a computer product, or a product containing a micro-processor. The development of computers for the general public, the proliferation of "chips" in electronic products but also in all products for general public show the importance of the problem for the consumer. The consumer has legal remedies, commercial guarantee, (self) certifications and labels, legal guarantee and he has therefore actions in liability for his compensation and indemnification. The legal weapons provided by the consumer law, law of sale, and ordinary law of liability are varied according to the European Union countries, but with a large degree of harmonisation of the fundamental laws resulting from European directives.

Nonetheless it appears that it is as indirect victim of the bug that the consumer will know the main problems, the most critical problems. Indeed, the bug will cause failures in the industry, trade, and private and public services which will affect not only the consumer's financial interest and property, but also in a certain number of cases his safety. In some scenarios the assessment of risks raise catastrophes.

The consumer, end user at the end of the contractual chain, has under the consumer law a protection which does not depend on an analysis of all the liabilities of the supplier, elements or programmes affected by the bug throughout the production and distribution chain.

In case of physical injuries or damage to property, the provisions of various Member States laws have been harmonised by the directives on defective products and safety obligation. The division of risks and liabilities in case of non-performance of contracts raises complex legal problems. In internet trade, and mail-order sale, there will probably be many difficulties. The food sector is particularly vulnerable not only with risks of rupture in the food supply chain, but also quality failures and consequently mass food poisoning. The sensitisation of consumers is necessary, like reinforcing sanitary controls. In the medical sector, the risks are also high, and there too the analysis of legal remedies are accompanied by advice on prevention and preparation measures.

With respect to these risks, financial problems resulting from the bug, (for example in banking services, invoicing, delivery errors, lateness in payments), can seem less dramatic, but, in particular, for the elderly or disadvantaged persons the difficulties can be serious. Difficulties of proving will be one of the practical difficulties, and the consumer must be very vigilant.

In catastrophe scenarios where the main services are failing, it is clear that a chaos situation, even a temporary one, can have very serious consequences at work places, at home and starting a travel the consumer will be vulnerable to the indirect effects of the bug.

The vulnerability will be particularly high on critical dates, which are many, but technical secondary effects are not to be excluded, especially the domino effect of the enterprises' difficulties will spread over time. The protection of consumers interests thus

presents complex legal aspects, and contentious matters will be particularly important. However, the legal actions will not assure, in many cases, the necessary protection of the consumers. Indeed, these legal actions will take place while damages will have been incurred and great number of legal actions or their systematic use against concerned enterprises could cause the disappearance of the said enterprises.

Beyond the harmonisation of the 15 Member States legislation as for the protection of consumers, carried out by transposing community directives, the Community underlines the need for Member States to take measures to sensitise the consumers who, without giving in to a wave of panic, have to prepare, be vigilant to try and avoid the damage rather than have to obtain an indemnification. Indeed, the minimisation of the cost of the bug for consumers, in financial terms or risk, pass by realisation of the consumers. The recourse to communication campaigns, at national level, on foreseeable problems is thus essential, in order to allow consumers to alleviate the difficulties/risks by their conduct.

Besides, measures of organisation for immediate problems will probably pass by process of mediation in order to resolve from day to day the practical problems before possible/ perhaps/ if need be the solution of disputes.

Two hundred days before the year 2000, the aim of this report is to present the problems of passage to the millennium in the consumer perspective. According to evolution of scenarios, it will of course have to be updated.

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# 2000

## The year of danger for the consumer

The computer with the year 2000 bug gives a technical basis what otherwise would be *the fear of the new millennium*.

### THE MILLENARIAN RISK AND THE CONSUMER

Problems for consumer computers and technological products  
But especially the effect of problems resulting from softwares and enterprise's computer systems, embedded computers and the domino effects of networks  
Chain of disasters foreseeable  
Multitude of litigations

As the fateful date of 1st January 2000 draws near, the year 2000 bug problem is becoming more and more of an urgent event. The media coverage of the problem has a tendency to focus on the impact on enterprises. For a long-time they presented only the crossing of this date as important. However, the nightmare scenarios are beginning to show the potential impact on the consumers.

Between the doom scenarios and passivity, it would be prudent to prepare oneself not only for the adaptation, but also for the effects of the year 2000 computer transition.

### MULTIPLE PROBLEMS

The problems will appear not only on 1st January 2000 and on the first working day, (that is on 3rd January 2000), but also on several critical dates.

The year 2000 bug may be considered by the consumer as something in the field area of computer and information technologies. Until the end of the 1990s the bug problem was treated particularly by the media as being too technical for the public at large. However, daily life and safety, and consumers' financial assets and interests are affected by the problems of transition to the year 2000.

For the moment, the year 2000 problem has remained relatively confined since we are still about 200 days from the critical date. Nevertheless, the problem has arisen in the context of computation of dates after 1st January 2000, that is the system jamming itself by interpreting it as another date, 1900, 1980 or 1990. The risks will be individual risks and also general public risks.



# A belated awakening



In fact, the first millennium problems, which had to be resolved, were solved in the 1970s. In life insurance contracts of 25 years duration, financing contracts and real estate sureties for 25 years, the first problems appeared in 1975.

The importance of the year 2000 bug problem was recognised in the second half of the 1990s. The risks of malfunctioning of the computer systems arise not only from hardware problems relating to computer clocks, but also from encoding of microprocessors and software.

## *Warning by the media*

It is from 1995 that the media coverage of the problem in public expanded. To a large extent, the coverage focused on the risks for enterprises and in the computer sector.

The problems have recently multiplied when deposit and consignment office networks were jammed because of the problems arising from the use of credit cards with validity dates after 1999.

An important problem for enterprises was the scrapping of products with expiry dates after 1999, treated as if they were manufactured a century ago. The loss was thus borne by the manufacturer. After 1st January 2000 the risks will be reversed.

After the sensitisation of large enterprises, only small and medium sized enterprises and consumers remain to be mobilised.

In the U.S.A., the calling up is made under the ægis of the FTC and the CPSC (see [consumer.gov](http://consumer.gov); [ftc.gov](http://ftc.gov); [y2knews.com](http://y2knews.com); [cpsc.gov](http://cpsc.gov)).

Faced with a widely spread risk, whose consequences are considerable and overwhelming, it is important to avoid panic and passivity.

The consumer will be the direct victim as a buyer of the bug product, but also the indirect victim as customer of the bug victim enterprises or user of affected products or equipment.

He can by his vigilance and prudence minimise the risks. When risks materialise, he must be able to limit the consequences and exercise his right of actions.



# An unspecified risk

Between doom and gloom and misinformation,

**the turn of the millennium can be considered as a major danger for the consumer.**

Some people raise the end of the world type scenario with titanic risks: mad weapons systems with a nuclear apocalypse, at the very least stationery trains and paralysed road transports, blocked financial transfers, diverted financial markets, jammed lifts, electricity failure, etc.

Others say that it is a misinformation practised by the manufacturers, editors and computer services providers. The reactions are thus from fatalism to catastrophes.

**If the danger was illusory and maintained by the beneficiaries of the costs, the consumers will have been penalised by the excessive costs, which will be passed on the prices. If the danger was real they will be penalised by the disruptions caused.**

On 15/16 January 1998, the Cardiff European Council meeting acknowledged the serious effects (on the computer systems and electronic equipment) that the year 2000 transition problems may create beyond borders. On 11/12 December 1998, the Vienna European Council meeting issued a report on "*How the EU is tackling the year 2000 Computer*". Similarly the conclusions of the Council of Europe in Cologne on 3<sup>d</sup> and 4<sup>th</sup> of June 1999 invited the Commission to gather high level experts able to present proposals with a view to adopting strategic decisions to protect the proper functioning of essential infrastructures. The Council has also invited the Commission to meet and to disclose to the public. on a world-wide scale information on preventive measures.

At the same time, the impetus given by the European Union has been translated by the Commission into a report, (for the Council, the Parliament, the Economic and Social Committee and the Committee of Regions), on the preparation by infrastructures (energy, transport, water, security, nuclear, telecommunications, and finance) for the transition to the year 2000 within the European Union and its transmission on 2<sup>nd</sup> of June 1999.

In this regard, the difficulty of assessing risks, complexity of technical problem, and the necessary division of risks revealed in the first case law, show that the protection of consumers, as users, constitutes a particularly difficult subject. The problem is international, and will involve multiple litigation, with international proceedings with considerable discussions on conflict of laws, such as on the contents of the national law.



# ***A society dependant on computers and electronics***

The globalisation and internalisation of markets, techniques of production and tight distribution flow, migratory work and monetary and financial markets rest on the flow of information, the conclusion of market operations is done by computers. The liquidity of markets in financial matters, production flow in industrial matters, delivery systems in commercial matters etc. require proper technological functioning, the transmission of information without problems. The technological progress and ever growing importance of information systems make the economy and the functioning of social life particularly vulnerable. Even at the consumer level, the phenomenon grows with Internet which the consumer uses for services and electronic trade.

Due to the rapid development of computer capacities, the computer industry's analysis of developments may appear to it that the due dates of some years as being far away. The continuation of practices can be analysed either as a method, that has saved costs for the users (but only short term), or as a protection of margin.

Besides, we can question the responsibility of large consulting firms, which have not, in the interest of their customers, and the general

economy, argued for a rapid adaptation of software and hardware. It is true they profit handsomely from it, but a responsibility, at least a moral one, of obligation to advise does not seem to have been fully respected.

It is now acknowledged that the year 2000 compliance requires an adaptation or a modification of the systems, the extent of which is difficult to measure. The adaptation or modification has a high cost and in any event will not be completely ensured.

Enterprises have to ensure the compatibility of their functioning and that of the products or services offered by them. As regards the public, it depends largely, apart from cases of domestic use of computers, on enterprises and public authorities. This is not to say that the public be totally passive. It is all more necessary because the plans in the context of the year 2000 projects do not generally take into account the consumer dimension. The extent of the potential problem means that the control of risks will be uncertain. In principle and effectiveness, the compensation of damages risks being very high.

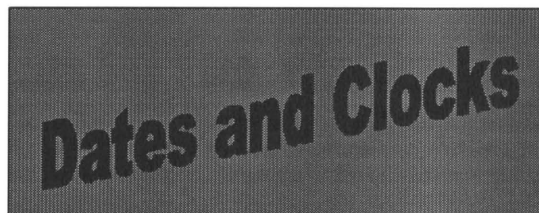


# THE PROBLEM OF TRANSITION TO THE YEAR 2000

The year 2000 bug is a technological risk from computer and information technologies whose origin is known, but whose consequences are not yet determined. The probability of significant consequences, whose causes may be very distant and result from a chain of phenomenon with a chain of damages, is unquestionably considerable.

## THE MILLENARIAN BUG

The Year 2000 bug is the result of a dating problem. The dating rule since the beginning of the computer age has in fact been incorporated into the design of hardware, components and software.



# 1/01/00

The year 2000 bug arises from the ambiguity of the date expressed: 1st day of the year 2.000 or first day of 1900.

The technical origin of this is the use of two digits in the encoding of data processing cards to indicate the year, following a DD/MM/YY rule (instead of DD/MM/YYYY). The data processing cards were used at the end of the 19th century for the 1890 American population census. The machines used were mechanical and allowed to do the sorting. It is with the generation of computers, (which, thanks to the appearance of the integrated circuits, ensured multiple functions), that the computer began to come into general use, first in the enterprises and then in the public. At that time, a memory of few thousand bytes was the norm, whereas now we speak of billions of bytes in computers sold to the general public.

In the 1960s when processed date-numbers were recorded according to two digits coding, nobody reacted to this anomaly. It was meant not to slow down the entry of information, avoid using memory capacities ineffectively and not slow down the processing. For components, as for personal computers, which had very little memory, the rule has been pursued and has even been used in the softwares.

The consequences of this, for hardwares, softwares or components using this rule, is that year 2000 will be interpreted as year 1900, which will cause a faulty functioning of all the programmes using a date.

The discontinuity of the New Years Eve of 31st December 1999, at the time of the transition to 1st January 2000, will be classed as a return to the past by the non-adapted computer systems. This problem will recur for 24H at the transition speed of different time zones.



The calendar errors arising out of the use of an erroneous century risks being completed by errors on the year 2000 calendar. As regards the numbering of the year in two digits, the year 2000 is likely to be interpreted as the year 1900, a non-leap year. All dates after 29th February 2000 will therefore be incorrect when a simple by pass has been used to remedy the year 2000 bug.

### **BUG**

**At the time of "lamp computers" (first computers), the insects got stuck on a lamp by jumping on it which caused a computer breakdown. Since then a "bug" means a computer breakdown.**

The bug affects not only computer sites but also embedded computers. The latter is present in most high technology equipment; it is at the heart of what is customary to qualify as information technology.

As the date is used to sort out, calculate calendar intervals or to compare dates, the bug leads either to jamming, or processing errors. The error in the database comprising the date will thus end up in an incorrect implementation of the technology based on this information.

### **LINKED PROBLEMS**

Using the day of the 1<sup>st</sup> January of the century is a method used to set the first day of the week.

Program codes depending on the first day of the week will be affected by a century error, the 1<sup>st</sup> of January 2000 being a Saturday and the 1<sup>st</sup> January 1900 having been a Monday.

2000 is a leap year whereas 1900 was not. This is due to a set of complex rules according to which a year is considered to be a leap year if:

it can be divided by 4,  
except if can be divided by 100 but not by 400.

This rule has not always been applied, thus the problem of dates after the February 28<sup>th</sup>, 2000.

Certain data use a reference to the year 1900. 1999 is thus represented as the year 99 (after 1900). In this model of representation, the year 2001 will be considered as 101 (after 1900) and consequently as 19101, or after 2000, as 20101.



# Localisation of the bug

LOCALIZATION OF THE BUG  
SYMPTONS OF THE BUG  
CORRECTION OF THE BUG  
THE BUG PRODUCT  
THE BUG ENTERPRISE

The bug is localised  
For computer systems  
    In the hardware  
    In the software  
For technological systems  
    In the microprocessors  
The bug spreads  
through networks

## Hardware

**First of all, the bug stems from a hardware problem, but which is only the visible face of the problem.**

In view of the two digits dating rule for the year, the standard RTC<sup>1</sup> of PC microcomputers generally store only two digits of the year<sup>2</sup>. Furthermore, many chips only store two digits. Finally, computer systems can be linked to, or include, clocks with two digits only for the year.

The BIOS<sup>3</sup> of the recent computers is programmed to transform the date from two into four digits and to correct the erroneous dates. The machine will thus give exact results, except if specific application calls the computer clock directly.

It should be noted that most clocks continue to be two digits for the year, (as an important part of the microprocessors), the adaptation arising out of what one often qualifies as *patches* at software level (including direct access to the clock for interceptor). The clock is in fact engraved in a component, the *chipset* which can only be corrected by the semi-conductor manufacturer.

## Software

**A good part of the year 2000 transition problems will come from software particularly packaged software.**

The date is entered into most softwares, whether they are computation, management file, documentary management, computer assisted manufacturing (CAM), computer aided page layout (CAPL), etc.

<sup>1</sup> Real Time Clock

<sup>2</sup> It is not the case for Apple Mackintosh whose clock which provides temporal information is a meter for the number of seconds lapsed since 1st January 1904. The operating system converts this number into date when a software requests it.

<sup>3</sup> Basic input output system: the software which manages the fundamental functions of the PC and which is inscribed in the programmable chip



In many programming languages, the dates of reference are limited to six digits, two of which are for the year. It was an inherent aspect of the COBOL language<sup>4</sup>, which was much used in computing management so was the FORTRAN language<sup>5</sup> in the industry. The two digit coding ins a problem for OPEN VMS, UNIX and C language.

Furthermore, to test certain date category fields, the programmers have in some software used 99 as the upper limit and 00 as the lower limit.

### **MAIN CRITICAL DATES FOR THE SOFTWARES**

**The dates 99, 9/99 and 9/9/99 and 99th day of 1999  
1/01/2000, 3/01/2000 (first working day of 2000)  
29/02/2000 and 1/03/2000 (unlike year 1900, the year 2000 is a leap year)  
10/10/2000 (first day which requires 10 digits).**

Considering the processing chains and the composite multiple language application parks, the dating problem is likely to have chain effects.

#### Operating systems

The bug affects the operating systems which constitute the fundamental level of software.

The operating systems are affected to various degrees according to their age. As regards the operating systems, Windows 3.1 is not compatible, Windows 95 requires correction patch, and Windows 98 does not appear totally compatible. WinFile does not correctly indicate dates beyond 1999.

#### Applications, standard software packages

Many softwares sold to the public at large do not go beyond the year 2000. Furthermore, the transition to the year 2000 does not necessarily mean that there is no problem. Dates from the 20th century, particularly dates before 1980, cannot therefore be correctly processed. The dates 99, 9/99 and 9/9/99 and 99th day of 1999 are likely to affect the processing of files.

In standard software, the seriousness of the problem is underlined by the non-compatibility of the widely known software. Progressively, software editors develop and supply patches to users.

The nature of the problems and patches are available on the software editors' websites:

- for Microsoft see [www.microsoft.com](http://www.microsoft.com)
- for Lotus see [www.lotus.com](http://www.lotus.com)

In custom made software packages, compilation is not possible and the examination must be carried out according to billions of instruction lines.

There are two ways to correct custom-made software: one is the extension consisting of placing the dates on four digits and the other is the windowing which allows to programme that any year digit

<sup>4</sup> Common Business Oriented Language

<sup>5</sup> Formula Transition





above 50 is a 20th century date and any digit below is of the following century. The second solution is of course less satisfactory and leaves the possibility of errors.

level (including direct access to the clock for interceptor). The clock is in fact engraved in a component, the *chipset* which can only be corrected by the semi-conductor manufacturer.

## **Microprocessors**

**The chips will be another important source of bugs.**

**The embedded computer  
the chips, unforeseeable and  
omnipresent nest of bugs**

It is what one calls under the term of electronic. The computer processor components (*embedded components, black boxes*) are integrated and consist of, in particular, what is commonly called embedded computer. According to estimates, there are 5 billion embedded chips in the United States and 15 billion worldwide. It is estimated that between 2 to 5% of the chips are likely to have a year 2000 problem. This rate which may appear relatively low has on the other hand considerable potential consequences: if 2% of the chips cease to function, 100 million processors will be paralysed (without counting secondary effects).

The embedded systems are generally composed of a microprocessor and memory components. As the software part which controls this type of systems is written in low level language, it is difficult to examine.

They are particularly widespread in network management, and in maintenance, safety and control systems. Besides the difficulty of localising the circuits, the inter-connections between systems increase the proportions ten fold. The presence of a modem or an interface in a network with the bug is likely to deprive the effective functioning of the entire network. It is the case in the telephone cables and satellite systems. What is commonly called the information highway is regulated by computer systems, particularly by embedded computers.

The typical example of potential problem of another type of analogous dating is that of GPS with internal clocks in the satellite positioning systems which count weeks from 6 January 1980 until 1024, after which the counting restarts from 1st week. On 22nd August 1999, they will set themselves at zero hour. The receivers, which have more than 2 years can give incorrect positions, and if they are connected to other systems, lead to secondary effects.



# The bug symptoms

## ***Disruption phenomenon***

Any system using a malfunctioning clock, internal or external (for example by connecting to a pay machine providing two digits for the years), or receiving an information transmitted by a non-compatible means (such as non-compatible modem or interface), or processed by a software affected by the defect is going to have a failure. The dating itself, but also computation of intervals, sorting, and date comparisons are going to be distorted.

### Jamming

The error as to the date can lead to jamming of the system to which data that it judges incoherent are supplied, or which will be rightly programmed to jam. The total jamming has the advantage of being immediately apparent, but it can have disastrous consequences if it jams the functioning of a control or security system (for example rupture of a cold chain, alarm system, a power station control system).

### Malfunctioning

The date serves to classify, identify and compare. The year 2000 bug can lead to a dating processing error, which can lead to an erroneous analysis of the files.

### Overflow

The computer stored date passes from 99 to 100. This can cause 00 in the memory zone, but a reservoir spreads to the adjoining memory segment. The machine ceases to function.

The data concerning the consumer can be wholly or partly destroyed, or processed incorrectly. This loss, or classification or processing errors will be detrimental where the files contain data that constitute rights (rights to benefits, etc.) or important information (files in doctor's clinic).

It is necessary to equate the bug as insertion of an erroneous calendar. Either it is an error made by a software based on two digits dating which will categorise 2000 as 1900 and will not take into account that it is a leap year by use of an erroneous century, or errors in the calendar programming by non-application of rules that wants a year divisible by 400 or a leap year. In the two cases, there will be errors in the year 2000 dates after 29 February. The danger of a calendar error is very deceptive and thus very difficult to deal with.

The consequence of malfunctioning can take place either at the data collection stage, or at their processing stage, or at the end of the transmission stage.

## ***Affected systems***

It is difficult to establish an exhaustive list of the types of systems which may be affected by the bug. All systems containing a processor, those driven by software and combination of systems, and even all systems which use any clock where the year is logged by using two digits only are affected.

All electronic programming systems are potentially affected in so far as they are more than weekly cycles. Automaton and machine tools, which allow the robotisation of production, are particularly affected, like those that take part in the *information highway*.



The control systems generally contain a clock recording the signalled problems. It is same for report editing systems, marking printers or maintenance systems equipped with internal clock. Labelling, quantity, manufacturing management systems, and all those which analyse or produce bar codes are affected.

# Reaction to the bug

## *Mobilisation of economic operators*

Economic operators have been made aware and efforts are being made to mobilise enterprises. Enterprises are strongly encouraged to prepare themselves, to make tests, to modify their equipment and to ensure that the services will be year 2000 enterprise, its products and compliant.

But it must also be internal risks, arising out of systems, and also external on which the enterprise is difficulty arises from inter-connected systems, and from world-wide level interactivity.

**The enterprise must prepare itself not only according to internal risks but also external risks.**

recognised that enterprises have the enterprise's equipment and risks, resulting from third parties interdependent. The greatest



# A costly penny-pinching

*Penny-pinching by computer experts:  
a costly economy*

**Correcting the effects of the year 2000 bug will be costly and is a gigantic mess.**

## **MACRO-ECONOMIC IMPACT OF THE BUG**

The first consequence of the bug is the rising costs of replacing hardware and software and the setting up correction programmes.

Very often, the user will be forced into using the most recent version of Windows, forcing a costly adoption that compels the purchase of more powerful computers. Users who have the old versions, often kept because the most recent versions still have many bugs, are therefore forced into considerable expenses, without any functional utility other than to remedy the problems left by the editors. These forced sales generally burden directly the user consumer and indirectly the consumers while considerably benefiting the software editors and consultants.

Furthermore, disruptions caused by the failure due to the bug have consequences whose considerable significance appears established, but in a manner which at the moment remains unforeseeable because they are based on problems which have not been localised whose effects are likely to spread in secondary chain manner.

## **THE BUG AND EFFECT OF CHAOS**

It is particularly significant that the bug, (the term which comes from moths which settled on the lamps of first computers and by burning disrupted the functioning of the computer), brought out the moth effect of the chaos theory. Phenomenon that may appear harmless, the bug can have chain effects, with multiplication of chain of consequences, which lead to considerable disruptions.

The consumer, enterprise's customer and end user in the economic chain may thus be heavily penalised.

### **Foreseeable Financial Consequences**

*The potential extent can be estimated by taking into account the economic impact and what is actually forecasted. This is first all made up by the cost of replacing hardwares and software corrections, and to add to them the total cost ensuing from litigations, indemnifications. etc.*

*Correcting the effects will cost between 300 and 600 billion dollars.*

*It is said that 0.3 to 0.8% of the world gross domestic product could be reduced in the millennium year. Arden, an economist who is an expert on the effects of the bug, forecasts an economic traumatism of the 1973 petroleum crises scale coupled with stock exchange crash.*

*Experts who recently met in Manila have placed the cost of legal actions at 150 billion dollars.*



## DISRUPTIONS CAUSED BY THE BUG

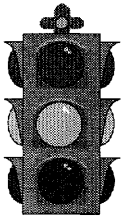
**The consumer law protects the legitimate expectation of the consumer.**

**The computer is no more in the limbo and the burden of bugs, in particular year 2000 bugs, cannot weigh on the consumer.**

The modern economy is based on an expectation of the enterprises' operating dependability and on the consumer's trust in the quality and safety of the products. Besides, this legitimate expectation and trust characterise the consumer protection regulations. The mass production and distribution have given birth, after the dangers of mechanisation, to periods of industrial development and the establishment of a consumer law. The doctrine of *caveat emptor* (buyers beware) is replaced by various obligations to a consumer who can only be passive in many contractual relationships corresponding to the development of standard contracts and more generally adhesion contracts.

This expectation and trust risk are placed in danger by the year 2000 bug. The dependability, basis of consumption, is disrupted by the same technology.

The consumer, as user of products and services, will be affected by the problems caused to the enterprises by the bug. The bug is likely to compromise the continuity of the enterprise's operations, its survival in case the computing means fail or become inoperable. It is likely to call into question the continuity of the most essential public services.



### Disruptions among economic operators

The bug is capable of affecting the management systems, production equipment, control systems like delivery, private and public telecommunication systems and networks, and computer data exchange systems. All economic functions are thus affected.

### Internal risk

Operators are threatened by risks from internal sources directly affecting the functioning of the operator, enterprise, local authorities or administration. It affects production activities (manufacturing chains, machine tools, automatons, production control), commercial activities (telephone switchboards, management of orders, invoicing, delivery), administrative or management services (accounting, wages). The generation of erroneous purchase orders, inaccurate transfer orders, are examples of problems that can cause the bankruptcy of enterprises.

### Domino effect

External risks are those that come from business partners, suppliers, customers and generally all those on whom the operator relies. Services are among the source of considerable risks, in particular those managing networks or those depending on them, like the telecommunications, payment systems, supply of essential services systems (energy, water, etc.).



It should be noted that two enterprises that are ready, but with a different correction system (pivotal year, changing century, etc.) can provoke a conflicting situation making everything incompatible with the year 2.000 transition.

### Affected sectors

**The spread of bug is a phenomenon linked to the extent of the networks. It is the computer networks which combine with technical networks**

The affected operators are in all the sectors. It is not possible to draw up an exhaustive list of those which are the most vulnerable, but it includes in particular energy, telecommunications, transport, oil and raw materials, food, equipment and chemicals, defence industry, computer and technology industry, car industry, building industry, publishing and television industry, banking and finance industry.

It is not only the commercial sectors, but also the simple market economy. The logistic problems will affect particularly the control and management systems in the smart buildings (alarm, access control, air conditioning, lifts). They will affect all public services.

### Products and services



The bug will affect the quality and functioning of the products used by the consumers, in particular products that contain technological systems such as cars, boats, electronic equipment etc. Besides, (by disrupting production, control, delivery, invoicing systems and generally all the functions relating to production), the malfunctioning affects the products that have no direct link to the computer, from food products to medicines.

It is the same for the user of services disrupted by the bug. Some sectors are considered as particularly vulnerable. The financial sector is affected, for banks the problem is ensuring the reliability of operations, mainly payments. It is a sector where technological developments are generally well assured and where investments and preparation efforts are probably up to date. Furthermore, the greatest possibility of systematic risks exist in the electricity networks, emergency and health services or agribusiness industry.

The non-commercial services will also be affected. The authorities are lagging behind. The American Inland Revenue Service thinks that its application software will not function. The national identification systems are not necessarily year 2000 compliant, for example the French system (where year of birth is coded with two digits) is not year 2000 compliant.



# Elimination of the bug

## BUG CORRECTION TECHNIQUES

When the bug is the result of a two digit coding, the correction can be made by:

Upgrading the date from two to four digits. This solution is the most durable but is the very expensive as it implies the correction of a considerable number of files and databases,

Using a pivotal date. Corrections are thus algorithmic, i.e. using 1950 as a pivotal date:

Every date between 00 and 50 will be considered as being between 2000 et 2049,

Every date between 50 and 99 will be considered as being between 1950 et 1999.

It is clear that algorithmic corrections leave place to several sources of errors. Furthermore, two systems made Year 2000 compliant, by the means of different methods, if once interconnected, will globally not be compatible.



# Hunting of the bug

## PREPARATION OF ECONOMIC OPERATORS

Private and public operators are encouraged to make preparation plans with procedures for identifying risks, tests, and preventive processing. The consumer must not only be informed, honestly and with care, of the risks, but also of the measures he must take for his own protection. In the interest of the consumers, enterprises must be aided and strongly encouraged to make these preparations.

Managers of companies, like controlling shareholders, must be made aware that insufficient preparation would likely be considered as a management error, making the directors and *de facto* and *de jure* managers liable in case of judicial rehabilitation proceedings of companies. It would be the same if the state of preparation were too optimistic.

### Enterprises' preparation plans

Preparation constitutes a financial burden for enterprises. In the United States, a loan guarantee system for SMEs has been set up. In France, tax measures have been taken to allow the provision of costs.

The verification must not only be on the computer systems but also on all equipment containing microprocessors. The enterprise, often a layman as to computer systems, is all the more a layman when it concerns microprocessors which can be incorporated into technological equipment, electronic equipment and programming software used by it.

The important aspect, for the consumer, is the supply of information to customers, which are not a promotional effort aimed at artificially assuring them. Information on product risks and problems that may affect services must be candid and prudent.

### Enterprises' safety plans

Consumers will not be protected if enterprises do not protect themselves against external risks with adequate safety plans. In view of the uncertainty of certain risks, safety plans must be adopted to secure functions that are important to consumers. The possibility of power cuts is forcing vulnerable enterprises to equip themselves with generators to avoid disruptions.

That is why banks are equipping their trading rooms with independent generators and air conditioners. Such a step must be expanded on pain of incurring liability. Back up systems by parallel computer equipment and independent energy supply must be put in place.

It is clear that such safety plans will be less frequent in SMEs.

### Consumers' preparation plans

Regarding consumers, it is a question of making them aware without dramatising the situation.

Consumers must be informed of the risks, their obligation of vigilance, measures to take and legal actions open to them in case of malfunctioning resulting from the transition to the year 2000.

Campaigns must be carried for consumers by television, newspapers and booklets to make them aware of the year 2000 difficulties.





## Absence of zero risk and management of risks

As the bug is omnipresent, affecting all programmes, and present in automats, electronic equipment, and security systems, and as the enterprises are interdependent and open to the world, they are at the mercy of their partners. It is recognised that it is impossible to reach "zero bug". First of all it is impossible to detect all the potential problems and, for reasons of costs and rapidity of processing, the two digits dating continues to be largely used by the computer industry. Many compliant techniques, like the floating century, do not eliminate the risks, but merely reduces them.

### **THE ZÉRO BUG DOES NOT EXIST**

**It will be impossible to modify millions of computers, billions of programme lines and billions of microprocesseurs.**

**Besides any modification of a programme brings bugs.**

Enterprises are thus advised to manage risks that disrupt their activity to the point of putting them in peril, and then to manage them by striving to maintain the risks below the level. Strong incentives for the preparation may have been taken by the insurance companies. In France, where an increase of 50,000 damages is expected during the year 2000, insurance companies have implemented measures having as a result the taking of adaptation measures as a "sine qua non" condition covering the damage. In fact, a technical "year 2000 co-ordination" platform was implemented between the companies. This platform is supposed to contribute the experts' assistance to insurance companies. Their role will be purely technical. At the same time they should ascertain and explain the causes of the damages linked directly or indirectly to the year 2000 and to list adaptation and protection measures for the year 2000 that the concerned enterprises would have taken. This co-ordinating platform combines itself with the signature by the near total of the companies of a single claims adjustment agreement. This agreement provides for, in case of doubt relating to the "year 2000" origin of a damage and on request of the companies' experts concerned, that the companies should resort to the platform in order that only one year 2000 expert per damage is designated, charged with drafting a purely descriptive technical report. This report will have authority to be commonly accepted by the companies concerned by the damage.

This is the only initiative of this type in a Member State.

Widely circulated, this type of initiative - and related information - would incontestably have an impact on enterprises in terms of encouraging them to the preparation and prevention and could thus belong to the preventive and anticipation measures. However, in this regard, it is important to point out that various French courts, in justifying the absence of a compulsory insurance system for computer professionals, have approved the position of insurance companies which exclude the risk of covering the year 2000 risk relating to professionals. There is no compulsory insurance system for computer risks concerning disparate enterprises. From that moment on, the anticipation of the extension of the position of the courts to all enterprises could jeopardise any encouragement of preparation efforts.

Considering the cumulative effect of the chain processings and of the networks, the probability of problems arising out of residual risks is therefore considerable. The consumer, who is at the end of the economic chain, will thus be exposed to all the chain effects. In light of the interdependence of economies and globalisation of the markets, the consumer will be affected by all the problems that could affect the supply chain; he will be exposed to all the effects transmitted beyond the border.

The multiplication of computer problems, especially their unforeseeability, characterise the year 2000 bug problems. A disruption factor in the enterprises' activities, the year 2000 bug problems is particularly worrying to the extent it can cause personal injuries and interruptions in essential services. When human life is at stake, the number of disasters rapidly become catastrophic.



## **Adaptation of enterprises and consumers**

In the adaptation of enterprises to the year 2.000 transition, the consumer is generally not taken into account. Most of the time the only objective sought after is the continuity of their functioning (taking into account internal risks).

Example: According to a recent investigation in France, about 86,000 SMEs will not be ready for the year 2000. This observation has pushed *Medef* (Employers Federation in France) to urge the SMEs to act. But, the needs and safety of consumers are not taken into account, since this initiative is aimed at urging small enterprises to organise into a hierarchy what is vital for them, and to draw up survival plans, while *Medef* has asked the authorities, notably the labour inspectorates, to be flexible on the implementation of the law on overtime to permit these enterprises to carry out their internal adaptation (The Tribune, 9 April 1999). Another initiative by professional organisations consisted of asking the government authorities to suspend the regulatory and legal modifications in the second half of 1999 in order to allow the banking sector to concentrate on its internal adaptation to the year 2000, without having to take into account new parameters (The Tribune, 8 February 1999).

The following are the adaptation stages of enterprises:

- Sensitisation
- Inventory and planning
- Realisation
- Tests and
- Deployment,

in a logical order of modification and verification sequences.

The approach retained is purely internal and generally does not take into account the satisfaction of consumers, in so far as the maintenance of the possibility of satisfying the consumer necessarily passes by taking into account failure risks throughout the supply chain, i.e. external risks.

Example: Customers of retail shops. Whatever their size, the shops can very well have carried out their internal adaptation to the year 2000 (putting their equipment, computer hardware, cash registers and safety systems into conformity), without being assured of the absence of external risks such as failure of registration of orders at the suppliers, or absence of failures of payment terminals by banker's card.

Airline companies customers. Even if compatibility of the equipment to the transition of year 2000 has been verified, the distribution of luggage services assured by the airports can very well be failing.

The adaptation to external risks is taken into account less although it is the most worrying thing. The information of consumers is generally not taken into account, the objective being generally an affirmation which one can regard as assuaging that enterprises are year 2.000 ready.

Assuming this is true for its internal functioning, this reassuring affirmation does not take into account the preparation defaults of the enterprise's suppliers and the general environment. This approach is the opposite of the approach adopted by the American enterprises, (involving some of the most important enterprises, like General Motors, Nike, Mac Donald) which require their industrial or commercial partners to be ready for the year



2000, under penalty of no longer dealing with them, and 69% of the largest enterprises in the USA say that they have decided not to deal with enterprises and partners who are not year 2000 compliant (Le Point, ed affaires no. 1380, 27 February 1999, p.VIII).

In this, the affirmation of adaptation can only apply as regards those which the enterprises are directly answerable, except precaution solutions. The enterprise must inform its customers, and therefore possibly the consumer, of its state of preparation, and this in a prudent manner, but also of the risks resulting from suppliers and general environment.

The consumer cannot have an active role in the internal organisation of the enterprise, but he can take the necessary measures as to his own protection and adapt his position to the potential risks.



# The consumer and the bug ridden product

## ***The consumer, user of a bug ridden product***

The consumer is vulnerable to the year 2000 transition as buyer of products that may be bug ridden because he has become a computer user and because he is buying many products with microchips.

The powerlessness of the consumer to press on the companies' choice of internal adaptations to the year 2000 gives a certain specific character to its vulnerability . It is what the Consumers Committee revealed in its opinion dated 24 September 1998 on the Year 2000 related problems. The Committee recommends a more complete information possible of the consumers on the state of the enterprises preparation. The Committee's finding of vulnerability and the deliberations of the European Union authorities (i.e. Conclusions of the Cardiff and Vienna summits, the Commission's report of 2<sup>nd</sup> June 1999 on the preparation of the infrastructures for the year 2000) have led to the decision to carry out this study.

## ***The computer user consumer***

The consumer has become a computer user with the appearance of personal computers, (Apple and PCs as they are called ), in the 1980s.

Because of the decrease in the price of hardware, the consumer has become more and more a frequent user of computer systems. It is what we generally call personal computer. Following the increasing sophistication of the technical products, the microprocessors, the price of which has decreased very significantly, has swept through a range of products purchased by the public, from cars to video cameras, washing machines and games.

The consumer, who is the user of computer products, systems and services or products containing microprocessors, is likely to be a direct victim of the bug. Even the consumer who does not use a computer system can be the direct victim of a technical system containing a microprocessor.

The problem is the product supplier's liability to the consumer. This liability is that of the seller and the manufacturer.

The legal status of the consumer is similar to that of an enterprise, subject to his status from viewpoint of the consumer protection, and also because the computer will be a standard system and not a system manufactured to the specific needs of a professional.

From viewpoint of certain laws, the consumer will be in the same situation, as the professional who purchases the computer that is not directly connected to his activity<sup>6</sup>

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<sup>6</sup> On the extension of the notion of consumer see for example in Netherlands : decision of the Commercial Court of Hilversum of 25 January 1995, Praktijkids 1995, Revue Européenne de Droit de la consommation no. 4247, REDC 1996-70.

The definition of consumer in the directive proposal on the sale and guarantee of consumer goods (see Mario Tenreiro, The directive proposal on sale and guarantees of consumer goods, REDC 1996-187) extends to any individual who buys a good for final use, even if the purchase is carried out for a purpose which is not part of his professional activity. In fact, any individual "*who, in the contract of sale falling within the present directive, acts for the purpose which does not fall directly within his professional activity*" is considered as consumer. It is important to point out that this extension of the notion of consumer has not been retained in Directive n°99/44 adopted by the Council.



The consumer must rely on the technique skills of his hardware or software supplier, or on his service provider. However, he can at least play a partially active role.

On computer or technological product, the consumer can be an informed user, if he is computer addict, in the sense less a layman than a non-computer scientist professional<sup>7</sup>. He will join the professional purchasing a computer system not directly linked to his activity, whom the French case law treats as a consumer<sup>8</sup>.

However, with the development of the computer for the public at large, one can consider that in most cases the consumer will be a layman, which does not exempt him from possibilities of action and therefore possibly from the obligation to ensure the adaptation.

The definition of consumer as a non-professional user of a product or a service is particularly tricky in this context. If we can differentiate the use of computers at home, this overlaps more and more the personal and professional use.

### ***The consumer and the failing of a bug ridden product***

The malfunctioning due to the bug affects directly the computer product or technologic equipment used by the consumer.

**The consumer as user finds himself in the same situation as an enterprise, given that if in a computer product he can be "warned", as it is still more evident that generally he will a layman.**

The consumer who is the victim of the bug can either suffer an inconvenience, or suffer damages to his financial and material interests, or suffer personal injury.

For certain products, such as computer products, the bug risk is evident. For other products, as regards the consumer in any case, the problem of information is different.

#### **Computer products: home computer**

The computer has spread into the consumer's homes and computers have become consumer products. This phenomenon is particularly due to the decrease of the price of computers that are now sold more and more in supermarkets.

The computer can be used for play or leisure activity (game, multimedia) or for management of home interests (word processor, files, personal management software, stock market management software), or for educational uses. Rightly or wrongly, the contract will be qualified as "*computer contract*". This will be purchase agreements, license agreements, computer service agreements, and development software package agreements.

As regards the hardware, it will be mainly personal computers, PC or MAC (which do not have hardware problem, but whose application software have similar risks). The use of servers by the consumers will be rare unless we categorise professionals (especially SMEs), who do not have the computer as their main activity, as consumer.

<sup>7</sup>The consumer law categorises the end user as layman. The special competence of the consumer will not however deprive him of the protection of the consumer law

<sup>8</sup>See for example in France, Cass.Civ.1st December 1998



## SOFTWARES USED BY CONSUMERS

Regarding home use personal computers and professional use personal computers, the softwares could be varied. Systems which are typically for personal use are delivered (*Works*) with personal financial management softwares, stock portfolio management softwares etc. There are application softwares for leisure activity, but also softwares for educational purpose. These softwares are generally pre-installed and delivered with the computer.

In many cases, the softwares will be sophisticated and could be the same as those of enterprises, at any rate SMEs. More and more softwares similar to the professional ones permit the internal structure of computer aided design etc., whose malfunctioning may affect the consumer's interest.

The impact of a crash on the consumer will not generally be dramatic (for example non-functioning of a video-recorder recording on 29th February 2000) and, as many have underlined, consumers have been accustomed to software editors supplying bug ridden products. This does not mean that the damage will not be significant. The vulnerability of the consumer who has made a sizeable purchase for educational purpose is similar to the vulnerability that exists regarding children's encyclopaedias. Moreover, as regards, for example the financial management software or stock portfolio management software, the impact of a

processing error or of a defective transmission can cause a considerable damage to the consumer's property interests.

The consumer can be a purchaser of new products, but he can also be a user of products already purchased.

In any case, it is appropriate that he preliminary issue which arises is "ageing" tests, and in any event he confirmation of dispatch and Its is the duty to co-operate in computer contracts.



(the consumer) does not remain passive. The one of duty of care: the consumer can carry out can take safety measures such as "back up", receipt, control of emissions and receptions etc.

## Compatibility and date of sale

The notification of the products' and software' sale date seems to be different for consumer and enterprises.

Regarding technical and professional awareness (articles in computer newspapers, conferences etc.), the awareness of this problem goes back to 1995. For an enterprise, an equipment's life span is often estimated at 5 or 6 years. The leasing duration is generally 3 to 4 years. In fact, the hardware has longer life span. The issue of life span is often assessed according to the notion of obsolescence. However, this notion is subjective and is laid down by the software publishers, as it was the case for cars with annual models.

The general awareness of the problem dates from 1998 because it corresponds to the media coverage of the problem for the public.

The date on which the public came to know compatibility as a problem and the notification of the date of sale raises the problem of obsolescence, in a way programmed by the software sold with an expectation of use not exceeding the year 2000. This obsolescence, contrary to the previous evolutive aspect, is translated at the end of this millennium by the absence of downward compatibility of Word 97 compared to Word 6. The year 2000 bug is the revelation of the imposed subjection by software editors to the users.



The obsolescence of computer hardware must in any case be assessed differently for a consumer. The pressure of obsolescence arising out of the publication of new versions with "*the date/year of manufacture*" weighs particularly on the consumer.

The date and type of equipment will be important parameters in the assessment of the guarantees that must be given, as in the framework of assessment of contractual good faith.

The lack of durability is often expressly regarded by the legislation as a product defect<sup>9</sup>.

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<sup>9</sup> See for example under Irish law article 14(3) of the Sale of Goods and Supply of Services Act 1980 "goods are of merchantability quality if ... as durable as it is reasonable to expect having regard to any description applied to them, the price (if relevant) and all the other relevant circumstances ». Also in Art. 14 of the *Sales and supply of Goods Act* of 1994 « *the quality of the goods includes...durability* ».

Article 5(2) of the Greek Consumer Protection law defines the period "*during which it is reasonable to expect that the product could be used for the purposes which it is intended, even if for that it must be repaired or if certain parts must be replaced, until wear and tear of the product makes the product unuseable or economically without interest*".

The durability is often imposed by environmental laws. In Denmark, article 5 of the Law on Environment Protection (1991) requires suppliers to design products with the longest life span possible.



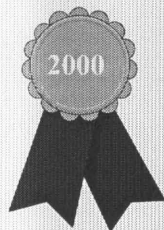
## COMMERCIAL GUARANTEE

Commitments undertaken by manufacturers and sellers must, under Member States legislation, be additional guarantees in so far as it cannot be derogated from the legal guarantee. This principle is retained in Article 6 of the Directive n° 99/44/EC passed on 25<sup>th</sup> of May 1999 on the sale and guarantees of consumer goods, which will be applicable within all Member States at the latest on 1<sup>st</sup> January 2000. Moreover, guarantees that do not add anything to the rights already held by the consumers, or *a fortiori* which seeks to reduce those rights, would constitute a misleading advertising.

The year 2000 compliant labels must be examined in light of these principles.

### Year 2000 compliance

Enterprises voluntarily use year 2000 compliance certifications for hardware and software. These (self) certifications are not without problems from the viewpoint of the consumers.



### Consumers and the Year 2000 labels

#### **Hardware**

It is generally recognised that personal computers dating before 1996 are not year 2000 compliant. The evaluation of this compliance defect rests, among others, on the implied life span of a computer. We think a difference must be made between enterprises and consumers. The importance of a certain obsolescence of a hardware for the consumer appears debatable, especially where it results from the additional power required by new versions of the softwares whose increased functionality are often unimportant for the consumer.

In view of the life spans taken into account, computer manufacturers use October 1997 as the date on which the year 2000 compliance is ensured.

#### **Products for sale: express or implied certification**

Products for sale can be considered as being impliedly guaranteed compatible with transition to the year 2000, in any case from the pivotal date indicated above.

A majority of manufacturers explicitly confirm the capacity of transition to the year 2000. This (self) certification of year 2000 compliance raises the problem of the meaning of the year 2000 label. As it has been pointed out, the year 2000 compliance for PCs is not absolute, and it is the same for many softwares. No universal certification standard has been adopted and there are only national schemes, which constitute only private norms.

The main manufacturers use the certificate of the American firm, NSTL, which supplies computer evaluation softwares. The NSTL programme controls hardware components.

Norms have also been developed for softwares. In this, the Software Testing Assurance Corporation has defined the year 2000 compliance evaluation criteria.





The certification is thus a guarantee of conformity to the specified norm concerning either the hardware or software.

Different concepts can be used with the difference between the two notions used, that of 2000 *Compliant* and 2000 *Ready*. The latter concept in particular does not exclude any potential problem but an optimum adaptation.

The question is whether the consumer is aware of the restrictions these labels include. Informative, the certification is somewhat comforting. The inaccuracy of the label would be a misleading advertising. Certain national authorities examine the degree of effective compliance of certain softwares generally used by the consumers.

It must be recalled that misleading advertising is the subject of directive no 84/450/EEC which provides a community definition of this notion. This definition focuses on advertising likely to deceive. There is no need to prove that individual consumers were effectively misled, it is sufficient that the danger exists.

The certification is developed for computer products. It is not used for technological products whose possibility of transition to the year 2000 can be considered as implied without it being evident.

### Commitments of continuity

Actions for fraud could be used when affirmations such as "*Software you will never outgrow*" are used. It will also be possible to institute a civil action for commitments of continuity. The first legal test in the U.S.A. was not positive (*Paragon Networks Int'l v. Macola. Inc. N° 98-0019 ; Ohio Ct. of Common Pleas, Marion Cty*) but the decision was appealed. An action commenced in France regarding an "unlimited duration" undertaking after failing the courting first instance has succeeded on appeal (*CA Dijon, 4<sup>th</sup> February 1999, 1<sup>re</sup> ch, 2<sup>e</sup> section ; Moiroux et a. c/SA Bel Air Informatique, JCP E 29<sup>th</sup> April 1999*).

## **COMPENSATION AND INDEMNIFICATION**

**The consumer will have at his disposal actions which arise from :**

- **Law of Sale,**
- **Ordinary law of liability,**
- **Consumer law,**
  - ✓ **Liability for defective products**
  - ✓ **Safety obligation**

Various Member States have introduced into their internal law the provisions of directive 85/374EEC of 25th July 1985 on liability for defective products. The guarantee is imposed on producers, on the basis of extra-contractual liability<sup>10</sup>, and on sellers on the basis of the law of sale.

The extra-contractual liability allows to a large extent to ensure the compensation of damage caused to persons and property. On the other hand, contractual liability will generally be the only basis for compensation of purely pecuniary damage.

<sup>10</sup>Qualification retained by the Court of Justice of the European Communities concerning judicial competence, Jakob Handtke/TMCS judgment of 17th June 1992, case C26/91 Recueil 1992, p. 3967



**Directive 92/242/EEC of 31 December 1992** lays down the principles on safety of computer systems. For hardware, the inadequacy could be interpreted as a hidden defect, an error as to the very substance of the thing or lack of conformity. It could be treated as a breach of the seller's obligation to advise and obligation of good faith. Besides, the problem could be assessed from the viewpoint of after service obligation, and of correlative supply and maintenance obligations for a reasonable period after the sale. These obligations are provided for in various national laws<sup>11</sup>.

For softwares, the programmes are generally not sold, but delivered under licence. The law of sale is therefore not applicable<sup>12</sup>. However, the obligation to ensure quiet enjoyment of the thing, misleading advertising, breach of good faith or error could be raised.

### **Defective products and safety obligation**

Pursuant to the laws implementing directive 85/374 EEC on liability for defective products, the compensation of defective products will apply in case personal injuries, and under certain conditions, to other personal property. On the other hand, damages caused by damage or destruction of the defective thing itself are excluded from the ambit of the directive. (See article 9 on definition of damage.).

It must be underlined that article 3 (2) of the directive on general product safety has imposed on the producers the obligation to inform, in particular on risks, and an obligation to adopt appropriate measures. These accessory obligations are generally adopted in the transposition laws. Only Finland, France (where this obligation of information is well developed by case law), Greece and Sweden (except as regards the obligation to inform) have not adopted any of these obligations.

Germany, Italy, Netherlands, Portugal and the United Kingdom do not mention the detail provided by article 3(2), which is that a warning by the professional does not exonerate him from complying with other obligations.

The obligation to adopt appropriate measures, including if necessary withdrawing products, is not adopted in the German law where only the obligation to avoid risks is mentioned. However, the producer has the obligation to monitor the evolution of his product after marketing<sup>13</sup>.

Furthermore, certain obligations have been added to those provided by the directive: for example in Austria, Belgium and Finland, the producer is subject to an obligation to inform the authorities of any risk which they may know or of any voluntary measure which they may adopt to face the risk.

Besides, the distributors are called on to co-operate in the implementation of the general safety requirement set out in article 3(1) of the Directive. The distributors have an obligation of due care, to participate in the follow up of the products, and the obligation to co-operate in the measures taken to avoid the risks.

Among the countries that have introduced the distinction between producers and distributors to impose the obligation put forward, only Austria, Belgium, Spain, Italy, Portugal and the United Kingdom have incorporated in their transposition law the obligations imposed on the distributors.

<sup>11</sup> See for example under Greek law, cf Elisa Alexandriou, Greek Law n°1961 on consumer protection, REDC 1992-1.

<sup>12</sup> Under English law for the non-application of Sale of Goods Act, see. *St Albans City and District Council c. International Computers Ltd* ([1996]) 1 All ER 481. Regarding a defect in the software which led to a tax computation, the judge however considered that the programme must reasonably be able to achieve the established objectives. The limitation of liability contained in the contract was considered unfair and the firm was held liable for all the loss suffered..

<sup>13</sup> *Produktbeobachtungspflicht nach Inverkehrbringen der Waren*



Austria has added the same obligation to inform the authorities, as that required of the distributors. Germany has not provided the obligation to participate in the follow up, or the obligation to cooperate in the enterprises' measures to avoid the risks.

On the other hand, many countries like France apply the obligations applicable to producers to the distributors. Ireland has increased the obligations imposed on the distributors by also imposing on them an obligation to control and an obligation to inform the producer of any defect or risk that they may know.

## *PATCHES*

A question that will be raised is the obligation to provide a solution to the year 2000 transition, but also whether such availability exonerates liability.

The year 2000 bug forms part of the bugs that are a common phenomenon in softwares. All marketed softwares, not to mention beta versions, generally contains bugs, the number of which bugs are reduced by successive versions.

This may be accepted as militating both in favour of a certain tolerance for the year 2000 bug in the older versions, and in favour of an obligation to update and to upgrade the level of these versions. One can consider that there is an obligation to provide patches and upgrades, but also an obligation to warn the consumers of the potential risks.



## LEGAL GUARANTEE

### The consumer's legal weapons

The liability to consumer involves the law of obligations regarding the sale of products and softwares, and more generally rules on the general obligations of information.

The legal guarantee constitute the buyer's legal protection because of the defects in the purchased goods and as collateral effect of the contract of sale, as opposed to the commercial guarantee which arises from the commitment undertaken by the manufacturer and distributor.

These legal guarantees result from civil codes in Member States with civil law tradition<sup>14</sup>. The producer's liability by the legal guarantee, with a direct action against the manufacturer, comes from case law in France, Belgium and Luxembourg. It has been introduced in the Finnish legislation.

The provisions of the consumer protection law often complete the legal guarantees.

In common law countries<sup>15</sup> or countries without civil law tradition<sup>16</sup>, the provisions are found in general laws relating to contract of sale, or in specific consumer protection laws. Generally, the consumer benefits from legal guarantees which constitute his legal protection in the contract of sale. These guarantees are aimed at protecting the buyer's confidence in the contract of sale; his legitimate expectations from the purchased product, and they operate independently of any expression of parties will, producing the effects fixed by the law. According to the legal protection conferred by this guarantee the purchased goods must be free from "defects"<sup>17</sup>.

The legal guarantees contain distinctions that vary according to European national systems. In the more recent codes, like the Netherlands civil code, the notion is "*default of conformity to the legitimate expectations of the consumer*". The Italian legislator<sup>18</sup> underlines the importance of the presentation of the product, impressions it can raise, instructions and warnings which are provided. The definition of "*packaging*" reflects the basis of the product liability, that is "*trust on its dependability*".

In the old codes, the basis of liability action lay on a distinction between failure in the formation of the contract and non-performance of the contractual obligations.

This legal guarantee in the sale to the final consumer differs from the Vienna Convention that regulates international sales between professionals<sup>19</sup>.

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<sup>14</sup>Germany - articles 459 and seq; Austria- articles 922-933; Belgium, articles 1641 to 1649; Spain, articles 1484s; France, articles 1641-1649; Italy, articles 1490-1497, Luxembourg, articles 1641-1649 (as modified by the law of 15th May 1987); Netherlands, articles 17 to 25 of book 7, Portugal - articles 913-922.

<sup>15</sup> Ireland - Sale of Goods and Supply of Services Act 1979; United Kingdom- Sale of Goods Act 1979, Supply of Goods and Services Act 1982, as modified by the Sale and Supply of Goods Act 1994.

<sup>16</sup> Denmark - Sales of Goods Act 1906, as modified by the Consumer sales Amendment of 1979; Finland- Chapter 5 of the Consumer Protection Act 20 January 1978, as modified in 1994; Sweden- Consumer Sales Act 6 September 1990, articles 16 to 34.

<sup>17</sup> See Mario Tenreiro, Garanties et services après vente : brève analyse du Livre Vert présenté par la Commission Européenne, REDC 1994/3

<sup>18</sup> Presidential decree 224/88

<sup>19</sup> The Vienna Convention has been ratified by about 40 countries, among them many Member States (Austria, Germany, Denmark, Spain, Finland, France, Italy, Netherlands and Sweden).



## Formation of contract

The consumer can invoke an error as to the very substance of the thing<sup>20</sup>.

“*Dol*”<sup>21</sup> or tort of misrepresentation, the consumer could argue that he was misled as to the compatibility of the thing, either by fraudulent non-disclosure, or by inaccurate affirmation.

## Performance of Contract

In case of non-performance of the contract, the consumer can invoke the hidden defects guarantee, obligation of conformity and obligation of information.

**Hidden defect guarantee**<sup>22</sup>. This will be subject to the procedural requirement of a proceedings within a short period. It unquestionably applies to hardware. In so far as the availability of the software is not considered as a sale, the guarantee action does not come within the short period. However, basic softwares are commercially integrated into the sale of the computer and the unit thus created between the hardware and software integrates the software to the computer's functionalities.

**Obligation of conformity.** The obligation to deliver in conformity with the thing bought raises the question of the system's life span (use by an average consumer). The consumer can claim that non-conformity is a failure of the obligation to deliver. As this obligation is on the seller, the consumer can ask for the maintenance of the operational conditions of the product. It is important to point out that Directive n° 99/44/EC of the Parliament and the Council on the sale and guarantees of consumer goods, adopted on 25th of May 1999, and which must be transposed before 1st January 2002, will guarantee the consumers identical and precise rights within the European Union, in case the purchased consumer good does not conform to the sale contract within two (2) years from the delivery. The uniform character of the strengthening of the guarantee for the consumer is further increased by the detailed definition of the notion of conformity (see article 2).

**Supplier's obligation of advice and information.** The area of computer is marked by a development of the expert's duty to inform. The solution proposed by professionals must objectively correspond to user's expectation and the supplier is at fault if he does not meet this expectation. If the user is a consumer, this obligation appears to be strengthened because it generally affects a layperson. When the consumer is not a layperson, but a warned purchaser, his level of knowledge cannot lessen the protection under the law and case law concerning the obligation to advice since the advice is less necessary. On the other hand, his knowledge of the purchased product does not deprive him of the legal protection granted to any consumer (hidden defects guarantee, prohibition of exclusion clauses etc).

The corollary of the supplier's obligation to inform is the user's obligations to co-operate and to inform himself. Regarding a consumer, the obligation to replace hardware of a certain age appears to be reduced. For the consumer, the life span must be regulated, as indicated above, by considerations different from those applicable to enterprises.

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<sup>20</sup> article 1110 of the Civil Code in France or Belgium

<sup>21</sup> article 1116 of the Civil Code in France or Belgium

<sup>22</sup> article 1645 of the Belgian Civil Code



## Exclusion and limitation of liability clauses

These clauses will be assessed in particular from the viewpoint of the laws on unfair contract clauses. **Directive 93/13/EEC on Unfair Contract Terms** sets out the minimum protection that must be offered to the consumers<sup>23</sup>. However, the directive gives a definition of unfair clauses which gives room for interpretation by Member States laws since these clauses are those which have not "*being individually negotiated*" and causes a *significant imbalance in the parties' rights and obligations arising under the contract, to the detriment of the consumer*".

The laws are varied and generally go beyond the directive. Article 276(2) of the 1976 German law AGBG on general contractual conditions and article 1341 and article 1229(2) of the Italian Civil Code were the first to provide expressly this nullity. Further, article 9§1 AGBG imposes an obligation of transparency and the judge to restore the contract to equilibrium to protect the customer<sup>24</sup>.

It is also provided for in the legal systems of Portugal, Spain, Ireland, Netherlands<sup>25</sup> and Denmark.

The prohibition was implemented in Great Britain by the Unfair Contract Terms Act of 1995. Under section 2 of this law, an enterprise cannot exclude its liability in tort (on the basis of negligence) for personal injuries. For other damages, it can only exclude or restrict in so far as it is "reasonable". Regarding contractual ability, the Consumer Protection Act of 1987 prohibits any limitation or exclusion of liability for defective products.

The 1992 Swedish law on Consumers prohibits exclusion or limitation clauses with regard to consumers, like the 1985 law of service of consumers.

National laws extend the protection to certain professionals. For example, in Great Britain, article 3(1) of the Unfair Contract Terms Act extends its protection by specifying that it also applies when the contract is based on written general conditions prepared by the other party.

Parallel to regulatory provisions, case law rules often affect the legality of the exclusion clauses.

Under French law, the limitation of liability clauses, which may be invoked for the year 2000 bug, are not applicable to a sale, but remain valid for non-sale operations. A similar solution is applied by Spanish case law<sup>26</sup>.

English courts have even extended the protection against the exclusion clauses to professionals when they do not act within their professional activity<sup>27</sup>.

In any case, these clauses may be void or cannot be invoked either because of compliance affirmations, as a result of the application of the law of sale on the functioning defect of the hardware including software, or because of serious fault.

The question of validity of exclusions and limitations of guarantee can arise in the form of qualification of the clause as unfair, or unconscionable (see USA Magnusson-Moss Consumer

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<sup>23</sup> Besides the provisions of the Magnuson-Moss Consumer Product Warranty Act (15 USC §2301 and *seq.*) which prohibit sellers and suppliers of services from excluding their liability or limiting it unreasonably could possibly be used.

<sup>24</sup> See for example Cour Suprême 23 March 1988, REDC 1988-239

<sup>25</sup> Article 192 of book 6 on product liability which cannot be limited and article 237 of book 6 on general conditions.

<sup>26</sup> Supreme Court 26 January 1990, REDC 1992-42

<sup>27</sup> *R and B Customs Brokers Co Ltd v. United Dominion Trust Ltd*, (1988) 1 WLR 321; *Davies v. Sumner* (1984) 3 All ER 831



Product Warranty Act) and of warranties given to the consumer (with the problem of the scope of application of this protection).

### **Manufacturer's liability for defective products and safety obligation**

The general liability for defective products will be determined according to the manufacturer's liability in various Member States.

In case of personal injuries or damages to other property, the liability for defective products is governed by various national laws, which are in conformity with directive 85/374/EEC on liability without fault for defective products, and directive 92/59EEC on general product safety. The question is whether the software is a product and whether the year 2000 bug constitutes a defect.

The definition given by the directive is very general (article 2(a) of directive 92/59EEC). A product is defined as being "*any product intended for consumers or likely to be used by consumers, supplied whether for consideration or not in the course of a commercial activity*".

Luxembourg has adopted the directive in full. Five Member States (Belgium, Denmark, Finland, France and Sweden) have included not only the products but also services intended for consumers within the ambit of their law. Other countries limit themselves to covering consumer products, which leaves open the door to an extensive interpretation of the notion of product, except the United Kingdom which has added a paragraph in its law which expressly excludes products linked to services. However, it should be pointed out that, once Directive n° 99/44/EC of 25<sup>th</sup> May 1999 on the sale and guarantee of consumer goods is transposed (see article 2 paragraph 4) the exclusion of liability for performance of services cannot be maintained as regards the default of conformity resulting from a wrong installation of the good by the seller or under his responsibility.

As regards the definition of safe product, Austria, Greece, Italy and the United Kingdom have literally adopted the definition of safe product given in article 2(c) of the directive and accompanied it with safety assessment criteria.

Certain countries have given a slightly different definition of safe product :

Germany : absence of appreciable risks, not compatible with the method of use and not acceptable in light of the technical rules,

Belgium : reference to legitimate expectation of the consumer,

Denmark : total absence of risks, without criteria for assessment of safe product,

Finland: product likely to cause damage, without assessment criteria.

Lastly, certain countries (France, Netherlands, Sweden) do not give any definition of the concept, keeping a broad and indefinite notion which allows a flexible application.

In the United Kingdom, the government has enacted the Limitation Act 1980 which provides that the user cannot commence an action 6 years after the conclusion of the contract.

In France, the law n°98-389 of 19th May 1998 is aimed at establishing the respective liability of the user and supplier from facts subsequent to 1st January 1990.

The bug is a problem whose consequences have been known for at least ten years. The consequences of malfunctioning of household products will generally have minor consequences: dating error by a camera, refusal by a video recorder to record on 29 February 2000. Personal injury is possible from a microwave oven, a house automation system or medical equipment.



## **Legal actions open to Consumers**

In the **United Kingdom**, the consumer has two types of legal actions: one on the basis of contract (against the seller of the defective goods or products), and the other on the basis of tort (against the manufacturer for negligence and against the seller on the same basis if he fails to warn the consumer of the product defects known to him). The Consumer Protection Act 1987 lays down the principle of liability of the manufacturer for damage caused to anyone by the defective product. According to this Act, for compensation of financial damages, the claimant does not have to prove negligence, but must prove his damage, defect in the product and the causal link between the two.

In **Germany**, two types of actions are also open to consumers. The first is based on the law on product liability that transposes directive n° 85/374 EEC into German Law (Produkthaftungsgesetz Prod HG). Under this law, in force since 1st January 1990, the manufacturer (and only exceptionally the distributor) is liable for damages arising from defects in a product, without regard to his fault. However, his liability will not be incurred if it is established that the product did not have the defect when the manufacturer sold the product. Similarly, according to this law, the manufacturer will not be liable if the defect could not have been known at the time when the product was placed on the market (the exception of development risk is also accepted by the Austrian Law of 1990, Produkthaftungsgesetz (article 8), and by the Belgian law of 25 January 1991 on product liability, for calling in the manufacturer's contractual liability by the Consumer ; similarly development risk is allowed in the Irish law on defective product liability – Statutory Instruments n°316 of 1991). The second is based on liability in tort (article 823 of the Civil Code : Bürgerliches Gesetzbuch or BGB). Even if there are no contractual relations, the manufacturer is obliged to repair any damage caused by one of his products if an intentional fault or negligence can be imputed to him.

In **Belgium**, the contractual liability action is open against the seller who, as in French law, is presumed to know the defect of the thing sold and cannot thus restrict or exclude his liability to the consumer. In addition, there is a dual basis for compensation action by the consumer on the basis of the manufacturer's fault. On the basis of the law of 25 February 1991 on product liability, the manufacturer or the importer (and distributors if they do not disclose the identity of the manufacturer or importer) is obliged to compensate all personal, moral and property damage arising from a safety defect, without regard to his fault. Thus, the manufacturer's liability can be incurred on the basis of liability for fault. The victim must prove, besides the existence of damage and causality links that the dangerous character of the product results from the manufacturer's fault.

The system of legal actions under **Italian** law also lies on the distinction between contractual liability action open to consumers against their sellers, and liability in tort on the basis of fault regarding damages caused by the defective or dangerous products (article 2043 of the Civil Code). In practice, the Italian courts presume proof of the manufacturer's negligence almost automatically once the defect in the product is established.

In **Spain**, liability for malfunctioning is traditionally governed by the provisions of the civil code relating to liability for fault. Besides, the law n° 22/1994 on product liability that introduced directive n° 85/374 into Spanish law constitutes an additional source of liability for the manufactures and importers when damages are caused by products with safety defects. The distributors are only exceptionally held liable, under the terms of this law. The limitations or exclusions of producer's liability with regard to the victim are inoperative. However, the law fixes maximum personal injuries compensation at 70 Million Euros.

In **Finland**, the Product Liability Act n°1990/694 as modified in 1993, and the Product Safety Act n°1986/914, allow the consumer to bring an action for compensation against the professional seller when the products are dangerous and affect the consumer's health and his property. The seller has a





general obligation to verify the safety of products and can only escape his liability if the consumer uses the product without respecting the usual precautions or in a manner contrary to the producer's instructions.

### Procedural aspects

Time limits for action and prescription will raise, in the context of imported products, the conflict of laws problems (including problem of qualification) and rules of substance.

Many laws provide time limits for commencing legal actions, which are either short notice<sup>28</sup>, or fixed period<sup>29</sup>.

The laws have laid down maximum limits concerning the calling in of the liability of the product not complying with the safety obligation: for example, French Law n° 98-389 of 19 May 1998, as in the Spanish law n° 22/1994 of 6 July 1994 and the Belgium law of 25 February 1991, provides that the consumer shall not be able to commence an action after three years from the date when the damage occurred, and ten years from the date the product was placed on the market.

It should be pointed out that according to article 11 of the Directive concerning defective products, the implementing of legal, statutory or administrative provisions provide for the obligation to initiate a legal action within 10 years of the product's first marketing.

The consumer must be careful of the contractual clauses defining the guarantee (including year 2000 compliance), limiting or organising potential recourses and restricting or excluding liability.

### Compliance by service providers

Even if this assumption appears less frequent for a consumer, he can call on another service provider to bring the computer system into conformity. The computer service provider is liable if he has not corrected the bug that he was entrusted to eliminate.

With regard to maintenance contracts, the question of whether they include bringing the system into conformity (question which arises in the context of long duration contracts or accompanying the custom made software development), does not appear to apply to consumers. The standard contracts relating to hardware and software maintenance are in fact for a duration less than the period between the pivotal compliance date and the year 2000.

The directive does not apply to liability for services. However, for the protection of consumers, various national legal systems have taken legislative measures regarding service providers: for example in Greece<sup>30</sup> and Sweden<sup>31</sup>.

In the United Kingdom, the Supply of Goods and Services Act of 1982 obliges the service provider to exercise reasonable care when providing services. This standard is assessed on the basis of what was known at the time when the services were effected, in terms of safety standards, possibility of eliminating the risk and instructions and warning given to the consumer.

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<sup>28</sup> In France for hidden defect guarantees. In Belgium, the rule is identical for hidden defects, this short notice being also assessed on a case by case basis by the judges, without however able to exceed a period of one year

<sup>29</sup> See for example Portugal (6 months), Luxembourg (1 year), or Netherlands (2 years).

<sup>30</sup> Law of 16 November 1994

<sup>31</sup> Law on sale to consumer of 1991



## Technological products

Following the technological development and reasonableness of the cost increase of microprocessors, products used by consumers incorporate more and more chips permitting processing possibilities. The presence of these chips and *a fortiori* their functioning escape the consumer's knowledge, and in any case any possibility of intervention by the consumer, or even, in nearly all cases, to test the transition to the year 2000.

The technical systems using micro- programmed devices, owing to the electronic invasion, are in the consumers' domain at several levels. They are located in the homes and in household equipment developed since the 1980s, in the context of the concept of house automation. Traditional household equipment is generally programmed according to days, but various equipment can have a programming including a reference date (power plant safety, watering management, video camera etc.).

In the same way, microprocessors are incorporated into electronic board, cars, ships and planes that the consumer can use.

The year 2000 bug can thus cause damage to the consumer's goods and possibly personal injury.

Civil and criminal liability for product defects which causes personal injury would be incurred. The product liability, and possibly breach of safety obligation, is included in legal systems through the transposition of European Directives.

The question is whether the year 2000 bug would be qualified as a development risk<sup>32</sup>. In the laws adopted for the implementation of the defective product liability directive, the exception of the *State of the art defence* may be raised by the question of application of this defence. As this problem has been known for many years and which could have been remedied, this argument does not seem defensible.

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<sup>32</sup> The German law makes the development risk a liability exoneration cause except when it concerns medicines. The Greek law (art. 10 of law n° 1961 on consumer protection of 24 December 1991) provides the exoneration of liability if the manufacturer proves that at the time when the product was put in the market "*he did not know nor could reasonably know the defect*". The Luxembourg law (law of 21 April 1989) lays down the most extensive protection, even in case of development risk. The Italian decree of 24 May 1988 provides that the manufacturer cannot be considered liable if the state of scientific and technical knowledge, at the time the manufacturer put the product in circulation the product, did not permit to consider the product defective.



# CONSUMER, INDIRECT VICTIM OF THE BUG

*Some examples show the potential problems. The London Times reveals that on 3rd may 1998, a surgical operation was cancelled because the computer systems indicated a rupture in the medical stocks, thinking that the stocks were outdated since 1901. A petrol wholesaler in the USA discovered that the automatic supervision systems of the pumps was going to jam itself after 31.12.1999 thinking that no maintenance had been carried out for 10 years. Similarly the safety of buildings is likely to be compromised by the computer systems which will unlock doors without surveillance on 1st January 2000, considering it as first working day.*

The result of continually increasing importance of data processing science and information technology is that the consumers, end users, will suffer the accumulated impact of the chain effects and secondary effects related to computer problems in the functioning of enterprises. If the impact on enterprises is often described, this impact on consumers is at the moment not emphasised, apart from certain anecdotal aspects like the problem of transport safety on New Year's eve.

Consumers are likely to be victims of the bug outside of any direct use of products, systems or computer services. The malfunctioning of hardwares and softwares used by enterprises,

public services, or administration affect the consumer. It is not a failure of the consumer's computer system, but a failure of the third party system. The inventory of all hardwares touched by the computer is a huge task, practically impossible.

The failure by the industry, trade and public services affect the consumer's comfort, economic interests and even safety. This failure can arise from problems caused by the bug in the functioning of the management systems, production systems and information technology systems. Management systems (salary, accounting, invoicing, stock control, treasury, data base, telecommunication services) are vulnerable, but it is the same for technological systems which use digital data processing in their functioning, control and management. It can be technical management of buildings, enterprise's automatic switching system, safety systems, automatons, etc. Technical systems can be integrated into cumbersome production process or dispersed.

Automaton which stops the production system will be immediately detected, but not necessarily the automaton that makes a mistake as to the date. It is not only difficult to detect the microprocessor, but also the consequences of its functioning. The problem exceeds the scope of the enterprise if it results, for example, in a breakdown of production or labelling.

It is not a customer-supplier relation on the product having the bug, but on a product or service which will be affected by a defect due to the bug. The failure due to the year 2000 bug that is the origin of the defect in the product or service does not concern the subject of the customer-supplier relation.

Still, the consumer an indirect victim of the bug can either suffer discomfort, or suffer an attack to his financial and property interests, or suffer a personal injury.

## Risks for consumers

Because of the bug, the consumer can receive a defective product that causes a damage to property or persons. He may be a victim of the failure in the services provided to him, and in the loss of information pertaining to him. The enterprise's liability will thus be defective product liability, in particular with a liability for possible safety defects. The consumer may also suffer a failure of services that must be supplied to him.



<i>Phenomenons</i>	<i>Causes</i>
Water cuts/ non-drinkable water Effects : Scarcity of water Risks of poisoning	Malfunctioning of computers managing the purification stations, water pressure Malfunctioning of quality control automatons Failure of warning systems
Electricity cuts Effects : stoppage or malfunctioning of thousands of machines, secondary effects	Preventive stoppage of power stations Blocking of safety systems
Cash dispensers problems, scarcity of money	Malfunctioning of cash dispenser
Malfunctioning of signal systems Effects : traffic hold up, accidents, blocking of emergency services	Breakdown of regulations systems
Telecommunications breakdown	Breakdown of transmission systems
Scarcity of food	Malfunctioning of electronic management systems of production, storage and distribution of food products

The consumer is a user, who will be affected by the malfunctioning of private or public systems of lighting, lifts, safety, alarm (gas, fire, etc.). He will be affected by the problems affecting transmission and telecommunication networks: telephone cables, satellite systems, etc. (see developments about cellulars).

The peculiarness of the consumer lies in the fact that he is the end user, and therefore at the end of the contractual chain. His power to require adequacy of the product and its announced functionalities from the supplier is particularly reduced. His means of action (including for example the Value Added Tax costs) are different.



## Consumer law

### The user and the end of the contractual chain

The analysis of the legal situation of the contractual chain, from the initial person responsible for the bug or the problem arising out of it, will depend on the risks and liability determined at the upper link in the chain. Enterprises which are ready within their own structure do not give sufficient attention to their customers' and suppliers' difficulties, which is why traditionally the risks come from the lowest link in the chain.

The first case law often rejected the claims of computer hardware users seeking to hold the suppliers' and service providers' liable either on the basis of ordinary law or on specific liability regimes. The case law can be considered as worrying for the final protection of the consumer. The consumer would benefit from the acknowledgement of a duty of information of the industrialists, software suppliers, automatons, etc. towards their customers.

On the other hand, the possibility of users obtaining, before the year 2000, from their sellers and suppliers the compliance of the computer systems would benefit the consumer by reducing the risks. The following elements would go against the consumer: the restrictive understanding of the compliance obligation, the reluctance to grant a forced execution, a restrictive interpretation of hidden defects of the systems sold, but above all a restrictive case law on software as to the adaptations necessary for the year 2000 by making this adaptation more difficult and expensive.

The principle of prudence of users of computer systems will be confronted with the principle of liability of suppliers, trust of the professional with regard to experts, and consumer's duty of care.

If case law is understanding regarding the supplier, it could be very strict towards the user enterprise, and all the more, with the firm which has suffered indirectly from the consequences. Since legal actions cannot be planned in advance, the potential ineffectiveness will add to the unfair situation. These enterprises will not be able to bear the financial burden of the consequences due to the non-preparation of third parties relating to the transition to the Year 2000. If the financial capacity and profit of the computer enterprises are not sufficient to meet such a burden, it will *a fortiori* be the same for enterprises in other sectors, particularly small and medium sized enterprises. The phenomenon of mistrust towards this problem, including towards hardware and software suppliers who are looking to ransom the weak consumer, explains the lack of mobilisation by small and medium sized enterprises.

At the moment, the division of roles between suppliers of hardware and software and users is undecided and the complex effects within the contractual chain are all the more undetermined.

This does not mean that the consumer protection system suffers from cumulative indecisiveness. In fact, the specificity of the consumer law is, to a large extent, to isolate the relationship between the consumer and the professional contracting party. Consumer protection is the subject of specific texts, whether they are contained in consumer protection laws<sup>33</sup> or in specific rules for consumers in the law of sale<sup>34</sup> or in specific rules applying to consumer contracts incorporated into general legislation applicable to contracts.<sup>35</sup>

<sup>33</sup> See for example in Finland, Law on Consumer Protection *Kuluttajansuojalaki* 1978, as modified in 1994

<sup>34</sup> See for example in Sweden, Law on Sales to consumers *Konsumentköplag* 1990

<sup>35</sup> See for example in Norway, Law on Sales *Kjøpslov*, 1988



Products, equipment or services	Critical risk for consumer	Non-critical risk for consumer
Household equipment	<p><u>Home computer</u>: risk of blocking and loss of personal data and files.</p> <p><u>Digicode, parking access, Entry badges for buildings</u>: risk of jamming and functional problems</p> <p><u>Power plant safety</u>: risks of jamming and functioning problems.</p> <p><u>Boilers, lifts</u>: Idem</p> <p><u>Cars</u>: risk of functioning problems (on board radar and computer, GPS).</p> <p><u>Telecommunication</u>: temporary cut off risk. Possible problems on the consumer invoicing</p>	<p><u>Television</u>: N.S. does not take into account dates or are compatible</p> <p><u>Toaster</u>: idem</p> <p><u>Video (tape) recorder</u>: Some will cease to function if they manage time in years (weak proportion). Can loose their capacity to manage the programmed recordings / solution re-programme them for 1972 (identical calendar)</p> <p><u>Video camera</u>: They will have anomalies at clock level.</p> <p><u>Cameras</u>: Their dating will be potentially affected.</p> <p><u>Digital clocks</u>: There will be potential anomalies.</p> <p><u>Oven, washing machine, referigerator and freezer</u>: Their programmes will not take the year into consideration</p>
Health : Products	<p><u>Pacemakers and other personal medical equipment</u>: functioning problems risk.</p> <p><u>Medicine manufacturing chains</u>: risk of allocation from their functioning;</p>	
Health : Services	<p><u>Medical equipment</u>: functioning problem risks</p> <p><u>Social security services</u>: potential disruptions of data, and of reimbursement, deduction of contributions, etc., services, delay, errors, anomalies</p>	
Social protection	<p><u>Payment of benefits</u> (pension, family allowances): potential disruption: delay, errors, anomalies.</p> <p><u>Data management</u>: loss, errors and delays.</p>	
Energy and water	<p><u>Energy distribution Services</u>: (electricity, gas) risk of cut off and malfunctioning</p> <p><u>Water distribution service</u>: risk in purification, inducing risks of cut off</p>	
Transport	<p><u>Electronic and electric road signal</u>: risks of malfunctioning and jamming. By way of consequence, road traffic affected.</p> <p><u>Electronic and electric railway signal</u>: : Idem By way of consequence, rail traffic affected.</p> <p><u>Air transport and navigation equipment and control systems</u>: risk of malfunctioning. By way of consequence, air traffic affected.</p> <p><u>Maritime navigation systems</u>: disruptions from 8/22/99.</p>	
Bank and financial sector	<p><u>Automatic Cash Dispensers (ACD)</u>: risk of malfunctioning, jamming and errors.</p> <p><u>Use of payment cards and all plastic money means</u>: risk of malfunctioning, jamming and errors.</p> <p><u>Banking and Insurance Services: (means of payment, loans, insurance)</u>: risk of errors and delays.</p> <p><u>Stock exchange quotations</u>: risk of jamming, suspension of transactions.</p>	



Products, equipment or services	Critical risk for consumer	Non-critical risk for consumer
Trade	<p><u>Distance sale orders/deliveries</u>: risk of loss of files, potential errors and delays. Possible problems of invoicing customers of non-ordered service /products.</p> <p><u>Retail sale</u>: risk of errors and anomalies in purchase invoicing (reading problems of bar codes and malfunctioning of cash registers). Risk on food products : dating problems, risk of rupture in the cold chain</p> <p><u>Electronic commerce</u>: risks on registration of orders, on customers and deliveries file management. Non-access to sites, delays and errors.</p> <p>Risk of errors on product/service invoicing - Risk of payment fraud.</p>	<p><u>Retail sale orders/deliveries</u>: risks of delay in the supply of certain products (critical for food products and essential goods) to shops.</p>



## INDEMNIFICATION OF CONSUMER

### PRODUCTS

#### Obligations imposed on producers and distributors

The consumer can request compensation for personal injuries and damage caused to goods on the basis of extra-contractual action provided for by the laws of the Member States pursuant to, in particular, the 1985 and 1992 directives. These actions are in addition to those resulting from ordinary law of liability and of sale.

#### Absence of defect: Directive No 85/374 of 24th July 1985

**Directive no 85/374 of 24th July 1985** imposes an obligation not to sell defective products.

According to this directive "*a product is defective when it does not provide the safety which a person is entitled to expect [...]*". This is an extra-contractual liability, as opposed to liability stemming from legal guarantee which is of a contractual nature<sup>36</sup>. The directive lays down a liability regime for damages caused by death or by physical injuries.

The transposition into Member States legislation has implemented a principle of liability without fault of the producers towards consumers.

Article 1 of the Italian law<sup>37</sup> lays down the principle "*the producer is liable for damages caused by the defects of his product*", reproducing the terms of article 2048, 2049, 2052 and 2053, but without the possibility of the discharging proof provided in article 2048. The identification of defective product is made in relation to user's expectation. The Italian law does not adopt the possibility of exclusion of the producer's liability for "*development risks*". Where identification of the producer is impossible the supplier is also declared liable.

In the United Kingdom the directive has been implemented by the first part of the Consumer Protection Act of 1987. The injured person can pursue the manufacturer or importer for non-performance of a non-contractual obligation without having to prove fault. The defect defined in article 3 of the Act includes safety in the context of material damages, and in the context of death or physical injuries risks. The supply of goods within the context of the commercial activity pursued by the injured person with the latter is excluded. The law includes the defence of "*state of the art*" when the state of scientific and technical knowledge did not permit a manufacturer of products similar to the products in question to detect the defect.

In Germany, the directive has been implemented by the *Produkthaftungsgesetz* and it came into force on 1st January 1990. The law covers physical injuries and damages caused to property. There is no compensation for purely pecuniary damages.

In France the directive has been transposed by law n° 89-389 of 19 May 1998. The *Cour de Cassation*, (Supreme Court) interpreting articles 1147 and 1384 in light of this directive, has set out the principle according to which any producer is liable to his immediate victims and indirect victims for damages caused by a defect in his product. The question of application of the law in the area of

<sup>36</sup> See Green Book on Guarantees of Consumer Goods and After Sales Services, European Commission, 15 November 1993 and Directive n°99/44 on the sale and guarantees of consumer goods.

<sup>37</sup> Decree of 24 May 1988





computer was raised, with a proposal to distinguish between support medium, which would be subject to the law, and software, which would escape it.

It should be pointed out that according to article 11 of the Directive concerning defective products, the implementing of legal, statutory or administrative provisions provide for the obligation to initiate a legal action within 10 years of the product's first marketing.

### Safety obligation

**Directive no. 92/59EEC of 29 June 1992** extends the protection of consumers to questions of "*health and safety of the consumers*"<sup>38</sup>

Article 3 paragraph. 1 of the 1992 directive provides that "*the producers shall be obliged to place only safe products on the market*". This obligation is imposed on all economic operators whose activity can have an effect on the safety of the product, that is not only on manufacturers or their representatives, but also on other professionals in the marketing chain whose activities can affect the safety characteristics of a product.

The directive is aimed at "*any product intended for consumers or likely to be used by the consumers*".

Safe product is defined as "*any product which, under normal or reasonably foreseeable conditions of use, including duration, does not present any risk or only minimum risks compatible with the product's use, considered as acceptable and consistent with a high level of protection for the safety and health of persons, taking into account the effect on other products, where it is reasonably foreseeable that it will be used with other products*".

With the exception of Sweden, where the safety obligation is held to come implicitly from the powers granted to the authorities, all Member States have provided an explicit obligation in their legislation.

A majority of the transposition laws have adopted literally the terms of the directive. Netherlands and Ireland have formulated their general safety obligation in a general manner, in the form of prohibiting the sale of non-safe products. Furthermore, the Dutch law reduces the general safety obligation relating to non-food products by an obligation not to supply products that the professional knows or should have known that it would cause a danger to the consumer. The definition of safe product has been examined above.

Close to half the Member States (Denmark, Spain, Finland, France, Greece and Netherlands) apply the general safety obligation to all professionals within the limit of their respective activities without referring to the distinction between producers and distributors.

### Accessory obligations

It should be recalled that the Directive on safety obligation has imposed on the producers the obligation to provide information enumerated in article 3, paragraph 2, in particular on risks, and an obligation to adopt appropriate actions. These accessory obligations are generally adopted in the transposition laws. Only Finland, France (where this obligation of information is well developed by case law), Greece and Sweden (except as regards the obligation to inform) have not adopted any of these obligations.

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<sup>38</sup> article. 4-3



Germany, Italy, Netherlands, Portugal and the United Kingdom do not mention the detail provided in article 3(2) of the Directive; that is a warning by the professional does not exonerate him from complying with other obligations.

The obligation to adopt appropriate measures, including if necessary withdrawing products, is not adopted in the German law where only the obligation to avoid risks is mentioned. Furthermore, certain obligations have been added to those provided by the directive: for example in Austria, Belgium and Finland, manufacturer are required to inform the authorities of any risk which they may know or of any voluntary measure which they may adopt to face the risk.

Besides the distributors are called to co-operate in the implementation of the general safety requirement set out in article 3(1). The distributors have an obligation of due care, to participate in the follow up of the products, and the obligation to co-operate in the measures taken to avoid the risks.

Among the countries that have introduced the distinction between producers and distributors to impose the obligation put forward, only Austria, Belgium, Spain, Italy, Portugal and the United Kingdom have incorporated in their transposition law the obligations imposed on the distributors. Austria has added the same obligation to inform the authorities, as that required of the distributors. Germany has not provided the obligation to participate in the follow up, or the obligation to co-operate in the enterprises' measures to avoid the risks.

On the other hand, many countries like France apply the obligations applicable to producers to the distributors. Ireland has increased the obligations imposed on the distributors by also imposing on them an obligation to control and an obligation to inform the producer of any defect or risk that they may know.

### Practical difficulties of right of actions

The first tends to be the date of entry into force of the implementation laws of the directive, given that a number of countries like France or Sweden have general safety obligations.

Furthermore, for various reasons and in particular the possibility that the contracting party is in financial difficulties because of failure due to the difficulties of the year 2000 transition, direct recourses (against the producer, importer, or other third parties to the immediate contractual relation) will often be important. Between the consumer and his direct contracting party, seller or service provider, the rules will those applicable between the consumer and the seller or professional service provider.

Thus, the liability of the seller or professional service provider may be incurred whereas the upstream claims will be problematical. From this will potentially result legal difficulties and economic failures and those who benefit from the development of computer systems (hardware suppliers and software publishers) will not automatically be declared liable. The developed economic power by leaving the year 2000 risks to the users may lead to a sharing of financial charges between consumers and the last link in the distribution chain.

The issue of liability to the consumers is made difficult by multiplicity of assumptions, in particular the difference between assumptions where the enterprise was negligent in its preparation and where the disruption arises from problems exceeding the normal capacity of a prudent enterprise.

However, one can hope for the consumers that the restrictive rules will be limited to warned users.

Thus, prevention and preparation aspects are particularly fundamental and the liability aspects more complex than the basic principles set out.



## The bug ridden enterprise and its clients

Is the bug an exonerating factor in the contractual non-performance with regard to the clients and in particular to the consumers? This is a question of determining the division of risks and liabilities as regards the performance of contracts. Therefore, it is advisable to analyse the general principles before studying their application within more specific situations.

### Bug and performance of contracts with consumers.

As it has been already said, the year 2000 bug is likely to disrupt the smooth running of the enterprises. The enterprises may well argue the difficulties of transition to the year 2000 to justify the non-performance the contractual obligations owed to their customers, especially to consumers.

The lack of computer precautions cannot justify the non-performance of contractual obligations arising out of the year 2000 transition difficulties. There is a risk of the consumer's right of actions being contested if a firm has tried to ensure this transition, and if the difficulty was caused by a chain or transmitted effect.

The question depends on the admissibility of "*force majeure*" as an exonerating factor<sup>39</sup>. The question we are faced with is the admission of events, which although foreseeable are not inevitable, as "*force majeure*". Is it not possible to regard the year 2000 bug as a potential exonerating factor for the user enterprise when it is a potential exonerating factor for computer suppliers, specialists and sellers?

Generally, it may be regarded that an enterprise using a computer system cannot put forward the malfunctioning of its system to exclude its liability under contracts concluded with consumers. Similarly, external disruptions, such as their business partners' failure to deliver or failure to provide their services, cannot be invoked. Interruption of deliveries by suppliers, because the workshops are without electricity, does not permit to escape the contractual obligations.

Furthermore, an enterprise whose computer system is not year 2000 compliant may be liable in tort.

Of course, the situation would be strengthened if the enterprise had advertised self-certification of the preparation, which would increase its liability, unless it is proved that all the simulations could not permit to avoid the problem. The company must, if necessary, adopt emergency plans.

However, the consumer's liability actions are likely to be ineffective. In many cases, the consumer's direct contracting party is likely to fall bankrupt. One can see a repetition of what happened at the time of the introduction of computers or in the construction of individual housings entailing compulsory insurance.

The question which will rise is the possibility of a direct liability action against the final person responsible for the problem (suppliers of hardware or software, defective products, service providers in charge of verifying compliance).

There is a potential problem in case of non-performance arising, for example, from a generalised power failure, major problems in the functioning of public services, etc. The induced and chain effects may be the source of a massive disorganisation.

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<sup>39</sup> "Force Majeur" as known by commercial practice corresponds to impossibility of enforcement under civil law (Article 1148 of the French Civil Code; unmöglichkeit in German Law) or frustration under common law.



The recognition of the enterprises' duty of care would conform to the view point, for example, of banks which equip their trading rooms with emergency electric generators and refrigerators to cool the trading rooms.

Calling into question the effectiveness of the consumer's rights can arise from the difficulty of proving contractual non-performance by reason of computer failure. In fact, computer problems can create difficulties of proof for the consumer who will not be able to show the existence of the order or of the payment, etc.

## **Sale to consumer and the bug**

### **Traditional Commerce**

The year 2000 transition difficulties are likely to disrupt both the performance of the contracts and quality of the products delivered.

<b>Majors Risks :</b> <b>Products defects.</b> <b>Labelling errors.</b> <b>Delivery and invoicing errors</b>
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Quality defects in products may result from the faulty functioning of the Industrial groups' production systems, from delivery by their own suppliers, etc.

The failure of numerically controlled software and automaton programming softwares may lead to composition errors, verification failure, inaccuracy of dosages and labelling errors.

The quality of products depends on the smooth functioning of the entire supply, sub-contracting, production, delivery and distribution chain. The tight production and delivery flow systems and synergies create solidarity of difficulties with domino effects.

It is often maintained that large groups would be ready and that the problem would come from SMEs. The distinction may appear artificial in light of the importance of their interdependency.

The defects in products will all the more be dangerous since the defects will appear only when they are used.

Besides, there may be difficulties to invoice consumers. These problems could arise from the malfunctioning caused by the year 2000 bug in the cash registers, at the time of the code-bars reading, this generating price errors. There is the source of distributor's liability subject to a certain duty of vigilance on the part of the consumer.

Liability will be particularly incurred if a breach of safety obligation results in physical injuries.

Member States laws enacted pursuant to the 1992 directive on product safety will be applicable.

In light of the weight of the consumers' claims against the last link in the distribution chain, the question of legal actions will often be important. For imported products, the problem will be the importer's liability for quality defects. Furthermore, the problem of a direct claim may well arise against suppliers, installation engineers and maintenance engineers of integrated systems source of the product defect.



## Electronic commerce

Electronic commerce is fast developing as a means of selling to consumers. It is a new form of on-line sale with the development of distribution by Internet, completing sales by phone or minitel, and generally distance selling.

### **MAIL-ORDER SALE INTERNET TRADE**

**A particular sensitivity to the year 2000 bug:**

**the computer systems hosting  
merchants' sites,  
transmission, etc.  
the delivery systems**

**The vulnerability of the  
consumers are: errors (delivery,  
invoicing), frauds (locking of  
securities, etc.)**

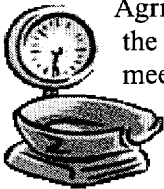
The different types of sale will be vulnerable to problems in the telecommunication networks and computer systems. The operating of shopping arcades and their safety are likely to be affected by the bug.

Regarding consumers, the problems of proof of transaction and invoicing errors will be penalising, in particular households with modest resources.

The year 2000 bug difficulties are all the more foreseeable since they will affect both communication problems and effectiveness of legal actions. If there is a product and service failure, the Internet provider is more likely to go bankrupt.

Proof will be particularly difficult in an area where reliability of transactions can be widely affected by the bug, especially as result of the transmission errors or security failures.

## **Food products**



Agri-food processing industry is a particularly vulnerable sector where a certain delay in the preparation of the professionals is acknowledged. At the Vienna European Council meeting on 11 December 1998, the problem of rupture of food chains outside the European Union and the need for safeguard plans to overcome this problem were emphasised. The problem of food chain rupture can sooner or later arise within the European Union, at least at the level of quality failure.

The bug is likely to affect the entire food supply chain, creating supply difficulties, and more seriously potentially significant food risks, for the consumer (see for example in the U.S.A. the warning of the FSIS – [fsis.usda.gov](http://fsis.usda.gov)).

At production level, the temperature regulation systems in farms (in particular at "birth" level), the storage and refrigeration, bacteriological treatment, pasteurisation systems, and the computer managed irrigation systems, are likely to be affected by the bug.



Food industry uses computer or electronic systems with embedded computer in the production, controlling and delivery chain. The management of preparation in particular is based on computer process (different processing techniques: freezing, but also freeze-drying, pasteurisation, genetic modifications and ionisation).

Risks are multiplied by different stages of the supply chains, dependency of processing plants on suppliers, and the lack of technical preparation in a chain link is particularly serious. Technical failures can affect sanitary controls, cause processing or labelling errors etc.

Health risks are particularly high. These may result, for example, from the rupture of the refrigeration chain entailing a preservation defect (cold chain).

After 1st January 2000, the reversal of risks of errors as to expiry dates is quite significant as it will generate food intoxication risks.

Before 1st January 2000, the dating processing errors in expiry dates end up in eliminating products that have not yet expired as a sell-by date beyond 2000 is interpreted as it was at the beginning of 1900. Thus the scrapping weighs on the manufacturer. On the contrary, after the 1<sup>st</sup> of January 2000, a 1999 date could be interpreted as being of the 21<sup>st</sup> century allowing to keep on the market products with expired sell-by dates.

Because of the risks of rupture in the delivery systems, and difficulties of supplying, food enterprises ought to have in place emergency supply plans.

**The protection of consumer's health makes the strengthening of health controls imperative, especially as regards products imported from countries where the year 2000 preparation is generally insufficient.**

**It is necessary to plan the sensitisation of consumers to the surveillance of the product quality.**

To avoid health problems, it would be appropriate to facilitate the replacement of doubtful products. Mediation organisations with the co-operation of consumers and distributors should be favoured.

### **Provision of services**

Services which are particularly vulnerable are those which are based on file management, data management, transmission management and information processing management.

### A risk sector

The failure of computer systems or information technology is capable of disrupting, in a significant way, the functioning of service providers, and thus the services provided to the consumers.

Service providers are important users of file management software, data management software, and overall information technologies. The running of enterprises is particularly sensitive to faulty operation of management and telecommunication systems.

## **FOOD PRODUCTS**

*Food scarcity risks.*

*Food poisoning risks.*

**Malfunctioning of production systems from irrigation to packaging passing by storage.**

**Malfunctioning of supply and delivery systems.**

**Induced Effects**



## Personal data

The year 2000 bug could entail data loss resulting from the disappearance of files. The data concerning the consumer can either be incorrectly processed, or wholly or partially destroyed. This loss will be particularly detrimental if the files contain data on consumer's benefit rights. It is necessary to point out **the Community directive n°95/46 EEC** on the protection of persons as regards the handling of personal data and free circulation of information.

**MANY RISK**  
**Defective and late provision of services**  
**Invoicing errors**  
**Loss of personal data**  
*Difficulties of proof*  
*Practical difficulties*  
**Requirement of vigilance**

Besides, the year 2000 bug could entail errors (in provision of services, invoicing, etc). These will be particularly capable of affecting the payment systems, in particular automatic teller machines.

## Liability

The service provider cannot be exonerated for the non-performance of his contractual obligations by invoking the failure of his hardware. The banks may incur liabilities for passing a wrong order or in case of a non-fulfilment of a bank transfer, etc. The banks may well take legal action against their suppliers.

## Difficulties of proof

The provisions of services are often based on oral contracts or under conditions (for example subscription contract) where the service provider controls the data.

## Practical difficulties

In case of invoicing errors, the service provider will often be in position to deduct the amount from the erroneous invoice. Often it will be difficult to correct the error and during this time the consumer will be in an onerous situation.

It is important to put in place rapid practical mechanisms to settle the problems, in particular by strengthening the consumer services and mediation services.

## Requirement of vigilance

To limit the risks, one can consider that the customer has a duty to remain vigilant. Of course, this duty is subject to difficulties of proof of the order given by the consumer who may not have kept traces of it and elements of proof (Internet). In cases where it is difficult to prove invoicing or false invoicing, conciliation committees should be created to solve the disputes with consumers.



## Transport

In transport, the consumer normally benefits from an obligation to achieve a particular result<sup>40</sup>.

### *Traffic regulation*

Failures can cause delays or even accidents (breakdown of safety systems, transmission systems, etc.).

### *Computerised reservation*

Failures resulting from the year 2000 bug are capable of affecting the ticketing and reservation systems which rely on softwares particularly important by the sheer number of lines, often resulting from addition of software routines, and which besides involve many transmission networks. Failures may cause, data errors with invoicing problems.

### ***Carrier's obligation to achieve a particular result***

The transport sector is an area where many means of transport of persons are equipped with embedded computer systems (planes, ships, trains,). The air, rail and port traffic control systems rely totally on computer

In transport contracts, the consumer is a beneficiary of the carrier's obligation to achieve a particular result which reflects the carrier's safety obligation. This carrier is bound by the safety obligation to the passenger. Failure of the equipment used to carry out his obligations cannot be raised.

The question becomes more complicated if there is, for example, a failure of the control system external to the enterprise (for example air control for an air freight carrier)

If a partial non-performance results in a delay, the traveller may ask for a price reduction.

Up to now, the feared blockings have not yet taken place. February 4<sup>th</sup>, 1999 was the first day of reservation for the Year 2000 in so far as there are 331 inventory days in airline reservation systems, car rental or hotel bookings systems.

The most serious problems, in case of faulty functioning, will affect the embedded navigation systems, and air, airport, railway, sea, river and road control systems. The problem of the supervising authorities' liability involves the determination of a safety obligation, which can be based on article 1384 of the French Civil Code.

In the transport sector, January 1st, 2000 as a fateful date is underlined. The possibility of airline companies operating on New Year's eve and 1st January 2000 is the subject of numerous discussions. It is feared that for a long period there will be disruptions in the embedded computer control systems and luggage management systems. Failures may entail delays, luggage losses, and even serious accidents.

<sup>40</sup> Under German law, the rail enterprises' liability without fault is provided for by a specific law, see *Haftpflichtgesetz, Schönfelder, Deutsche Gesetze*, n° 33, whereas under French law, liability without fault is laid down by the French Supreme Court (*Cour de Cassation*) judgement dated November 27, 1911. In Sweden, the law on transport excludes exoneration and limitation clauses.





## Banking and stock market operations

Financial and credit establishments are important users of computer systems and information technology. The dependency is still more vital for everything that is plastic money. The logistics of computer centres (air conditioning, energy supply, telecommunications) is itself dependent on computers.

Services to consumers involve transactions carried out by payment terminals (automatic cash dispensers, machines set up in stores, etc.). The processing of these transactions is likely to be affected by errors due to the bug.

Operations, from inter-banking transfers to operations carried out in branches, are liable to "domino effects", domino effects from wrongly effected bank transfers to lock entrance or safety boxes which do not open, disconnection of cash dispenser, etc.

The reliability of the means of payment and securities systems is a fundamental element in the customer's confidence. The year 2000 bug can cause data transmission errors, errors in saving files, affect the discharge of instructions and cause allocation errors. It affects credit cards, automatic cash dispensers, and direct debit systems.

Errors in bank transfers or deductions can result from the bug, with either complete non-implementation, or delays or default in allocation. Of course, the management of dates is important in interest calculation, invoicing, bank transfers and instalment payments.

Dating errors could entail either incorrect interval calculations or non-execution of orders. When it is dealings in securities, with rate variations, even delays can result in serious consequences. Furthermore, the loss of files containing information on transactions and customers files will be a source of serious potential damage.

Credit establishments will be liable if there is default in the discharge of services. However, taking into account of the possible acceptance of settlements of (an) account involves a certain duty of care from the consumers as to their control. The accumulation with the introduction of Euro will not only entail a combination of two computer problems, but also increased difficulties of control for the consumers. Elderly consumers, or those with difficulties in moving around to resolve the problems on the spot will particularly be penalised.

Markets supervisory authorities, monetary and banking authorities, and banking and financial systems may be liable for faulty supervision.

An example of intervention is that of CRBF ("*Comité de la Réglementation Bancaire et Financière*" -Financing and Banking Regulation Committee), which adopted a regulation on 6 January 1999 on the preparation of institutions for the year 2000 transition. This regulation requires progress of the proceedings.

The European banking authorities have decided to suspend the interconnection between the financial markets before 31 December 1999. By decision of the European Central Bank, the Target system (Trans-European Automated Real-Time Gross Settlement Express Transfer) used for payment in Euros will be closed the whole day.

### **D DAY and BANKS**

The D Day, that is 31st December, is normally a working day.

Asian markets will be in year 2000, while American markets will still be in 1999.

There is some talk of banks closing to avoid this problem.



It would be appropriate to develop, for consumers' benefit, conciliation committees to resolve disputes, in particular those where the nature of operation involves problems of proof.

### Physical Safety of the Consumer

In case of personal injury, consumers benefit from legal provisions on product safety obligation.<sup>41</sup>

Generally, national laws contain obligations of safety or general care<sup>42</sup>.

### Safety in establishments

Specific provisions regulate risk industrial establishments, and other risk establishments (e.g. establishments where the general public is received). This will apply to industrial production plants, alarm systems, etc.

Generally, health and safety laws provide for safety obligation and obligation to achieve a particular result.

In case of personal injuries, civil and criminal liability will be evident if it is from a default or insufficiency of preparation

### Safety and Work

The employer is obliged to ensure the safety of work places: industrial accidents: default or insufficiency of preparation (dangerous machine tools, alarm systems, fire protection, etc.).

The labour code generally imposes safety obligations on the employers. The labour law generally contains texts repressing offences in case of employee's death or injuries resulting from negligence, etc.

However, if the employer relied on the undertakings of the service providers or suppliers, the question of liability will most likely be much debated. It is the case if the employer has called in the service providers who have guaranteed the compatibility or used hardware whose compatibility was guaranteed. In such a case, the employer will himself be a layperson who will have rightfully relied on the expert.

### Public services

The consumer is exposed to potential disruptions of public services. The infrastructures (telecommunications, transports, etc.) are managed by computer systems and information technology systems, including microprocessors and memory components, and an important software part controlling these systems.

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<sup>41</sup> The 1992 Directive on product safety is only applicable to **products intended for consumers** or likely to be used by consumers (article 2(a)). The producer of a product for professional use is therefore not subject to the safety obligation of the 1992 Directive, although he can be considered liable on the basis of Directive of July 25, 1985 on **liability** for defective products (Calais Auloy, "Relationships between the 1985 Directive on liability for defective products and the 1992 Directive on product safety " REDC 1994-160). Member States have the possibility of removing the difference between the two Directives. This is the case in France where articles L221-1 and seq of the Consumer Code apply both to products and services intended for professionals and consumers.

<sup>42</sup> See France, article 223-1 of the Criminal Code



Embedded computer systems and transmission systems are very important in road traffic systems, airline navigation, ports and beacons, etc. The consequences are particularly serious for warning systems (emergency calls, lighthouses and beacons, etc.) and for intervention systems (road signs, traffic lights, road lights, level crossing, etc.).

The problems in the management of traffic lights in towns are, for example, likely to entail disorganisation and blocking of transport, including emergency transport. The situation is the same for power stations at production and distribution level. An electricity stoppage, even short breaks, has an effect (for example on heating, safety systems). A long break will obviously have dramatic consequences. Risks of disorganisation and threats of generalised breakdowns are raised by certain experts.

It is recognised that year 2000 transition threatens public utility services (energy, telecommunication, transport, water, health [hospitals] and safety [fire]). Breakdowns caused by disruptions in power supply (power cut, voltage drop, etc.) will themselves have chain effects.

All systems relying on the telecommunication networks (transatlantic cables, etc.) are likely to be affected with potentially dramatic consequences. This is the case of alarm services for the elderly and the sick treated at home. There are fears for the safety of risk establishments (in particular power stations) and other risk establishments, in particular those receiving the public.

The need to ensure continuity of public utility services ought to protect the consumer as a user. Conversely, it should be pointed out that with regard to users, the service suppliers provide exclusion and limitation clauses in case of break in the supply. In general, these clauses are declared void by case law as being unfair<sup>43</sup>.

#### **SOME CATASTROPHE SCENARIOS**

**Power cuts  
Water cuts,  
Rationing,  
pollution  
Scarcity of hydrocarbon  
Disturbance of signal  
systems**

Problems may affect electric, hydraulic and thermal production, distance control, transport, computer management (distribution, invoicing, pay and accounting).

In case of accidents, there could be civil or criminal liability for endangering the life of others or possibly for manslaughter.

The question is whether a user supplier can raise this malfunctioning as an excuse in case of, for example, manufacturing error, dosage and labelling errors. As mentioned above, this is how it will be in case of a break in the cold chain or malfunctioning of a toxic product detection system, etc.

At the Vienna European Council meeting on 11/12 December 1998, the Presidency, in its conclusions, asked Member States to implement plans for the protection of their infrastructures and to accentuate their efforts in sensitisation campaigns.

<sup>43</sup> see for example in Netherlands : Court of Appeal of La Haye, 27 June 1996, "*Tijdschrift voor Consumentenrecht 1996*", pp. 282-294; Hoge Raad, 16 May 1997, *Rechtspraak van de Week*, 1997, 15; Consumentenbond/energieNed  
For a case law unfavourable to the consumer within the framework of an important voltage increase in Austria., see OGH 16 April 1997, 7 Ob 2414/96t.



## Consumer and his household

The disruptions resulting from the year 2000 transition are likely to involve the loss of peaceful enjoyment of the real property as result of the faulty functioning of the management and control systems. We have seen the development of smart buildings that include transmission cabling, entrance systems, access controls. The use of new technologies may entail problems which can affect the computer systems of other buildings (access management, air conditioning, etc.).

Detecting the problems is necessary. There are many questions and they all turn on who is liable for ensuring the preparation (professional associations, maintenance companies, etc.), and who bears the expenses (the lessee or the owner)<sup>44</sup>.

In case of bodily accidents, the actions will be based on breach of general safety obligations. The lack of preparation, but also the mobilisation of breakdown and emergency services (lifts, automatic doors, car parks, etc.) may be considered as negligence that caused the physical injury.



### Health

The health sector is known to be lagging in the compliance efforts even though the consequences, in light of the use of technological equipment in the health sector, are dramatic and the risks are high.

### Medical equipment

Medical equipment relies on the use of microprocessors. It is feared that problems will appear in equipment that is directly used by patients: cardiac defibrillators, electric perfusers, monitors, respiratory equipment, etc.

In case of malfunctioning of the product, it could be considered that it is a defect infringing the safety obligation as incorporated in the national legislation pursuant to the 1992 European directive.

The liability of doctors and/or health care establishments could be incurred for breach of the obligation to advise if the patient was not warned.

### Health care establishments

The management of hospitals and private clinic buildings depends on systems that include centralised and embedded computers. For the hardware and software, the year 2000 bug risks are considerable.

Air conditioning and room ventilation, disinfecting systems, power supply, medical fluids (for example oxygen) may be affected.

Failures in technological systems are likely to have tragic consequences. In clinics and hospitals, the general functioning like the functioning of the medical equipment depends on electronic and computer technology. Any failure in the medical life support system managed by computers will have deadly consequences. But the situation can also be tragic in case of failure of curative systems, like the dialysis systems.

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<sup>44</sup> See for example the French Cass.Civ. 3<sup>ème</sup>, 19 April 1989, Bull. Civ. III, n° 83

The general safety obligations will be added to the specific systems of medical establishments in case of physical injury and health damage<sup>45</sup>.

### Pharmaceutical industry

The pharmaceutical industry is vulnerable as well. Medicines may be affected by dosage and labelling errors. These errors are particularly damaging.

The defective nature of the product would be an infringement product safety obligation.

The contractual liability of the doctor or the medical centre is incurred for defects in the equipment used in the medical service. If the medical system fails, the medical establishment will be considered as the guarantor of the proper functioning of the equipment used in the medical care.

### Year 2000 bug and security of personal data

Regarding medical files stored in the computer systems, there is a significant risk of information loss in doctors' clinics, medical establishments or insurance companies.

Disappearance of data concerning the patient could lead to treatment errors and/or affect his reimbursement or compensation rights.

Data losses or transmission errors can be particularly tragic when providing care to people or ensuring emergency treatments.

### Consumer and his employer

Besides the safety problem in work places as already mentioned, multiple problems will arise. The use of badges or timekeepers, computerised payment systems are examples of functions that will be affected by the year 2000 bug.

### Authorities and the State

The consumer is dependent on "social" and "collective" electronic data processing that ensures reimbursement of sickness expenses, pension payments and functioning of public services.

The authorities are late. The computer systems of the administrative services are often a centralised computer.

Powerless people, like bedridden or elderly who have difficulty in moving around, will be particularly vulnerable to payment interruptions or delays in the payment of amounts due to them (pensions, reimbursements, etc.).

It is important to note that the year 2000 compliance problem arise in difficult terms and it is not clear that it will allow to anticipate a quick solution of the fundamental problems. This is the particularly the case of the national identification number in France which is based on an identification by two digits birth year. France is therefore not year 2000 compliant. There is an ambiguity as to the actual year. This ambiguity may lead to various anomalies: refusal of services and payments, deprivation of various rights (electoral, social, etc.).

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<sup>45</sup>On prohibition of limiting the liability of the supplier of medical service under Dutch law as provided in article 1653a, see article 1653r.

The liability of the State may be incurred for malfunctioning of administrative services. In case the problems affecting the public infrastructures cause personal injuries, civil and criminal liability may also be incurred.

### Threats to public security

It should be pointed out that the year 2000 bug is likely to cause public security problems. An upsurge of crimes and offences may accompany the end of year 1999. The year 2000 bug, by creating difficulties for warning and emergency services, by threatening transmissions but also transports, is likely to be a source of circumstances favourable to criminality.

Some experts raise a terrorist risk in view of the potential gaps in the security and network systems (energy, transports, etc.). This risk could take the form or be accompanied by technological terrorism (take-over of satellite, nuclear power station, etc.).

## **PREVENTION AND INFORMATION**

At the international level, the States are concerned by the progress of the preparations. The efforts are on an increased communication. This information is of a private and public nature, between all concerned players. However, it basically aims at the information between enterprises. It therefore only benefits the consumers indirectly.

### Information between enterprises

Enterprises are urged to inform themselves about up to date operations. In Europe, it is a question of dispensing encouragement to public and private operators.

The most important effort is that which has been carried out the United States. Legislative procedures were promulgated in order to grant immunity to these information exchanges. The US Act named "Good Samaritan" dated 13 October 1998 (year 2000 Information and Readiness Disclosure Act) is intended to encourage firms to exchange information by guaranteeing them, under certain conditions, a legal protection. This protection does not hinder a liability action. The exchange of information is exempted from the effects of the anti-trust legislation and ordinary law actions. Written or oral information relating to the preparation of products or services for the year 2000 transition could not incur their authors' liability, unless his bad faith is proved. These information will no longer constitute a source of contractual liability. Besides, this Act limits their convincings when these information are written. These information are confidential.

The Federal government of Belgium has created a Forum 2000 to encourage in a similar way, information between firms in the form of a Code of honour.

### Information of Public

States have asked ministries and public services to ensure the information of enterprises and public.

This information is provided to a large extent via the Internet. However, this means of communication is only directed at consumers who by definition will already be the most aware.

Information plans are also developed by enterprises.

## Information of shareholders

The stock market authorities have developed information plans for shareholders on the companies' risks that concern consumers as consumers of saving products.

The stock market authorities require listed enterprises to assess the risks relating to the year 2000 transition and to inform their shareholders when publishing their financial results.

This obligation, even if it puts pressure on the enterprises as regards the preparation for the transition to the year 2000, has the drawback of adding more commercial worries instead of encouraging the enterprises to be more optimistic. Concerned about not worrying the shareholders, they are thus not urged to take care of their customers.

## Information of customers

The consumer must have the possibility of obtaining information, which is not assuaging. The information of customers on risks inherent in the transition to the year 2000 must be developed, avoiding this information as a simple declaration, more or less realistic of the enterprises preparation for the year 2000. Besides, the enterprises should be aware that an optimistic information could entail their common and criminal liability. Indeed, the information is often viewed as a means to assure the clients and partners about the compatibility of the products and services to the year 2000 transition.

Enterprises must supply information to the customers concerning the products on sale. They should also supply information to customers on the products which have already been sold or which are sold second hand. This must be followed by the supply of the possible means of remedying the problems.

The absence of such information could be considered as a fault even in using common law liability in tort.

This information should be supplied particularly at the time of technical controls and adaptation control for year 2000 (vehicles, trains, vessels, planes, etc.).

## **CONSUMER AND THE CRITICAL PERIOD**

The critical date is not only the 1 January year 2000 but also 3 January year 2000, because it is the first working day of the year 2000 and a lot of computers and computer systems will start up on that day.

But the following months will also represent a critical phase, particularly the period starting on 29 February 2000.

Concerning the earlier period, before 1 January 2000, 9 September 1999 (9/9/99) is also considered as critical date because of the use of 9 and 99 as an order for eliminating files. Thus, 1999, 9/99, 9/9/99, and the 99th day of 1999 are all critical dates.

The sensitisation of consumers must make them take into account the need to take preventive and safeguard measures. It is not a question of creating a generalised panic, or provoking an economic crisis and deflation.

Sensitisation introduces nervousness, making the fear of scarcity to reappear. Sensitised consumers can themselves take initiatives of which it is advisable to determine the opportunity to control or encourage them.

Without urging a return to reactions of the deprivation period, it would be advisable to advise a reasonable storage of non-perishable food products: storage of water, tinned food products, etc.

Conversely, taking into account the power cut risks, and problems affecting particularly frozen food products, the destocking of these products might be reasonable.

The possibilities of lighting and emergency supply equipment (candles, autonomous heating) will be useful because of the danger of power cuts (with inversely the problems of gas carbons and the danger induced by these safeguard measures).

The consumer must be particularly aware of the state of freshness of food products and exclude doubtful products, etc. He should, especially during the most critical periods, verify the expiry dates of food products by controlling them with regard to the manufacturing dates.

He must keep an eye on the code bars reading by controlling the information on the display screen at the cash register, in order to limit risk of errors, particularly billing errors.

Furthermore, the consumer should be advised to have in his possession a certain amount cash to avoid problems in the banks and cash distributors.

In addition, the consumer must be particularly careful regarding the saving of personal data, both by himself and by those who may be in possession of such data (doctors, banks, etc.).

He must strengthen his control over the operations (such as banking operations, etc.) by supervising the execution of transactions and invoicing. In the operations with automatic counters or operations using credit cards he will have to ask systematically an invoice and keep receipts, and then to verify the statement of accounts.

Generally, keeping proof of various transactions is to be recommended, for example in case of subscription to an insurance policy, he should carefully keep the proof of cover requests and payments.

During this period, consumers must be prudent when using Internet for transactions and when using telecommunication technology.

It seems advisable to limit the deduction operations. The issue of taxation following deductions is likely to arise. It may cause damages to elderly consumers, and also to disabled persons who have problems taking the necessary procedures by themselves.

The establishment of specific mediation or arbitration systems <sup>46</sup> might be desirable to take speedy measures in case of invoicing or taxation entailing sizeable withdrawals from consumer's accounts<sup>47</sup>.

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<sup>46</sup> see the Spanish arbitration system relative to consumer disputes, see REDC 1996-120

<sup>47</sup> see for example the Italian conciliation system implemented by the Italian Phone Company and the consumer organisations, REDC 1993-252



The question may arise from abstention of behaviours accentuating the risks during the critical period : that is the case of travels and non-necessary transactions. Of course, this may affect tourism, in particular trips at the end of the year festivals (Christmas, New year's Eve, etc.).

One can consider that consumers should refrain from asking non-urgent cares.

## **EFFECTIVENESS OF CONSUMER'S LEGAL ACTIONS**

At the heart of the consumer's protection, there will be question of potential paralysis of these rights by proceeding difficulties, resulting both from the fact that the supplier is a foreigner and bankruptcy of the person responsible.

### Foreign supplier

Considering the importance of imports, the damages regarding consumers are likely to originate from imported products.

In matters of technology or computer but also in relation to numerous industrial products, the supplier will often be established abroad. The effectiveness of the legal action will result from the difficulty of pursuing the foreign debtor, all the more concerning enterprises in the United States where various states have passed or planned to pass laws to protect their enterprises.

The problems of conflict of laws and liability as regards imports will raise difficulties when calling in the liability of the manufacturer, importer and distributor.

### Boomerang effect of enterprises' difficulties

In case the year 2000 bug causes a prejudice to the consumer, the practical effectiveness of the recourse against the enterprise risks being affected by the foreseeable difficulties of this enterprise.

The year 2000 bug represents a considerable risk of bankruptcies for enterprises, which have difficulties. Any significant failure in the orders or deliveries, but also any late payment due to the bug, in so far as the SMEs particularly depend on their cash flow, could entail the judicial reorganisation of the less financially solid enterprises.

Concerning SMEs, any significant damage is likely to lead to bankruptcy of consumer's suppliers or services providers. This would be even more likely if the insurance companies refuse to cover damages, or if such companies are financially unable to do so.

It is assessed that 10% of French enterprises will go bankrupt, with a phenomena which will recall the wave of bankruptcy which accompanied the beginning of computerisation, particularly the problems relating to management in effective time of stocks, orders, etc.

The effectiveness of legal action is likely to be paralysed<sup>48</sup>. This will be the case with the reimbursements of down payments or deposits made by consumers, and like that of compensation of damages suffered.

It is likely that we will witness an increase resort to bankruptcy reorganisation proceedings, which will be used as a means to manage the problem. This resort to bankruptcy reorganisation proceedings will be made in a manner similar to chapter 11 in the USA in massive liability actions.

<sup>48</sup>Comp Michael Bogdan, *Les intérêts des consommateurs face à la nouvelle convention CE relative aux procédures d'insolvabilité*, REDC 1997-116

In judicial bankruptcy reorganisation, will arise troubles of legal action against directors for management fault, and against suppliers, publishers, and consultants for contractual liability. The question of consumers' representation among creditors will be raised, like that of the definition of the managers' duties.

The effective degree of representation (with the inherent problems in the French legal system that globalise the representation of creditors) could be a condition for legal actions against liable persons.

Possible decisions, implied or expresses, to continue with vulnerable equipment, will weigh as among the most important management duties. The question of management standards (duty of directors and standard expected) must include the duty to the customers and more generally to the consumers. In addition, the attitude must be estimated possibly in the framework of the administrator's liability insurance.

Risks weigh down in particular on insurance companies, which are exposed twice, in their operations and in the protection of their offers. Global risks can involve either individual failures, or systematic risks.

Litigation commenced by the consumer will raise numerous problems in procedural implementation, at the level of cost, proof as well substance. Liability sharing and possibilities of options will arise with intensity the possibilities of direct actions against the persons directly liable for the bug.

# **ROLE OF THE COMMUNITY**

## **1/ Community powers**

Article 129A of the EC treaty as inserted by the Treaty of Maastricht, [became article 153 of the Treaty establishing the European Community as modified by Treaty of Amsterdam which came into force on 1st may 1999], assigns to the Community the objective of "*realisation of a high level of consumer protection*". This article, which forms Title XIV of the Treaty, gives explicit and specific legal basis for continuing the action undertaken by Community institutions, from the 1970s, to ensure the protection of health, safety, economic and legal interests, and the right of information of the consumers. The competence thus attributed to the Community allows it to complete the policy taken by Member States in the field of consumer protection, and pursue the policy marked out by the adoption of directives for harmonisation of national laws, within the framework of the construction of the internal market (see notably Council Directive no.79/112 of 18 December 1978, JOCE, no.L33 of 8 February 1979, relating to the labelling of foodstuffs; Council Directive no 84/450 10 September 1984, JOCE, no.L250 of 19 September 1984, relating to misleading advertising; Council Directive 85/374 of 25 July 1985, JOCE, no.L210 of 7 August 1985, relating to liability for defective products; Council Directive no 87/102 of 22 December 1986, JOCE, no.L42 of 12 February 1987, relating to consumer credit; Council Directive no.92/59 of 29 June 1992, JOCE, no.L228 of 11 August 1992, on general product safety; Council Directive n. 93/13 of 5 April 1993, JOCE, no.L95 of 21 April 1993, on unfair clauses; Council and Parliament Directive no.98/27 of 19 May 1998, JOCE, no.L166 of 11 June 1998, relating to cessation actions on protection of consumers; Council and Parliament Directive no.99/44 of 25 May 1999 on the sale and guarantees of consumer goods, not published yet).

Furthermore, one of the modifications made by the Treaty of Amsterdam as Title XIV of the Treaty (new paragraph 2, article 153) expressly provides that other policies and actions of the Community take into consideration the objective of consumer protection. This gives an explicit basis for taking into account the objective of consumer protection in the context of actions taken under other provisions of the treaty, such as transport and competition policy, or even social policy every time it appears that the worker is considered as end user, for example end user of a machine tool. If consumer problem is not to be confused with citizenship, the interaction between consumer protection and other sectors of economic and social life justifies a very large taking into account of the consumer protection.

## **2/ Actions undertaken and measures taken by the Community as regards the year 2000 transition.**

### **Community actions and measures**

Since the beginning of 1998, the Community was preoccupied with the consequences, for the consumers, of the economic operators' failure to prepare for the year 2000 transition. The first initiatives date back to this period.

Indeed, Community institutions have assessed the problem, its consequences and have looked for solutions to introduce in the following acts :

- Commission's Communication dated 25 February 1998 called "The Computer Problem related to year 2000 transition" (COM(1998), 102 final);
- conclusions of the Presidency of the Cardiff European Council meeting on 15/16 June 1998;

- Commission's report to the Vienna European Council meeting called " How the European Union is Tackling the Year 2000 Computer Problem";
- conclusions of the Presidency of the Vienna European Council meeting on 11/12 December 1998;
- Commission's report to the Council, European Parliament, Economic and Social Committee, and the Committee of Regions on the preparation actions by the infrastructures in the European Union for the year 2000 transition of 2nd June 1999;

Within the context of its action relating to consumer protection in face of consequences of the year 2000 bug, the Community takes into consideration the position adopted by the Community institutions representing the consumers such as the Consumer Committee (see Opinion, 24<sup>th</sup> of September 1998).

These actions and measures pursue the policy based on the principle according to which " the need to protect a professional seller is less important than that to protect a consumer" (Statement of the grounds of the Directive no. 99/44/EC on the sale and guarantees of consumer goods). These actions are also based on the idea that it is necessary to maintain confidence and at the same time to make the consumers aware as to the impossibility of eliminating the risks, and as to the serious problems due to the technical complexity and to the interdependencies and chain transmission of malfunctionings.

The actions and measures also depend on the evaluation of the extent of the difficulties that will be created by the year 2000 transition for consumers.

Besides the economic impact, it is necessary to underline that there are probabilities, (even if statistically low), in certain sectors like agriculture or health, of tragic consequences for they affect human life.

Furthermore, in the case of infrastructures management, chain effects are to be feared, with international transmission of problems. Disruptions in critical sectors can be important.

It must be recognised that authorities and public services are not in the front-line of the preparation for the year 2000 compliance and that serious efforts must be made.

Community initiatives are made necessary by risks subsequent to the movement of goods within the internal market.

Indeed, the different levels of preparation in various countries are likely to lead to protective measures against imports from countries that have not yet implemented the necessary measures. The situation is the same for products and services.

This could apply to imports from European Union Member States, as well as to countries outside the EU, particularly from developing countries. Consumer protection, which in European law generally aims at eliminating obstacles to movement of goods, must be envisaged from point view of legitimacy of restrictions concerning products (especially food products) which may be defective because of the bug. The balance between objectives of protection and free movement could thus tip in favour of protection. The protection of public health will be of special importance.

The anticipation of the situation has thus led the Community to adopt a measure based on three orientations :

- to urge Member States to inform consumers on the computer problems caused by the year 2000 transition and related problems;
- to urge authorities of Member States and economic operators to manage efficiently their preparation for the year 2000 transition; and
- to make sure of the introduction of prevention actions for consumers.

These orientations are especially adopted in the Council Resolution relating to measures to take to face the year 2000 transition.

The orientations will also end in the setting up of a group comprising experts from Member States, representatives from industry and operators operating essential infrastructures. This group will be brought together regularly to facilitate the exchange of information and experience within the European Union.

#### Limits to Community actions

It is necessary to underline that competence and initiative of action on consumer protection belongs firstly to Member States, and not to the Community.

Indeed, the competence and power to initiate of the European Union institutions are strictly limited. It is first of all the consequence of compliance of the principle of subsidiarity set out in article 5 of the Treaty establishing the European Community, as modified by the Treaty of Amsterdam.

Next, regarding consumer protection, apart from measures adopted in the framework of achieving the internal market, article 153 paragraph 3(b) of the modified Treaty expressly provides only for complementary competence of the Community which is shown by the adoption of measures "*which support and complete the policy carried out by Member States and assure the follow up*".

What emerges from these texts is that the power of the European Union in this matter is a power to confirm and strengthen orientations which are given by each Member State.

In the case in point, it is precisely this accompanying of national measures taken or to be taken that the Community has pursued by adopting the texts mentioned above (see above, paragraph 2(a)).

Moreover, on the basis of achieving the internal market, for which the Community is invested with prerogatives of harmonisation (article 95 of the Treaty as modified by the Treaty of Amsterdam), many directives aimed at protecting the consumers', their health, safety, and economic interests, have been already adopted. But in this respect, the responsibility for applying the Community legislation falls on Member States. Thus, it results from this that the protection of consumers lies on the Member States action, and on the transposition of community laws into internal law, and their compliance by Member States.

For this reason, in the present case, an effective protection of consumers depends on a high level of compliance of the Community law and application of the guarantees enumerated therein by each Member State. This guarantee can only be given by each Member State, even if the Community institutions are not devoid of all control and sanction powers.

### **3/ Actions to take at each Member State level regarding the year 2000 transition.**

For all the above mentioned reasons, intervention by the Community, more particularly by the Commission, [which may be necessary in light of the extent of the problems caused by the bug, notably in the framework of orders for withdrawal of products particularly on the basis of directive no.92/59 of June 29, 1992 on general product safety<sup>49</sup>], could only have a restraining and legislative character in the internal system of each Member State.

It is for Member States to ensure the application of Community legislation relating to consumer protection, but also to take measures, extending this protection legislation, aimed at providing the consumers a sufficient level of information on the year 2000 bug, and its consequences, and to guarantee the consumers the exercise of their right to legal actions ; the Community can only have a role of encouragement. This role is shown notably in the orientations indicated by the Community in the draft Resolution on the measures to take to face the year 2000 transition.

It is for the authorities of each Member State to decide on the form to give to their intervention in this area. It is for them to determine if adoption of legislative acts and also of controlling legislative acts is necessary, or if their action takes the form of prevention and information campaigns of consumers.

In any event, it appears advisable that Member States encourage economic operators to ensure their preparation for the year 2000, verify their state of adaptation of their own services, and circulate information on the difficulties to anticipate and preparation measures adopted.

It would also be advisable for Member States to encourage services actions for consumer protection.

It is also for the authorities of Member States to settle the question of the insurance companies attitude. Indeed, this appears particularly worrying for consumers rights, for it affects one of the methods of mutualisation of collective risks. Insurance companies' position, which in most cases appear to want to refuse covering the risks, seems to be contrary to the principle of insurance and directly and indirectly harmful to the consumers.

Actions concerning the protection of consumers could be taken from the view point of the year 2000 bug within the framework of the legislation concerning defective products and misleading advertising, for foods products, payment systems, health protection, concerning distance selling (electronic commerce), travel, consumers' safety in medical and food sectors, etc.

Incentives for development of information and organisation of information campaigns must be increased, with inventory of risks and degree of probability of disaster, by favouring the methods of preparation and protection. The information of consumers on precautions and safety measures to take is a paramount requirement. The view of consumers' obligation to reduce damages by taking necessary precautions will also balance the necessary protection of the consumers with regard to suppliers and computer industry. In an Internet civilisation, which is potentially restoring the role of individuals, it shows the balance between confidence and activism.

It is also at the Member States level that a solution, if necessary, could be set up allowing to increase the consumers legal recourse. It could in fact be envisaged creating arbitration organisations (amicable recourse) allowing to settle the most frequent problems affecting the consumers related to the year 2000 transition, such as invoicing of non-supplied services or non-purchased goods, difficulties encountered with financial institutions and insurance companies. Consumer arbitration services at European level for operations involving several European countries could be envisaged.

<sup>49</sup> see The problem of adulterated Austrian wine, CJCE case 326/86, 4 July 1989, Fmcescori.

## Conclusion

The extent of difficulties which the transition to the year 2000 will give rise cannot be completely anticipated. However, whatever the level of preparation and vigilance the economic operators and authorities of Member States may have achieved, it must be absolutely clear that a total absence of problems for consumers cannot be expected.

The record is clear, and it appears that it is advisable for consumers as for other economic players to prepare themselves to avoid, or overcome the malfunctioning and to limit the harmful consequences of the said malfunctioning.

The vigilance required from consumers, by reason of circumstances, does not however call into question the application of the protection and legal guarantees which consumers in the European Union benefit against manufacturers or suppliers of products, notably on the basis of texts adopted by the Community to ensure their (consumers) protection. It is nevertheless feared that the effectiveness of the consumers' right of actions legally guaranteed in all EU Member States would diminish in practice because of the effect of the extent of difficulties on the viability and continuity of enterprises which are debtors of the guarantees enacted in favour of consumers.

That is why a special effort must be made in terms of information and prevention of consumers.

The Community is concerned about forecasting the difficulties related to the year 2000 for the consumer. It has first of all drawn up an inventory of all the computer problems related to the year 2000 transition, and their consequences, (Conclusions of the Presidency for Cardiff and Vienna summits; Commission's Communication of 25 February 1998), then the analysis was focused on vital sectors (draft report of the Commission to the Parliament and the Council on the state of preparation of the infrastructures industries of the EU) and orientations were provided to allow for the preparation of the Member States and interested operators (draft Resolution of the Council on the measures to take to face the year 2000 transition; sensitisation seminar for transport operators in different Member States in Brussels, Commission's Report on the state of infrastructure preparation of June 2<sup>nd</sup>, 1999). Community initiatives on transport safety may be extended to problems in the international control systems (air control etc.).

Measures taken by the Community also tend to encourage Member States, on whom the responsibility for protecting the consumers first falls, to ensure the level of information and guarantee of consumers that will allow them to avoid or limit the difficulties induced by the bug and to exercise their rights effectively.

It is therefore for Member States to implement decisions and actions intended to ensure the effective protection of consumers facing the problems caused by the year 2000 transition, by meting representatives of consumer interests and to establish a reasonable level of confidence. It is clear, in view of the construction of the single market, that Member States must adopt steps, besides common steps, at least non- conflicting to comply with the rules of free movement of goods and services, and of non-distorted competition which must be combined with the requirement of consumer protection.

Two lines of actions for the coming months emerge from the analysis of the problems raised by the year 2000 transition.

First of all, the year 2000 problem strengthens the opportunity of group action, which allows a better protection of the consumer <sup>50</sup>, but also a more balanced solutions permitting to take into consideration more general economic equilibrium. As regards product liability, an action in favour of this type of recourse seems to be within the European courts jurisdiction.

Then, from the view point of the competition law, which takes into account the way the dominant position has been used, one wonders about the use that can have been made at the level of publication of softwares by Microsoft and at the level of microprocessors by Intel. The question is whether or not this position has been used to force the rapid obsolescence by imposing the purchase of softwares that expire before year 2000 and the purchase of new computers.

The present software promotion of "*compatible Windows 2000*" would appear to show a move in this direction. The year 2000 is, with regard to the consumers, a means to force the purchase of new softwares. The absence of solution of the bug has allowed to maintain very high margins without making necessary expenses to eliminate it. The burden on the enterprises is passed on to consumers without affecting the main beneficiary (including consultant companies) of the problem.

Moreover, in the context of reinforcing the consumers' participation in the normalisation, taking into account the consumers' interest in the standardisation of dating must be strengthened.

Lastly, on safety of products, the directive on product safety provides for the obligation of Member States to notify the Commission of the measures taken for safety reasons and restraining marketing of a product (article 7(1)) corresponding to similar obligation within the scope of "safeguard clauses".

For information exchange in emergency situations, a specific procedure is provided for.

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<sup>50</sup> Directive no. 98/27 of the Parliament and the Council of 19 May 1998 relative to actions for cessation in matters of consumer protection (see OJEC of 11/6/98 no. L166/51 ; for the proposal, see REDC 1996-95) to meet the gaps in the legal protection of consumers facing various unfair trade practices



## **APPENDIX 1**

### **Table of transposition of EEC Directive 85/374 on the approximation of Legal, Regulatory and Administrative provisions of the Member States as regards liability for defective products**

**TRANSPOSITION OF DIRECTIVE 85/374 ON PRODUCT LIABILITY<sup>51</sup>  
WITHIN EU MEMBER STATES**

<b>MEMBER STATE</b>	<b>TRANSPOSITION ACTS</b>
Germany	Product Liability Act of 1st January 1990 ( <i>Produkthaftungsgesetz</i> )
Austria	Product Liability Act of 1990 ( <i>Produkthaftungsgesetz</i> )
Belgium	Product Liability Act of 25 February 1991
Denmark	Product Liability Act n° 371 of 07/06/1989
Spain	Product Liability Act n° 22/1994 of 6 July 1994
Finland	Product Liability Act n° 1990/694, as amended by the 08/01/1993 Act n°99/93
France	Defective Product Liability Act n° 98-389 of 19 May 1998
Greece	Act n° 1961/1991 of 03/09/1991 and Act n° 2000/1991 of 24/12/1991
Ireland	Statutory Instruments n° 316 of 1991
Italy	Decree n° 224 of 24/05/1988 : approximation of the legal provisions of the Member States relating to defective product liability
Netherlands	Defective Product Liability Act of 11/09/1991
Luxemburg	Loi du 21 avril 1989 relating to civil liability for defective products
Portugal	Decree n° 383/89 of 06/11/1989 implementing EC Directive n° 85/374 into internal legal order
Sweden	Product Liability Act n° 1992/18, as amended by Act n° 1992/1137 and by Act n° 1993/647
United Kingdom	Consumer Protection Act 1987

<sup>51</sup> see OJ L 210 of 1985

## **APPENDIX 2**

### **Table of transposition of the EEC Directive 92/59 on general product safety**

**TRANSPOSITION OF DIRECTIVE 92/59 ON  
GENERAL STANDARDS OF PRODUCT SAFETY  
WITHIN EU MEMBER STATES**

<b>MEMBER STATE</b>	<b>TRANSPOSITION ACTS</b>
Germany	Gesetz zur Regelung der Sicherheitsanforderungen an Produkte und zum Schutz der CE- Kennzeichnung vom 22 April 1997 <sup>52</sup>
Austria	Federal Act on Protection against Dangerous Products <sup>53</sup>
Belgium	Law 9 February 1994 relating to Safety of Consumers <sup>54</sup>
Denmark	Danish Product Safety Act, n° 364 of 18 May 1994 <sup>55</sup>
Spain	Real Decreto 44 :1996 de 19 de enero, por el que se adopta medidas para garantizar la seguridad general de los productos puestos a la disposicion del consumidor <sup>56</sup>
Finland	Product Safety Act of 1996 (914/1986) as last amended in 1993 (539 /1993)
France	Law n° 83-660 of 21 July 1983 on Safety of Consumers (Art. L 221-1 et suiv. Consumer Code
Greece	Law n°2251 of 16 November 1994 on the Protection of Consumer, article 7
Ireland	General Product Safety Regulations of 25 April 1997
Italy	Decreto Legislativo n° 115 in data 17 marzo 1995
Netherlands	Law on quality control of products 1935, as modified by the law of 21 April 1988 and its implementation decree of 28 September 1993 on regulation of general safety of products
Luxembourg	Law of August 27 <sup>th</sup> , 1997 relating to the general security of products.
Portugal	Decreto-lei 311 de 20 de novembre 1995
United-Kingdom	Statutory Instruments 1994 n° 2328 Consumer Protection, The General Product Safety Regulations 1994 of 5 <sup>th</sup> September 1994
Sweden	Product Safety Act of 22 December 1988, as amended 1.7.1994

<sup>52</sup> *Bundesgesetzblatt Jahrgang 1997, Teil n° 27, 30/4/1997*

<sup>53</sup> EEA :Annex II : 392 L 0059

<sup>54</sup> M/b ; 1/4/1994, p. 8921

<sup>55</sup> L.A. 18/5/1995

<sup>56</sup> *Boletín Oficial del Estado, 7 juillet 1994, p. 21737*

## **APPENDIX 3**

### **Part 1**

***Which are the risks for the consumer?***

### **Part 2**

***What is to be done to limit the impact and the risks?***

### **Part 3**

***What kind of actions are available to the consumers?***

## Part 1

### **Which are the risks for the consumer?**

Products, equipment or services	Critical risk for consumer	Non-critical risk for consumer
Household equipment	<p><u>Home computer</u>: risk of blocking and loss of personal data and files.</p> <p><u>Digicode, parking access, Entry badges for buildings</u> : risk of jamming and functional problems</p> <p><u>Power plant safety</u>: risks of jamming and functioning problems.</p> <p><u>Boilers, lifts</u> : Idem</p> <p><u>Cars</u>: risk of functioning problems (on board radar and computer, GPS).</p> <p><u>Telecommunication</u>: temporary cut off risk. Possible problems on the consumer invoicing</p>	<p><u>Television</u> : N.S. does not take into account dates or are compatible</p> <p><u>Toaster</u> : idem</p> <p><u>Video (tape) recorder</u>: Some will cease to function if they manage time in years (weak proportion). Can loose their capacity to manage the programmed recordings / solution re-programme them for 1972 (identical calendar)</p> <p><u>Video camera</u>: They will have anomalies at clock level.</p> <p><u>Cameras</u>: Their dating will be potentially affected.</p> <p><u>Digital clocks</u>: There will be potential anomalies.</p> <p><u>Oven, washing machine, referigerator and freezer</u> : Their programmes will not take the year into consideration</p>
Health : Products	<p><u>Pacemakers and other personal medical equipment</u>: functioning problems risk.</p> <p><u>Medicine manufacturing chains</u> : risk of allocation from their functioning;</p>	
Health : Services	<p><u>Medical equipment</u>: functioning problem risks</p> <p><u>Social security services</u> : potential disruptions of data, and of reimbursement , deduction of contributions, etc., services, delay, errors, anomalies</p>	
Social protection	<p><u>Payment of benefits</u> (pension, family allowances): potential disruption: delay, errors, anomalies.</p> <p><u>Data management</u>: loss, errors and delays.</p>	
Energy and water	<p><u>Energy distribution Services</u> : (electricity, gas) risk of cut off and malfunctioning</p> <p><u>Water distribution service</u> : risk in purification, inducing risks of cut off</p>	
Transport	<p><u>Electronic and electric road signal</u>: risks of malfunctioning and jamming. By way of consequence, road traffic affected.</p> <p><u>Electronic and electric railway signal</u> : : Idem By way of consequence, rail traffic affected.</p> <p><u>Air transport and navigation equipment and control systems</u>: risk of malfunctioning. By way of consequence, air traffic affected.</p> <p><u>Maritime navigation systems</u>: disruptions from 8/22/99.</p>	
Bank and financial sector	<p><u>Automatic Cash Dispensers (ACD)</u>: risk of malfunctioning, jamming and errors.</p> <p><u>Use of payment cards and all plastic money means</u>: risk of malfunctioning, jamming and errors.</p> <p><u>Banking and Insurance Services: (means of payment, loans, insurance)</u>: risk of errors and delays.</p> <p><u>Stock exchange quotations</u>: risk of jamming, suspension of transactions.</p>	



Products, equipment or services	Critical risk for consumer	Non-critical risk for consumer
Trade	<p><u>Distance sale orders/deliveries</u>: risk of loss of files, potential errors and delays. Possible problems of invoicing customers of non-ordered service /products.</p> <p><u>Retail sale</u>: risk of errors and anomalies in purchase invoicing (reading problems of bar codes and malfunctioning of cash registers). Risk on food products : dating problems, risk of rupture in the cold chain</p> <p><u>Electronic commerce</u>: risks on registration of orders, on customers and deliveries file management. Non-access to sites, delays and errors.</p> <p>Risk of errors on product/service invoicing - Risk of payment fraud.</p>	<p><u>Retail sale orders/deliveries</u>: risks of delay in the supply of certain products (critical for food products and essential goods) to shops.</p>



**Part 2**  
**What is to be done to limit the impact and the risks?**

Risks/Problems	Solution/Limitation	Implementation period
Home computers	<ul style="list-style-type: none"> <li>- to ask the seller for information on the compatibility of the hardware and software to the year 2000</li> <li>- if necessary, to buy an updated software version, but making inquiries on the ascending compatibility of the software solutions proposed by the seller</li> <li>- realise back-up copies of the main computer files</li> </ul>	From now on
Access to buildings, parking lots, lifts and boilers	<ul style="list-style-type: none"> <li>- to question the building administrator (co-owners' manager) on the compatibility of equipment (- in respect of individual boilers: to verify with the maintenance enterprises of their compatibility; revise the safety procedures for their starting)</li> </ul>	From now on
Domotical safety stations	<ul style="list-style-type: none"> <li>- to verify with the installation engineer of their compatibility. If necessary, to carry out the adaptation of the equipment.</li> </ul>	From now on
Cars	<ul style="list-style-type: none"> <li>- to seek information from the seller</li> <li>- to replace the critical electronic parts, if they can be identified.</li> </ul>	From now on
Health	<ul style="list-style-type: none"> <li>- to ask the manufacturer for information on the compatibility of personal equipment to the year 2000 (and if necessary from the doctor)</li> <li>- to control the production and expiry dates of purchased medicines</li> </ul>	From now on  End of 1999/beginning of 2000
Social security services (family allowances, pensions) and health-care benefits	<ul style="list-style-type: none"> <li>- to keep a copy of all exchanges, such as request to take on the charges and reimbursements, with social bodies and the receipts of payment made by them</li> <li>- to verify the breakdowns sent by the social bodies, as well as the realisation of payments made by them</li> </ul>	From now on and during the first months of the year 2000
Transport	<ul style="list-style-type: none"> <li>- means of individual transport (boats and cars): to carry out the control of the navigation equipment;</li> </ul>	First days of the year 2000



Risks/Problems	Solution/Limitation	Implementation period
	plan to limit maximum travelling. - collective means: plan to limit maximum travelling.	
Banks and financial sectors	- to constitute cash reserves - increased vigilance at all automatic transactions or effected at the bank counters: keep written traces of the transactions, on the spot control of prove of operations, control the realisation and the amount of the operations on the bank accounts statement.	Last weeks of 1999 and first weeks of 2000
Commerce	- to constitute stock of food products and essential products for a few days - to control in a vigilant manner the expiry dates of food products in relation to their production date - to control the invoicing of purchased products as well as the payment if made by means of plastic money - to avoid temporarily distance selling and payments by indicating the bank card number; in any case, control the delivery notes by reference to the order form and keep the copy of the orders made.	Last days of 1999 and first weeks of 2000

### Part 3

#### **What kind of actions are available to the consumers?**

Nature of damage suffered	Type of right of actions	Economic Operators whose liability will be called into question
Material damage	<ul style="list-style-type: none"> <li>- Action for liability out of contract on the basis of sale law (conformity obligation, legal guarantee)</li> <li>-Action on the basis of consumer law = failure to inform or negligence (UK)</li> <li>-Action for extra-contractual liability on the basis of defect.</li> </ul>	<ul style="list-style-type: none"> <li>- Seller</li> <li>- Seller/producer, importer</li> <li>- Producer, importer</li> </ul>
Material damage by reason of defectiveness of a product or default of safety obligation	<ul style="list-style-type: none"> <li>- Action on the basis liability for defective products without fault or safety obligation.</li> <li>- Action for liability on the basis of sale law (legal guarantee/ contractual guarantee) or on the basis of consumer law : default of obligation to inform or negligence.</li> </ul>	<ul style="list-style-type: none"> <li>- Producer, importer and Seller (in Germany, exceptionally ; in Belgium : in case of non-indication of producer ; in Spain : exceptionally).</li> <li><b>N.B.</b> : in Denmark, Belgium, France, Finland and Sweden, services to consumers can be the subject of right of actions based on the basis of liability for defective products.</li> <li>- Producer, importer, seller</li> </ul>
Personal injury <sup>57</sup>	<ul style="list-style-type: none"> <li>- Action on the basis of liability for defective products or obligation of safety of products</li> <li>-Action for extra-contractual liability on the basis of fault.</li> <li>- Action on the basis of consumer law : default of obligation to inform or negligence</li> </ul>	<ul style="list-style-type: none"> <li>- Producer, importer, seller</li> <li>- Producer, importer, seller</li> <li>- Producer, importer, seller</li> </ul>

<sup>57</sup> **N.B** : For this type of damage, an exclusion or limitation liability clause (for example in the sale contract or general conditions of contractual guarantees) will be considered as unfair within the meaning of Directive (EEC) 93/13 on Unfair Clauses and transposition laws in Member States legislation.



**APPENDIX 4**

**INITIATIVES  
OF PREVENTION AND INFORMATION  
OF CONSUMERS RELATED TO  
THE PROBLEMS CAUSED  
BY THE YEAR 2000 TRANSITION**

### **1/ Initiatives by European Union authorities and consumer organisations**

Following the Consumer Committee's Opinion dated 28 September 1998 on the year 2000 related problems for the consumer, the European Union authorities took the initiative to request the present report on the effect of the bug for consumers and the level of protection they will benefit within the European Union. The Commission has also opened two information web-sites aimed at the Public (ISPO, DGIII, <http://www.ispo.cec.be/y2keuro/year2000.htm>; DGXXIV, consumer policy and protection of their health, Opinion of 24 September 1998 on problems related to the year 2000, <http://europa.eu.int/comm/dg24/>).

The European Agency for health and safety created a special information site on the year 2000 bug in relation to health and safety on the working place (<http://www.eu.osha.es/year2000>).

### **2/ Initiatives by public authorities/ consumer organisations in Great Britain**

The British government launched, through the press, an important information campaign for private individuals on the problems linked to computer consequences of the year 2000. It is matter of distribution, with newspapers and on a wide scale, of a brochure of popularisation tackling the concrete impact of the bug and its induced effects relating to the every day life (at work, by travelling, in using medical services, when purchasing household goods, ...).

### **3/ Initiative by public authorities/ consumer organisations in Northern Ireland**

The General Consumer Council (GCC) is a public organisation which since February 1998, has taken part in the Department of Economic Development Programme of Northern Ireland, named "The Millenium Date Change-Business Continuity Planning Programme".

The GCC has carried out several press campaigns with a view to alerting the consumer on the year 2000 problem.

In particular, the vigilance of consumers have been awakened especially by stressing the potential problems of equipment and domestic appliances. Furthermore, the purchasers of new computer equipment have been warned about the possible non-compliance of their equipment to the year 2000.

### **4/ Initiatives by public authorities/ consumer organisations in France**

Information and prevention of consumers have been only the subject of indirect measures.

The government bodies including the *Secretariat d'Etat à la consommation et administratifs* concentrate the best part of their awareness programmes on enterprises. Besides the reports requested from Mr. Christian Pierret and Mr. Gérard Théry on the state of preparation by enterprises for the year 2000 transition, whose conclusions were presented to the government on 26 November 1998, an awareness booklet has been distributed to 2.2 million SMEs, and booklets containing actions plan to implement are available, rather destined for small enterprises.

However, certain initiatives taken will also benefit enterprises and consumers. It is the advertising campaign televised, relayed by radio and newspapers, and the setting up of telephone calls centre.

All in all, from September 1997 to this day, the government as allocated 1000 million Francs to various information and mobilisation measures.

**5/ Initiative by public authorities / consumer organisations in Italy**

On 17<sup>th</sup> May 1999, the Government adopted law n° 144, notably on the adaptation measures of computer systems to the year 2000 (see article 19 of the law). This law allows to attribute the means, previously intended only for the introduction of the single currency and also for the sensitisation to difficulties linked to the bug (Comité Provinciali per l'Euro e per l'anno 2000).

This text also allows an allocation of a budget of 5 billion Italian lire in 1999 to finance information and communication campaigns concerning the change of date within computer systems.

Furthermore, the "Comitato Consumatori Altroconsumo" disclosed to its members information relating to the transition to the year 2000 and to the practical impact of the change of date. This sensitisation campaign was published in the form of an article in the June 1999 edition of the journal "Altroconsumo", taking stock of the difficulties which could be anticipated as regards the computer equipment, office equipment, domestic equipment and in the relationship with banks or health institutions.

## **APPENDIX 5**

### ***Information websites on the Year 2000 computer related problems***

## European Commission

- Bureau de Promotion de la Société de l'Information (ISPO)  
<http://www.ispo.cec.be/y2keuro/year2000.htm>
- DGXXIV, politique des consommateurs et protection de leur santé  
Avis du 24 septembre 1998 sur les problèmes liés à l'an 2000  
<http://europa.eu.int/comm/dg24/>

## France

- Le centre Français d'information sur le passage à l'an 2000  
<http://www.an2000.gouv.fr/>  
<http://www.urgence2000.gouv.fr/l.htm>  
<http://www.industrie.gouv.fr/>  
La mission an 2000 de Christian Pierret, la préparation des pouvoirs publics, le programme d'action gouvernemental et un forum.
- CIGREF – Club Informatique des Grandes Entreprises Françaises  
[http://www.cigref2000.com/cigref2000/cigref2000.nsf/\\$\\$pages/AccueilPublic](http://www.cigref2000.com/cigref2000/cigref2000.nsf/$$pages/AccueilPublic)
- Doit-on craindre l'an 2000 ?  
<http://blanche.polytechnique.fr/lactamme/Mosaic/descripteurs/An2000.01.Fra.html>  
Par Jean-François Colonna : les causes, conséquences, solutions et problèmes du passage à l'an 2000 en informatique.
- Passage des systèmes électroniques à l'an 2000  
<http://www.premier-ministre.gouv.fr/SYSTELEC2000/SOMMAIRE.HTM>  
Documents officiels du gouvernement : circulaire du Premier ministre, rapport Théry, la mission et la liste provisoire des hauts fonctionnaires "an 2000".
- CCF 2000  
<http://www.CCF2000.COM/>  
Fiches pratiques pour aider les entreprises et les particuliers à rendre le passage à l'an 2000 plus facile.
- 2000  
<http://www.drivre-pays-de-la-loire.fr/an2000>  
L'information pratique des entreprises des Pays-de-la-Loire pour le passage à l'an 2000 de leurs systèmes électroniques et informatiques.
- Qui a peur de l'an 2000 ?  
<http://www.aspeps.com/an2000>  
Réunit quatre organisations inter hospitalières.

## Germany

- Bundesministerium für Bildung und Forschung  
<http://www.id.de/jahr2000/>
- Bundesamt für Sicherheit in der Informationstechnik (BSI):  
<http://www.bsi.bund.de/aufgaben/projekte/2000/jahr2000.htm>
- Datenbank Y2K  
<http://www.INOSOFT.de/jahr2000>  
Datensammlung der Deutschen Bank über verschiedene Softwareprodukte im Zusammenhang mit dem Jahrtausendwechsel.
- Initiative 2000  
<http://www.initiative2000.de/>



## **Austria**

- WIFI:  
<http://www.wifi.at//tub/2000/>
- Institut für Gestaltungs- und Wirkungsforschung:  
<http://www.y2K.at>
- Industriellenvereinigung Vorarlberg:  
<http://www.voei.at/VBG/Jahr2000.htm>



## **Great Britain**

- Government - Action 2000  
<http://www.open.gov.uk/bug2000>  
<http://www.taskforce2000.co.uk>
- Bug2000  
<http://www.bug2000.co.uk/>  
The site of the Department of Trade and Industry's Action 2000 campaign to combat the millenium bug.
- The Central Computer & Telecommunications Agency (CCTA)  
<http://www.ccta.gov.uk/mill/mbhome.htm>
- Year 2000 Compliance Guidance for the Police  
<http://www.homeoffice.gov.uk/y2k.htm>
- De Institution of Electrical Engineers (IEE) over embedded systems  
<http://www.iee.org.uk/2000risk/>
- 2k-Times  
<http://www.2k-times.com/y2k.htm>  
a year 2000 newspaper.
- BBC Education – Millennium Bug Information  
<http://www.bbc.co.uk/education/cdb/bug/index.shtml>
- Automation 2000  
<http://www.auto2000.ndirect.co.uk/>  
Resource for tackling the embedded millennium bug within production machinery, process plant and equipment control systems, in manufacturing, utility and service industries.
- BugNetwork  
<http://www.bugnetwork.com/>  
Interactive conference site dedicated to discussing the problems, solutions and developments connected to the Millennium Bug.
- Compliant UK  
<http://www.y2kbug.org.uk/>  
Focuses on the preparedness of infrastructure providers and companies.
- Powys TEC's Millenium Bug Site  
<http://www.powys.tec.org.uk/y2k/>  
Intended to create awareness of the millennium bug. The site informs of the potential dangers of ignoring the bug and sign posts to other sources of help.
- Y2K News UK  
<http://www.y2k-news.co.uk/>
- Year 2000 – The Millenium Problem  
<http://www.bcs.org.uk/millen.htm>  
From the British Computer Society.
- Year 2000 Buyers Guide  
<http://www.itaa.org/yr2000bg.htm>



- Year 2000 Compliance  
<http://robsterm.e-eng.hull.ac.uk/y2000/>  
Page for the Millennium Compliance Programme in operation at the University of Hull.
- Year 2000 Date Problem – Support Centre  
<http://www.compinfo.co.uk/y2k.htm>
- Year 2000 Support Centre  
<http://www.support2000.com>
- Millenium Problem in Embeded Systems  
<http://www.iee>  
Millennium Problem in Embeded Systems  
from the Institution of Electrical Engineers.



### **Ireland**

- Irish Government  
<http://www.irlgov.ie/y2k>
- 2000 Aware  
<http://www.2000aware.ie/>  
Provides information on the Y2K problem in Ireland.
- Enterprise Ireland's Year 2000 Information Service  
<http://www.forbairt.ie/y2k/>



### **Belgium**

- Y2Kbelgium  
<http://www.y2kbelgium.org/>  
Quel sera l'impact, en Belgique, du bug de l'an 2000, aussi bien au niveau des composants embarqués qu'à celui des autres systèmes informatiques.
- Millennium Forum 2000  
<http://y2000.fgov.be/>
- The Belgian Year 2000 Homepage  
<http://www.itworks.be/year2000/>



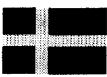
### **Netherlands**

- Millennium Platform  
<http://www.mp2000.nl/>



### **Norway**

- Government  
<http://www.aksjon2000.org/>



### **Sweden**

- Government  
<http://www.2000-delegationen.gov.se/>  
Regeringens delegation presenterar lägesbeskrivning och annan information kring de förväntade datorproblemen vid millennieskiftet.
- Statskontoret År 2000  
<http://www.statskontoret.se/2000/>  
Följer 105 myndigheters arbete med anpassningen till år 2000



## Denmark

- Ministry of Research and Information Technology  
<http://www.fsk.dk/fsk/div/aar-2000/year2000.html>
- 2000 Fokus  
<http://www.2000fokus.dk/hotforum/y2k.nsf/docs/211a>



## Finland

- Ministry of Finance  
<http://www.vn.fi/vm/kehittaminen/tietohallinto/summary.htm>



## Italy

- AIPA  
[http://www.aipa.it/attivita/anno2000\[11\]/index.asp](http://www.aipa.it/attivita/anno2000[11]/index.asp)  
Autorità per l'Informatica nella Pubblica Amministrazione
- Ministero dell'Industria  
[http://www.minindustria.it/gabinetto/seg\\_tecn/inf2000.htm](http://www.minindustria.it/gabinetto/seg_tecn/inf2000.htm)
- Comitato Anno 2000  
<http://www.anno2000.it>  
Istituito dalla Presidenza del Consiglio dei Ministri
- La Repubblica  
[http://www.repubblica.it/index\\_millennium.html](http://www.repubblica.it/index_millennium.html)  
Speciale Millennium Bug
- Osservatorio 2000  
<http://www.osservatorio2000.com>  
Organismo di informazione sull'anno 2000 in Italia.
- Associazione Nazionale Aziende Servizi Informatica e Telematica  
[http://www.anasin.it/hotspots/a2000\\_040298.htm](http://www.anasin.it/hotspots/a2000_040298.htm)



## Spain

- Map 2000  
<http://www.map.es/csi/2000.htm>  
Ministerio de Administraciones Públicas, Centro de recursos informativos, de soporte técnico y de asistencia a las unidades tecnológicas de la administración pública española relacionados con el año 2000.



## Portugal

- Mission for the Information Society  
<http://ano2000.mct.pt/index2.html>
- Instituto de Informática (Ministério das Finanças)  
<http://www.inst-informatica.pt/ANO2MIL/2mil0001.htm>
- EUNET  
<http://www.eunet.pt/ano2000/>
- Direito e Informática  
<http://www.terravista.pt/mussulo/1139/>
- Projecto INFOLOGIA  
<http://www.infologia.pt/informacoes/ano2000.html>
- SAPO  
<http://www.sapo.pt/computadores/documentacao/>

- Missão para a Sociedade da Informação (Ministério da Ciência e Tecnologia)  
<http://www.missao-si.mct.pt/>



## Greece

- Site de l'an 2000  
<http://www.year2000.gr>
- Athens Chamber of Commerce and Industry  
<http://www.acci.gr/y2k>
- Greek Ministry of Health – site for the year 2000 problem  
<http://www.ypyp.gr/y2k>
- Federation of Hellenic Information Technology Enterprises  
<http://www.sepe.gr/y2k/y2ksites.htm>



## United States of America

- U.S. Federal Government Gateway for Year 2000  
<http://www.itpolicy.gsa.gov/mks/yr2000/y2khome.htm>  
The President's Council on Year 2000 Conversion  
<http://www.y2k.gov/java/index.htm><http://www.y2k.gov/java/index.htm>
- Y2kculture  
<http://www.y2kculture.com>  
Daily news and commentary on Y2K culture and politics.
- Year 2000 Computer Crisis Information Center / Millennium Bug  
<http://www.year2000.com>  
Provides information and solutions to the year 2000 computer crisis. The clock is ticking...
- 2000 amIsafe  
<http://www.2000amisafe.com>  
Offers information, news, and tips on the Y2K issue and which companies/industries are prepared.
- A-NET Consulting  
<http://www.anet2000.com>  
Offers discussion group for airport administrators to discuss Y2k issues. Includes general discussion group, and client section.
- CNET News.com: Year 2000  
<http://www.news.com/Categories/Index/0,3,87,00.html>  
Collection of news and commentary on the Y2K issue.
- Computer Currents Y2K Ressource  
<http://www.currents.net/advisor/y2k/index.html>  
Columns, daily news, and software/hardware compliance information.
- Don't Get Stung  
<http://www.pathfinder.com/money/y2k/index.html>  
by the Year 2000 Bug. Articles and more from Money Magazine.
- Electric Utilities and Year 2000  
<http://www.euy2k.com>  
How is the year 2000 computer problem going to impact these business areas? How can electric utilities cope with the problem?
- Everything 2000 Y2K Ressources  
<http://www.everything2000.com>
- FCC Year 2000 Page  
<http://www.fcc.gov/year2000/>

- IT2000  
<http://www.it2000.com/>  
The national bulletin board for Year 2000.
- Millenium Bug  
<http://www.amz.com/omsi/home.html>  
A thorough look at the bug, what's affected, who's de-bugging, preparation, and more.
- Millenium Hysteria  
<http://www.angelfire.com/oh/justanumber>  
Learn how the Y2K bug will be the biggest money-making hoax in this lifetime.
- MITRE/ESC Year 2000  
<http://www.mitre.org/research/y2k/>  
Information on the problem and solution approaches for technical and management groups.
- PC Magazine Y2K Ressource Center  
<http://www.zdnzt.com/pcmag/special/y2k/index.html>
- Rollover  
<http://www.rollover.com/notsosecret/>  
Novel concerned in part with the year 2000 problem.
- Scientific American: Y2K: so many bugs... so little time  
<http://www.sciam.com/1999/0199issue/0199dejager.html>  
Peter de Jager describes why a simple date adjustment is so devilishly hard to accomplish and realistically assesses how much chaos this glitch will bring in the next millennium.
- Tick, Tick, Tick...  
<http://www.tickticktick.com/>  
Newsletter for millennial management. Provides the only printed forum for disussion of the year 2000 as it affects computer programs.
- Users guide to the Year 2000 Crisis  
<http://www.thefederation.org/Public/Y2K/index.htm>  
From the Federation of Insurance & Corporate Counsel.
- Vendor 2000  
<http://www.vendor2000.com/>  
Compliance information database that provides information on products from thousands of suppliers.
- [www.y2k.com](http://www.y2k.com)  
Legal, accounting, insurance and management information on the Year 2000 software problem (aka "y2k" or "millennium bug"). Research data on liability and project management.
- Y2K Answers  
<http://www.y2kanswers.com>  
Offers PC compliance software, as well as information and links.
- Y2K Center  
<http://www.yardeni.com/cyber.html>  
From economist Dr. Ed Yardeni.
- Y2K CPA  
<http://y2kcpa.atu.edu/>  
Offers information and links on Y2K accounting issues.
- Y2K for Women  
<http://www.y2kwomen.com/>  
What every woman needs to know and how to keep herself and her family safe.

- Y2K News Magazine  
<http://www.y2knews.com>  
Printed bi-weekly.
- Y2K Newswire  
<http://www.y2knewswire.com>  
Free daily Y2K e-mail alerts and analysis.
- Y2K Ressources  
<http://y2k.acf.dhhs.gov/> - Offers information and links in two tracks, one for the novice, and one for the experienced computer user.
- Year 2000 Liability  
<http://www.2000law.com> - Resource to legal information.
- Year 2000, not a problem for Macintosh  
<http://product.info.apple.com/pr/letters/1997/961210.pr.ltrs.macos2000.html>
- ZDY2K.com  
<http://www.zdnet.com/zdy2k/>  
Year 2000 info from ZDNet.
- Year 2000 Journal  
<http://www.y2kjournal.com>  
Magazine dedicated to the Y2K century date problem.
- Press Intelligence  
<http://www.y2000compliance.com> - Service de veille : la conformité des produits avec l'an 2000, détection des modifications apportées par les fournisseurs à leurs produits.

### **Computer Manufacturers & Software Editors**

- IBM Year 2000  
[IBM Year 2000 Technical Support Center](#)
- Hewlett Packard  
<http://www.hp.com/year2000/index.html>
- Compaq  
<http://www.compaq.com/year2000>
- Apple  
<http://www.apple.com/about/year2000/index.html>
- Novell  
<http://www.novell.com>
- Microsoft  
<http://www.microsoft.com/technet/topics/year2k/default.htm>
- Lotus  
<http://www.lotus.com>
- Adobe  
<http://www.adobe.com>
- Corel  
<http://www.corel.com>
- Macromedia  
<http://www.macromedia.com>

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## **WARNING**

**The Consumers Committee (CC) is a consultative committee of the Commission, entrusted to represent the interests of consumers at the Commission and to give opinions to the Commission on all problems relating to the conception and implementation of policy and action on the subject of protection and information of consumers, either at the request of the Commission or on its own initiative. The opinion of the CC does not reflect the *opinion of the Commission or one of its Services.***

**The German version will follow.**

# **OPINION of CONSUMER COMMITTEE on the Year 2000 related problems**

## **1. Introduction**

The Working Group on the Year 2000 related problems (also known as "Y2K problem", "Y2K", "Year 2000", "Millennium Rollover", "Millenium Bug" etc) was set up by the Consumer Committee of 10 February 1998 with a remit to investigate to what extent consumers will be affected by the technical problems related to the millennium change. The group<sup>1</sup> met three times (2 April, 5 May and 2 June) and has agreed on this opinion. The opinion was adopted by the Consumer Committee on 24 September 1998.

## **2. Problem description**

The Y2K problem is not simply related to the one "dangerous" date (2000-01-01 00.00 hrs). Different problems can arise both before the turn of the millenium and afterwards, in many ways, at the same or different time and ways that are not easy to predict. That is due to the modern, technically integrated nature of society.

The essence of the problem is:

1. In computers, year-numbers are often indicated (programmed) with two digits instead of four with the century assumed to be "19". This means that operations such as subtraction, sorting and comparison of data relating to the years ..."99", "00", "01"... can be incorrect. Year "00" could also be treated as invalid date in some systems.

2. It is not clear which microprocessor systems can manage the transition to the year 2000, and whether they will relate to the year 1900 or 2000 (built-in systems problem). Dangerous

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<sup>1</sup> See annex 1 for the composition of the Working Group.

systems are systems with realtime clocks in hardware, firmware, operating systems and/or application programs.<sup>2</sup>

3. The codes "99" or "00" (for example in a year-field in a database) can mean other things than years (for example: "end of data feed", "control", "maximum", "infinity", "scrap", "test", "nothing", "start", etc).

4. The year 2000 is a special leap year (1700, 1800, 1900 were not leap years). If the equipment is not programmed appropriately, problems can also arise on 2000-02-29 and day 366 in year 2000.

The reason for using only two digits instead of four (point 1. above), for year presentation in computers, was:

- lack of storage (shortage, expensive)
- fewer digits to input (saved work and money, less errors)
- natural to express years with only two digits in normal language
- the most widely used administrative programming language COBOL only used two digits (format: MM/DD/YY)
- it is expected that older systems would be replaced before problems arose.

## **2.1 Identification of problems**

The Working Group decided to take, as a starting point, the non-exhaustive list of consumer issues drafted by DG XXIV (*see Annex 2*).

## **2.2 Impact on consumers**

Y2K related problems may affect the safety and economic interest of consumers.

Types of losses which may occur are:

- Malfunctioning of personal equipment caused by Y2K problems itself, in particular as regards PCs and software but there may also be consequences for important consumer products like cars;
- Economic loss to the consumer: damage to personal and financial transaction records, the miscalculation of transactions affecting savings, bank accounts, mortgages, errors in invoicing from utilities, errors on payrolls and salary payments;
- Threats to the consumer health and safety, for example: the failure of a computer application embedded in an aircraft, a traffic controls system, a power station, a medical life support equipment;
- Inconvenience to the consumer: many products in the home (PC, VCR, fax machine, security system, etc.) may be affected by the problem;
- Consequential damage to other equipment.

The Consumer Committee wishes to draw attention to the fact that the Y2K problem has specific implications for consumers with special needs, such as the elderly and disabled. The following issues have been identified by experts in this area as possibly problematic:

- social alarm systems for the elderly are completely reliant on computer systems and the Y2K problem will have to be looked at by the service providers;

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<sup>2</sup> A similar problem to point 2 above is the so-called "End Of Week (EOW)" rollover phenomenon that could affect some GPS-systems (for example used in navigation and general determination of position) at 00.00 hrs UTC, 22 August 1999. GPS system time counts weeks from midnight 5-6 Jan 1980 in "modulo 1024", i.e. in 1024 cyclic steps from 0000 to 1023, and GPS week rolls over from week 1023 to 0000 at midnight 21-22 August 1999 (and approximately every 20 years thereafter).

- social services records e.g. delays or errors in charging for residential care or home help assistance;
- payment of several social security benefits could be affected as they are linked to dates, for example pensions, income support, disability benefits, housing benefit etc.
- there may be problems in medical notification systems for the recall of people for specific treatment and checkups;
- there may be problems in certain medical life supporting systems.

### **3. Consumer situation**

In assessing the problem for consumers, the Consumer Committee makes a distinction between *passive* and *active* situations. The passive situation applies mainly to services and products which are provided to consumers and over which they have as individuals very little control.

Consumers in a more active situation, on the other hand, can take action (and are responsible) themselves to mitigate some of the problems which may arise from the Y2K problem. This is the case for example for problems which may arise in the home or in the home situation of consumers and the products/services which consumers buy, own and use.

#### **3.1 *Passive situation***

##### **Services**

- Utilities (electricity, water, heating)
- Telecommunications
- Computer communications
- Rescue (ambulance, firebrigade, police)
- Food supply chains (stock/ordering/distribution systems)
- Transport and travel
- Finance
- Health
- Insurance

In order for the consumers to protect themselves, it is important to have access to the information on the implications of the Y2K problem and to the contingency plans which are in place. Companies providing vital consumer products and services should be required to publish year 2000 information in a form which can be easily understood by consumers and which is readily available. National authorities and other public bodies also have special responsibilities in this area. As many (if not all) of the services mentioned above have an international dimension, it is logical that action is needed at international level by international bodies (European Commission and other international bodies).

#### **3.2 *Active situation***

The Consumer Committee distinguishes between different kind of products which will be affected differently by the Y2K problem:

##### **Products**

- PC (hardware, BIOS, operating system, application programs, usage)
- other domestic appliances with embedded microprocessors (hardware, firmware) using date functions
- domestic appliances with embedded microprocessors not using date functions
- GPS receivers
- other electronic systems (no realtime clock)
- personal means of transportation (cars etc)

- personal finance (credit and payment cards)
- user instructions

The PC and systems with embedded microprocessors are the major field of concern for the Consumer Committee. There are various kinds of Y2K risks: threat to health and safety, economic loss for consumer, malfunctioning of equipment, further damage to dependent equipment and inconvenience to consumer. The Consumer Committee is also concerned about cars as many of them have all kinds of electronic equipment.

### **3.3 Areas of consumer specific Y2K problems**

- 1) consumers as users of existing equipment that may have Y2K problems
- 2) consumers as buyers of new equipment that may have Y2K problems
- 3) consumers as buyers/users of goods and services that do not have Y2K problems, but where supply fails because of Y2K problems further back in the supply chain.

The Consumer Committee recommends that a distinction be drawn between different types of consumer problems. The nature of problems related to Y2K issues depend very much on the specific nature of the products/services which consumers use or buy.

#### **ad 1) Consumers as users of existing equipment that may have Y2K-problems**

It is vital that consumers check their products well in advance of 1 January 2000 for 2000-compliance. Information campaigns should draw attention to the importance of this. The identification of faulty equipment could be facilitated by the industry publishing lists of equipment which is 2000-compliant and that which is not. This identification should be monitored in some way in order to avoid false claims be made by producers. The Consumer Committee recognises that misleading information given by companies on their products, can seriously confuse consumers.

Some problems can easily be dealt with, simply by accepting that the equipment shows the wrong date. Other problems can be fixed by technical upgrading of the equipment (an example is a BIOS-update). Of course this needs to be done well in time. Some problems may require new equipment if other solutions are impossible.

#### **ad 2) Consumers as buyers of new equipment**

By new equipment, we mean products bought as new in the shop, but the production date of the product itself is unknown. Consumers do not know if they contain microchips. It is vital that consumers are well informed about their purchases. The Consumer Committee has heard reports that batches of faulty equipment are still being sold. In that situation, the Committee believes that given the present knowledge of the Y2K problem, the producer is acting in bad faith and is completely responsible.

#### **ad 3) Consumers as buyers/users of goods and services that do not have Y2K problems, but where supply fails because of Y2K problems back in the supply chain**

This situation arises when industry is dependent on suppliers, subcontractors and other business partners handling the Y2K problem. This is an area where consumers are very dependent on producers/suppliers and they have limited ability to influence them (such as financial services (payment cards); public services (water, heating, electricity); products from private sector; insurance). Important products which fall in this category are cars and the effects of the Y2K problem on cars are unknown. Car companies should use the guarantee and oblige their garages to include a specific Year 2000- test in the technical control.

## **4. Consumer concerns/interests**

### **4.1 Information**

#### **□ *Standardisation process to take account of Y2K problem***

Under normal circumstances, standardisation could play an important role in finding solutions for these consumer problems. However, it has been recognised that standardisation can only play a very limited role on this particular issue. This is mainly for two reasons: in information and communications technology, most products and services are not covered by formal standardisation. Solutions are primarily defined by industry specifications and proprietary solutions which do not allow direct consumer influence. Secondly, even where formal standards (i.e. standards developed by the formal European, national or international standards bodies) exist, the speed of the standardisation process will not allow us to achieve major changes in time for an implementation before the year 2000.

Therefore, the Consumer Committee recommends that standards for all products and services should take into account the Y2K problem and this requirement should be stated in all relevant standards until the year 2000. This includes both formal standards and industry specifications. The Consumer Committee supports a standardised format of date presentation in four digits (this could be for example a format such as YYYY-MM-DD as suggested in parts of ISO 8601).

#### **□ *Consumer information campaigns***

##### **1) General**

Providing relevant information to consumers concerning the Y2K risks is essential. It is important to keep this information as clear as possible and to avoid confusion and alarm. Increasing consumer awareness of the problem should be accompanied by a programme of consumer education, on steps to minimise any impact if problems arise. In the general information campaigns, special attention is needed for consumers with special needs and for the persons who are assisting them (see 2.2).

##### **2) Publication and distribution of lists**

###### **\* Positive lists**

A quicker way of creating safety for consumers is to send questionnaires to the industry and to retailers asking if their products are 2000-compliant and if that is not the case to guarantee that the problem will be fixed. Results of these questionnaires can be published and consumers can then choose products on the positive list. Consumer organisations should also introduce the Year 2000-criteria in their product tests. This will require the co-operation of industry, of course, and would be difficult to implement without it.

###### **\* Warning lists**

Public authorities and consumer organisations could make warning lists about equipment that is not 2000-compliant. A European-wide network to establish a (non-exhaustive) public warning list database on the Internet may be considered. It could be set up for instance on the basis of the model of the Rapid Alert System of the European Commission. However, these lists will never be able to cover all products, and may therefore give a false sense of security. Moreover, it should be noted that such lists can be potentially libellous.

###### **\* Checklists**

The checklist of consumer problems should contain information on the identification of risks, information on how to deal with possible risks (risk minimisation) and information on what to

do if a product fails (damage minimisation). It is important to define the most relevant consumer problems. Where should one start? And what is the most vulnerable consumer group?

The Consumer Committee has come across various checklists in use. Annex 3 provides an example of a checklist produced by the Consumers' Association. The lists will differ in every Member State.

#### □ *Certification/Labelling*

A distinction can be made between labelling and certification. The labelling process involves a special "Year 2000-compliant" label (managed by independent bodies) and (self)certification is done by the producers themselves where they officially certify that their products are year 2000-compliant. For the label to be effective, its use needs to be widespread and backed up by strict monitoring and enforcement. In some countries certification/labelling can help consumers because the legal period of guarantee in these countries is limited. The voluntary labelling could be seen as a means of extending the minimal consumer guarantee rights in countries where this is relevant:

- extension of normal legal period (1 year) of guarantee for faulty goods, which exist in many countries;
- exclusion clauses of liability for the Y2K problem.

Examples of self-certification (for new products) schemes exist in Denmark and Sweden. These schemes are described in annexes 4 and 5.

The process of setting up labels and certification must be finished in a short time period, in any case well before the turn of the millenium. In Denmark for example, it took six months to establish the rules behind the Danish model. There are difficulties in there being no universally accepted year 2000 compliance standard. The legal liabilities involved seem to be an inhibition to any certification attempt and nobody seems ready to take responsibility.

The Consumer Committee argues that in case the label 2000 is used, it should be based on a number of minimal requirements for consumer protection and monitoring/enforcement (i.e. the legal guarantee of one year).

## **4.2 Contractual and Legal aspects**

### **4.2.1 Warranties for faulty goods**

The legal situation regarding the guarantee for faulty goods appears different in the various Member States. In general, most legislative provisions stipulate that the goods must be of satisfactory quality and fit for the purpose for which they are sold. The duration of warranties varies considerably in the Member States: e.g. national laws in Italy, in France and in Denmark determine the warranty to be valid for one year from the date of purchase, whilst in the United Kingdom the warranty covers a period of six years and in Finland there is no time limit. Owners of computers that still have a valid warranty probably can complain about Y2K-problems that they find, even if the problems do not cause any malfunction yet. In some countries, the complaint period may be overridden if the retailer was not in good faith. Retailers who sell computers in 1998 can be assumed to know about the Y2K-problem or should have known about the problem, so that they cannot be in good faith if they sell a faulty product.

In countries where guarantee period compliant is one year, the voluntary labelling could be seen as a means to extend the minimum legal guarantee rule of one year.

### **4.2.2 Product Liability**

EU legislation that may apply is, in particular, Directive 85/374/EEC on Product Liability (OJ L 210 of 1985) governing liability without fault for damages caused by a defective products.

The directive, implemented in all countries except France, states that the producer of a defective product must compensate for damages caused to private individuals and to private property. Liability expires ten years after the product has been on the market. The directive does not cover damages to the product itself. According to the directive, the injured person must prove the actual damage, the defect in the product and the causal link between the damage and the defect (Art. 4). The directive obliges the producer to prove the existence of the exoneration liability clauses mentioned in Article 7. In other words, the directive establishes a "strict liability system". However, the directive would apply only if the software is considered as a "defective product" (*any movable good that has a lack of safety for life and private property*).<sup>3</sup>

In this context, it is necessary to distinguish two different aspects:

- a) Software which can be considered as intellectual property rights cannot be considered as a 'product' in the sense of this Directive.
- b) Software could be considered as a 'product' when it is brought on the market and is identifiable as a 'material' product, with specific 'physical' characteristics.

In some cases, a double responsibility could be established: the responsibility of the producer/product supplier and the responsibility of the person installing the product (e.g. heating appliances). The latter being responsible for the provision of services.

Under certain circumstances the producer is freed from all liability. In the context of the Y2K problem, it is important to note the possibility of exoneration for cases in which a manufacturer of a component of the final product can prove that the defect is attributable to the design of the product or the instructions given by the product manufacturer and the 'state-of-the-art' exoneration. However, producers will not be able to obtain exoneration through an appeal to the state-of-the-art; they are now supposed to know about the Y2K problem.

The Consumer Committee would like to stress the fact that there are a number of uncertainties as to the applicability of the Directive. The Commission has not yet produced a formal opinion on the applicability of the Directive and is urged to do so. The Consumer Committee also recommends that the Product Liability Directive in fact should apply to Y2K risks and the cover period should be stretched to 10 years.

#### **4.2.3. Services liability**

The Product Liability Directive does not cover services. Therefore, in the absence of specific legislation, at present liability for services is regulated according to the different national provisions: contractual liability, or company liability, health and safety laws e.g. for suppliers of a safety critical systems.

The Consumer Committee believes that a discussion is needed to define the actual situation for services in relation to computer software.

#### **4.2.4 Exclusion clauses**

Retailers may try to avoid liability for the Y2K problem by adding exclusion clauses to their contracts. Such clauses are explicitly prohibited by some legislation:

- First of all, the above mentioned Product Liability Directive stipulates in Article 12 that *'the liability of the producer arising from this Directive may not, in relation to the injured person, be limited or excluded by a provision limiting his liability or exempting him from liability'*.

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<sup>3</sup> Already in 1988 the Commission affirmed that the product liability directive *'applies to software in the same way, moreover, that it applies to handicraft and artistic products'*. See Answer given by Lord Cockfield on behalf of the Commission to the Written Question n° 706/88 by Mr. Gijs de Vries (LDR-NL) to the Commission of European Communities in OJ C 114 of 1989/42.

- Secondly, for most consumer contracts Directive 93/13/EEC on Unfair Contract Terms (OJ L 95 of 1993/29) and the national implementing legislative provisions (see the UK Unfair Contract Terms Regulations of 1994) outlaw certain exclusion clauses because they would constitute 'unfair contract terms'. In this context, it is interesting to examine the applicability of Article 7 of the Directive which stipulates that consumer organisations: 'may take action (...) before the courts or before competent administrative bodies for a decision as to whether contractual terms drawn up for general use are unfair, so that they can apply appropriate and effective means to prevent the continued use of such terms'.

The Consumer Committee encourages the consumer associations to examine exclusion clauses in contracts and take action against them.

#### **4.2.5 Insurance contracts**

Insurance is of primary importance for consumers. If the Y2K problem causes the kinds of failures described, then consumers will assume that they can fall back on their insurance cover. Some insurance companies have started to have exclusion clauses of liability in business contracts to protect themselves from commercial claims.

The Consumer Committee is of the opinion that insurance companies should not make exclusion clauses for private insurances like house, car/motor, travel accident and health, because the individual consumer can do little to mitigate problems. If these companies nevertheless do so, consumer associations are allowed to take action.

## **5. Recommendations**

Consumers, in no way, should feel consequences of the technical difficulties which producers and suppliers encounter with computerised systems.

The recommendations in this chapter are grouped by type of activity. The numbers after the flashes refer to the following actors:

1. EU Institutions
2. National Governments
3. Companies
4. Consumer Organisations
5. Consumers with special needs (e.g. handicapped, aged and blind people, people dependent on life supporting systems)

- There should be one standardised way to use the date function in products from now on. Standards for all products and services should take into account the Y2K problem and this requirement should be stated in all relevant standards until the year 2000 and thereafter. This includes both formal standards and industry specifications.

→ 1, 2, 3

- Consumers should have direct access to information on potential Y2K problems and information on how to check products themselves. Companies providing vital consumer products and services should be required to publish Y2K information about them in a way which consumers can easily understand and which is readily available. National authorities, international organisations (like the European Commission) and other public bodies also have special responsibilities in this area.

→ 1, 2, 3, 4



- The European Commission and national, regional and local authorities are encouraged to organise or support consumer information campaigns containing practical solutions.  
→ 1, 2 (+ regional/local authorities), 4, 5
- In information campaigns, special attention needs to be paid to consumers with special needs and the persons assisting them. The information needs to be easily accessible for them.  
→ 1, 2, 3, 4
- Public authorities and consumer organisations could make positive and warning lists about the 2000-compliance of equipment. A European-wide network to establish a (non-exhaustive) public warning list database on the Internet may be considered. The European Commission and national authorities could support the distribution of these lists.  
→ 1, 2, 3, 4
- Consumer organisations are encouraged to test products against Year 2000-compliance.  
→ 4, 5
- Labelling schemes can be used in certain countries and in certain circumstances. However, labelling is far from ideal and can be misleading. The Consumer Committee suggests that when the label 2000 is used, it should be based on a number of minimal requirements for consumer protection (i.e. the legal guarantee of one year).  
→ 3, 4
- The European Commission has not yet made any formal opinion on the applicability of the Product Liability Directive and is urged to confirm this. The European Commission should also define the situation for services in relation to computer software.  
→ 1
- It is recommended that the Product Liability Directive should apply and the cover period should be stretched to 10 years.  
→ 1
- The consumer organisations ought to examine exclusion clauses in contracts and take action against them where appropriate.  
→ 4
- The insurance companies should not extend exclusion clauses to private insurances like house, car/motor, travel accident and health. If these companies nevertheless do so, consumer associations may take legal action if appropriate.  
→ 4, 5

## ANNEXES

1. Composition of the Working Group
2. Non-exhaustive list of consumer issues drafted by DG XXIV
3. Example of a checklist for consumers
4. The Danish "2000 Ready" labelling scheme
5. The Swedish "Year 2000" labels



## ***Annex 1: Composition of the Working Group***

### **Chairman:**

- ➔ **Koos Anderson (Consumentenbond, The Netherlands)**

### **Members:**

- ➔ **Gordon Langmann (European Association for the Coordination of Consumer Representation in Standardisation, Brussels, Belgium)**
- ➔ **Sally McCombie (Consumers' Association, United Kingdom)**
- ➔ **Cosimo Monda (European University Institute, Italy)**
- ➔ **Salvatore Morrone (Confédération de la Consommation, du Logement et du Cadre de Vie, France)**
- ➔ **Göran Mossberg (Consumer Coalition, Sweden)**
- ➔ **Mads Roesdahl (Forbrugerrådet, Denmark)**

### **Secretariat:**

- ➔ **Arturo Monforte (European Commission, DG XXIV)**
- ➔ **Ingeborg Thijn (European Commission, DG XXIV)**

## ***Annex 2: Non-exhaustive list of consumer issues drafted by DG XXIV***

- Inventory of the situations involving damage and/or risk to consumer rights and economic interests (for example, impact on financial accounts and records, mistaken invoicing, default on periodic payments to or from the consumer with associated loss and/or additional charges, safety risks, purchase of no-year-2000-compliant electronic goods, etc.);
- Identification of the responsible parties in the above situations with respect to consumer rights and interests (for example, financial institutions, public authorities, distributors, retailers, etc);
- Possible steps to be taken by the European Commission, the national authorities, and the consumer organizations in order to address the risk situations prior to the onset of problems;
- Legal issues such as the contractual provisions applicable to year-2000-related problems, warranties, the legal feasibility of problem-fixing procedures with respect to license agreements and software copyright, applicability of Directive 85/374/EEC on responsibility for defective products (can software be deemed a defective 'product?'), etc.;
- Participation of the consumer organizations in general information campaigns set up either at the European or the national level;
- Feed-back to be provided by consumer organizations to the European Commission draft communication on the year 2000 computer problem;
- Co-ordination of consumer organizations initiatives and, in particular:
  - circulation of available information;
  - planning of activities to be carried out in 1998/1999.

### ***Annex 3: Example of a checklist for consumers***

#### **What action can consumers take to protect themselves from possible problems?**

- Keep financial papers in order e.g. keep records of when insurance policies are due for renewal, keep details of direct debits and mortgage repayments
- Keep receipts of financial transactions made abroad, in case there are problems with the computer systems in that country
- If you receive a credit card with an '00' expiry date, make sure you keep all your transaction slips and check them against your statement
- Keep your utility bills, so that you have proof of meter readings, for example in case there are any problems with billing systems in 2000
- If you are buying or renewing an insurance policy, check with your broker or insurer to see whether it has any year-2000 exclusions. As policies such as household or car insurance are renewable annually, exclusion clauses may only start to appear in early 1999.
- Be particularly careful if you are buying an extended warranty. Year-2000 exclusions may make the policy virtually worthless.
- There are some products you can test at home, such as VCRs and fax machines by setting the clock to roll over from 1999 to 2000 and then seeing if it recognises the leap year.
- If you discover that any products are not year-2000 compliant, refer back to the retailer. Remember that you can only claim compensation during the six years from the date of purchase. So if you have a four-year old product that is not compliant, it is best to contact the retailer now.
- If you have any concerns at you workplace, ask what action is being taken. For example, check that your pension scheme contributions will continue to be picked up.
- If you are making a purchase over £100 it may be worth using a credit card, to gain the extra protection provided under section 75 of the consumer Credit Act 1974, which specifies that the credit card companies are jointly liable for the retailer's breach of contract or misrepresentation if you buy faulty goods or services.
- Check whether travel insurance policies exclude year 2000 failures

Source : «Which ? Magazine» of January 1998, published by the Consumers' Association.

## ***Annex 4: The Danish “2000 Ready” labelling scheme***

The labelling scheme was established in March 1998 after six months of negotiations between government, industry and consumer organisations.

“2000 Ready” is defined as follows:

The vendor (hereinafter called "the company") of the product in question must verify that when storing, processing, delivering and receiving date and time, the product is capable of coping with dates from both the 1900s and the 2000s, irrespective of whether the date and time are incorporated as accessible or inaccessible functions in the product's embedded processors. It is a precondition that the product is used in accordance with its documentation.

In order to use the label, the company must sign up for the programme with an industry organisation or the “2000 Ready” office.

When applying this labelling scheme, the company accepts that the time limit for submitting complaints is extended to 31 January 2001 as regards notification of defects.

The labelled products are not controlled by any official body. A complaint procedure is defined.

After 3 month (June 1998), only eight companies have signed up for the labelling scheme. None of which are marketing products to private consumers.

The complete information on the scheme can be found at the Internet-URL <http://www.2000parat.dk/paratmaerk>

## ***Annex 5: The Swedish "Year 2000" labels***

In Sweden there are two different kinds of labels related to the Year 2000 problems (more information at <http://www.2000-delegationen.gov.se/>):

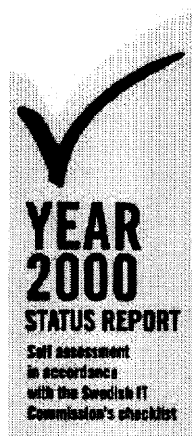
### **1. PRODUCTS: Year 2000 Compliant Symbol (green label)**

The IT Commission in cooperation with the Federation of Swedish Industries, the IT-Companies and the Swedish Agency for Administrative Development has developed a definition of Year 2000 certified products together with a Year 2000 compliant symbol. The definition's Year 2000 Conformity Requirements means that when used in accordance with the product documentation, both before the turn of the century and for reasonable subsequent period, the product can store, process, provide and receive date and time information both for the 20th century and the 21th century, with retained functionality.



## **2. ORGANISATION'S: The declaration of operational status with regard to the Year 2000 (yellow label)**

The IT Commission has developed a declaration of operational status ("checklist"), with regard to the year 2000, in cooperation with the Federation of Swedish Industries and the Swedish Agency for Administrative Development. The purpose of the "Year 2000 status report" is to clarify the organisation's status in respect of the year 2000 problems, for the benefit of the board, owners, suppliers, distributors, customers, the general public and the organisation's own personnel. Status reports should be prepared and issued at regular intervalls. The Year 2000 status report has been formulated in terms which are as general as possible and represent a minimum level that can be tailored to the needs of specific sectors by making additions.



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