COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 25.02.1998
COM(1998) 102 final

COMMUNICATION FROM THE COMMISSION

TO THE COUNCIL, THE EUROPEAN PARLIAMENT,
THE ECONOMIC AND SOCIAL COMMITTEE
AND THE COMMITTEE OF THE REGIONS

The Year 2000 Computer Problem

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Executive Summary

Since the early days of electronic computing, in order to save on what used to be expensive magnetic storage, only 2 digits have been used in many cases to represent the year in date fields (YYMMDD): as a result, in many applications the year 2000 will be interpreted as the year 1900, causing failures in arithmetic computations and data processing.

A critical business issue

The Year 2000 Computer Problem represents a critical business issue for enterprises of all sizes in all sectors, a considerable risk for consumers and a major challenge for public services. It may adversely affect the individual citizen, the competitiveness of the European economy and disrupt the smooth operation of the single market.

Computer driven systems underpin the efficient operation of the modern economy

The modern economy is highly dependent on the correct and continuing operation of many interlinked business, industrial and societal processes all of which are now underpinned by computer driven systems. The failure of any one of the many links in this chain of dependence may cause significant damage to both individual participants in the system (an individual citizen, consumer, enterprise or a complete chain of dependent, trading partners) and to the system itself.

...the well being of the individual citizen...

The citizen now depends upon an ever widening range of services such as pensions, benefits, health, insurance, energy supply and transport. Each of these services is provided by an extensive and complex set of computer driven systems all currently vulnerable to the so called "millennium bug".

...as well as the competitiveness of enterprises of all sizes

Enterprises, large and small, are equally dependent not only on the correct functioning of their own computer-based systems but also on the operational integrity of the systems controlled by their trading partners (for example, customers, suppliers, sub-contractors). Like the individual citizen, the enterprise also depends on the reliable operation of a wide range of infrastructural services. Failure to adapt computer dependent processes, including those governing the operations of industrial plants, so that they continue to function correctly can lead not only to loss of business and a general loss of competitiveness, but in extreme cases may threaten the survival of the enterprise itself.

It happens during the introduction of the single currency.

Over the same timeframe, the private and public sector are involved in preparing for the introduction of the single European currency, which will have a profound impact on their processes as well as on their information systems. The two issues have important differences: the Year 2000 is an IT concern with business impact, whereas the euro is a business concern with IT impact. However they share some similarities as far as the IT impact is concerned. Taken together they represent a major challenge for those with responsibilities for software driven systems.

Preparations need to be accelerated

In order to prevent the negative effects of the problem on the health, safety and economic interests of consumers and to minimise the potentially adverse impact on the private and public sectors, the preparations for a smooth transition of operational computer systems and applications to the new millennium need to be accelerated. All actors concerned must cooperate, within their sphere of responsibility and scope for action.

IT suppliers and users are responsible for action but governments and associations may play a role

The responsibility for tackling the Year 2000 problem and minimising risks clearly lies with suppliers and users of computer-based systems and market forces will play the major role. Nevertheless the size of the problem and its wide-ranging impact justify awareness and support initiatives by governments and associations in all Member States, particularly targeted at the most vulnerable categories, i.e. consumers and SMEs. Furthermore, central and local governments have the primary responsibility of ensuring that their information systems will be ready for the Year 2000. Contingency plans must also be established to deal with the possible failure of critical systems.

...as well as supervisors of infrastructures...

For infrastructural sectors where a Year 2000 related failure may have significant cross-border effects, there is a role for international associations of regulatory and supervisory authorities to prompt those under their scope of responsibility and to ensure that action is taken.

...and European institutions

The European institutions, beyond the responsibility for their own information systems, may contribute to encourage and facilitate the cooperation among individual national or sectoral initiatives, including those in infrastructural sectors, and to establish and maintain a dialogue on the subject inside the Community and with third countries.

...but visibility of initiatives in Member States is essential if the Commission is to play its part.

The Commission welcomes the initiatives of enterprises, IT industry, professional, business and consumers associations, supervisory bodies and Member States to raise awareness, stimulate action and provide support, and wishes to be kept informed about them. This will be essential to effectively conduct the activities described in this Communication and to contribute, within the scope for subsidiary action, to add value to the efforts that all enterprises and public services will undertake over this and the next year.

World-Wide Web site on Internet

The Commission will maintain a World-Wide Web site on the Year 2000 computer problem and the IT impact of the euro *(http://www.ispo.cec.be/y2keuro)*.

Contacts with all relevant industry and Members States groups

The Commission will discuss the Year 2000 and its implications through all the relevant contacts available to the Commission services in industry and Member States.

Put in place best practice and benchmarking

To that effect the Commission will, together with the Member States, monitor progress, exchange information, and benchmark best practice while reporting regularly to Council. Activities will include reporting about the progress of awareness and preparedness of Member States, exchanging experience suitable for cross-border exploitation and addressing issues related to cross-border infrastructures and their testing.

Relevant policies will be examined

The Commission will examine, in the context of its policies such as those on industry, SMEs, consumers, and training, whether a further contribution could be made towards helping raise awareness and addressing the problem.

Commission's internal management oversight

As concerns the level of preparedness of the Commission's internal systems, the current inter-service group will be augmented with a High-level Group of Directors-General in charge of Personnel, Informatics, Information Technologies, and Telecommunications, in association with the Secretary-General, to provide highest level management oversight.

INTRODUCTION

The Year 2000 and the IT impact of the EMU must be addressed over the same timescale.

Organisations in all sectors and world-wide are being affected by the Year 2000 computer problem, that is the inability of many computer systems and programs to perform correct computations with dates after 31 December 1999, due to the use of only two digits to indicate the year. At the same time, many of the same organisations are involved in preparing for the introduction of the single European currency, which will have a profound impact on the way they work as well as on their information systems.

They are different, but taken together they represent a major challenge...

From a computer systems viewpoint, the two issues have important differences in terms of problem definition, "responsibility", strategic as well as information technology impact but also some similarities as far as the latter is concerned. However both issues must be addressed over broadly the same timescale and each, in its own right, represents a huge resourcing challenge (human and financial). Taken together they represent a major challenge for those with responsibilities for software driven systems.

...but with possibilities for longer term advantage.

At the same time they may stimulate awareness of the need for best practice in IT system procurement, development and deployment which can benefit industry and other organisations in the longer term. For the euro, in particular, the need for change should prompt enterprises to undertake a more fundamental reappraisal of the way in which they do business. This, in turn, can lead to longer term competitive advantage.

Enterprises, infrastructures and public administrations are at risk.

The Commission is concerned about the vulnerability of enterprises, infrastructures and public administrations to the Year 2000 computer problem as well as about the possible consequences for consumers. Although this issue is subject to considerable media exposure, the overall level of actual preparation appears to be insufficient, in spite of the substantial risk of disruption to businesses as well as public services.

To complement the main body of activity being undertaken by the private sector and the Member States, the Commission has planned and commenced implementing a number of activities aimed at stimulating those responsible to take action. These activities are closely coordinated with those concerning the IT impact of the euro.

1. THE PROBLEM AND ITS IMPACT

A technical problem...

Since the early days of electronic computing, in order to save on what used to be expensive magnetic storage, only 2 digits have been used in many cases to represent the year in date fields (YYMMDD): as a result, in many applications the year 2000 will be interpreted as the year 1900, causing failures in arithmetic computations and data processing. This is further complicated by the fact that many programs will incorrectly assume that the year 2000 is not a leap year. The turn of the century is the date when most problems are likely to occur. However, several systems are already beginning to fail when processing future dates and others will not show failures until later in year 2000.

...with a huge and wide-ranging impact.

Although the Year 2000 is fundamentally a computer system problem, its potential impact is huge and wide-ranging. Computer systems have become increasingly business and safety critical and software underpins a wide variety of products and services, both in the private and in the public sectors.

Examples

Early failures have already been reported by the press, ranging from goods being returned to suppliers by supermarkets because of "sell by" dates incorrectly interpreted, to the impossibility to process credit cards with expiry dates after 1999.

It may affect the safety and economic interests of consumers...

As far as the potential impact on consumers is concerned, examples include the damage to personal and financial records, the miscalculation of transactions impacting savings, bank accounts, mortgages, errors in invoicing from utilities, errors on payrolls and salary payments. Safety is also at stake: the failure of a computer application in an aircraft, a traffic control system, a power station or an intensive care unit can put human lives at risk.

...as well as the competitiveness of enterprises and their trading partners

As far as enterprises are concerned, the consequence of failures in computer systems may affect, to various extents, their operations as well as those of their trading and financial partners.

with SMEs especially vulnerable

Because of their weaker organisational structure, addressing a problem of this nature presents SMEs with potentially a higher degree of difficulty and with disproportionately higher levels of cost compared to large companies. In extreme cases, the actual survival of an enterprise may be in question. At this point in time evidence suggests that SMEs have a particularly low level of awareness and face special problems in terms of access to relevant information.

...and the operations of public administrations

Public administrations, especially at the local level, also appear to be exposed, due to pressures to reduce their budgets, the generally long lead times needed for approval of additional resources, and the vulnerability to skilled staff turnover.

Also essential infrastructures are at stake.

Global infrastructures, such as those supporting telecommunications, financial markets and air transportation, may be affected, with economic and social consequences world-wide. Even countries, such as the United States, where early actions have been taken feel that many of their enterprises as well as important infrastructures are vulnerable: the situation is likely to become more difficult for countries where awareness is just dawning.

2. COSTS AND BENEFITS

Costs are huge...

It is estimated that the worldwide cost for software correction may be as high as 500 billion ECU[1]: the cumulative cost, inclusive of potential litigation and damage indemnification costs, may exceed 1500 billion ECU[2].

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[1] source Gartner Group

[2] source Software Productivity Research.

The accuracy of cost estimates heavily depends on whether and how the costs associated with "embedded systems" (e.g. in industrial plant, avionics, consumer electronic equipment etc.) have been treated.

...and so is the potential for litigation.

Areas that are sensitive to litigation concern contractual relationships between users and suppliers of IT products, systems and services, liabilities towards trading and financial partners, liabilities under health and safety laws for suppliers, manufacturers or users of safety critical systems as well as officers' and directors' liability towards their shareholders.

But solving it early may lead to longer-term benefits

Although the attention is mostly focused on the impact and on the associated costs, several benefits are reported by those who are well advanced in solving the problem. In particular the necessity to look thoroughly at the entire hardware and software assets of an enterprise often results in a more effective, streamlined and modernised portfolio, leading to longer-term benefits. The renovation of the IT assets in enterprises will also contribute to the development of the Information Society.

Furthermore, although a project for the changeover of information systems to the euro is fundamentally different from a Year 2000 project (the Year 2000 is an IT concern with business impact, whereas the euro is a business concern with IT impact), they share technical similarities as far as some of the relevant steps are concerned, and beneficial synergies may be obtained.

3. LEVEL OF AWARENESS AND PREPARATION

Awareness is increasing too slowly.

Over the last two years the millennium issue has been subject to massive levels of public exposure, in various media, via the sales forces of the major IT systems and service suppliers, at professional conferences and on the World-Wide Web. Awareness of the problem is increasing but still at slow pace as far as SMEs are concerned and it is not evident that concrete and timely actions are being planned and properly budgeted.

Preparedness and progress differ across Member States but are still low.

Recent surveys confirm that the level of preparation and progress is still relatively limited and differs across Member States. Furthermore, there is little evidence to suggest that all systems are being considered, ranging from desktop systems serving the individual to mainframe systems serving the enterprise at large. Other surveys[4] indicate that only a minority of enterprises is considering embedded systems.

> In October 1997, a survey[3] on over 1000 enterprises in several European countries showed that, although about 55% claimed to have a strategy in place and more than 80% said to have a budget to cope with the problem, less than 25% knew how much software code was involved, although this would be necessary to estimate the budget required.

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3 source Neaman Bond Associates and Viasoft

4 source PA Consulting Group

4. APPROACHING THE PROBLEM

This is a business problem that requires top level management involvement...

The potentially major business impact requires the involvement of all relevant functions of an enterprise, with a clear understanding and leadership from the executive board even though most of a Year 2000 project will be implemented under the responsibility of the IT department of an organisation. The successful establishment of the Year 2000 project must be endorsed as a strategic objective at the highest levels within the organisation, irrespective of its size and sector.

...and a systematic approach.

The steps to be taken are well defined and have been well published. The project should include a detailed inventory of all hardware and software components and related contractual and other documentation; an impact analysis in order to determine the levels of exposure and estimate priorities, options and costs; a detailed planning to implement the changes according to the identified priorities; the actual correction or replacement of system components; the testing of the renovated system and of its individual components, including the data exchange with other internal and external systems; and the operation of the renovated system in its actual production environment.

Above all, the project demands meticulous attention to detail and high quality project management that provides for effective liaison both with related internal activities and the activities of partners in the customer/supplier chain.

Testing is the largest task.

Testing is anticipated to be the largest single task, as well as the most critical. It is not limited to demonstrating that each individual system and component works properly with dates exceeding year 2000, but must ensure that different interconnected systems, inside and outside the organisation, are able to cooperate correctly.

The choice and use of automated tools supporting the different phases is important, although the associated savings are not expected to exceed 30%[5] of the total costs.

> Existing Community programmes have supported pilot changeover projects where the benefits of applying best practices have been demonstrated and widely disseminated. Some of these are based on technologies previously developed in Community research programmes and deployed on a worldwide basis.

Failures will happen and contingencies need to be planned for.

Given the complexity of the problem, organisations must be aware that they may fail to complete their conversion process by the end of 1999 and adequate contingency plans need to be put in place in order to ensure business continuity or survival should the IT support fail or become inadequate. This is a task for the business as a whole and requires direct involvement of the top management.

There is an increasing shortage of resources.

The shortage of programming and project management skills is becoming one of the most critical issues. Apart from the overall scale of the problem, the availability of professionals who are proficient in relatively old programming languages and are able to manage very large and complex projects is limited. Organisations with a substantial internal IT staff will strive to retain it, whereas organisations relying on external support will soon be confronted with the rapid

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[5] source Gartner Group

exhaustion of the available capacity and a related price increase. Organisations (including SMEs) using commercial software packages must urgently enquire about the plans of their suppliers to make such packages compliant.

Accounting for the repair costs.

Accounting for modification costs is a further matter to be considered, given the large sums generally involved. According to the rules contained in the European Accounting Directives, the costs relating to the Year 2000 should be normally expensed as part of the ordinary costs which enterprises incur in order to constantly adapt themselves to the changing economic environment and technological progress. In very exceptional cases, and exclusively for the part that these costs relate to identifiable future economic benefits, it would be possible to capitalise them. Provisioning for Year 2000 costs is only possible in a limited number of circumstances and the provision must meet the conditions of the Accounting Directives. Where no provision has been set up but a contingency exists, appropriate disclosure must be made in the notes to the financial statements.

Covering the legal position.

Part of the Year 2000 strategy of enterprises must be directed at covering their legal position. On one hand they should protect themselves against possible claims from parties, including trading or financial partners, who may be damaged by their failure to successfully complete the transition to the year 2000. On the other hand they should evaluate whether and how to claim compensation from suppliers, where this is a viable option. Several commentators stress the importance of establishing an effective cooperation climate between suppliers and users so as to mitigate the litigation potential.

5. MOVING FROM AWARENESS TO ACTION

Market forces will play the most important role

Awareness in itself is not sufficient. The Year 2000 is a critical business issue and enterprises must take appropriate actions to implement their Year 2000 transition and to plan for contingency. In this respect, market forces will play the most important role. Customers who become progressively more aware of the potential impact will question their suppliers, and so will investors, banks, insurers, auditors and other stakeholders. Consumers and their associations will look more closely at how the failures in industry, trade, commerce and public services may affect their security and personal property.

Supervisors in infrastructural sectors should urge action.

Supervisory authorities for energy, transportation, telecommunications, in the financial markets and in other economic sectors are already urging action from those enterprises and institutions falling under their responsibility or sphere of influence. Examples include the international associations of supervisory organisations for the securities, banking and insurance markets (International Organisation of Securities Commissions, Basle Committee on Banking Supervision, International Association of Insurance Supervisors) as well as the International Telecommunications Union. Likewise the EU Banking Advisory Committee, the Insurance Committee, the High Level Securities Supervisors Committee and the Payment Systems Group are all giving this subject their attention.

Timely information about the compliance of products and organisations must be provided

Suppliers of computer hardware and software systems and of computer-based products and services should provide their customers with timely and transparent information about the readiness of their existing and new products for the Year 2000 and adopt a proactive and responsible attitude with their customers. Self-declaration schemes, where a vendor declares that a product complies with a given definition of Year 2000 readiness[6] and where this declaration becomes part of the contract between the supplier and the purchaser, should be encouraged.

All enterprises should be ready to provide timely and transparent information about their progress towards Year 2000 readiness to all parties for which they represent a legitimate business concern.

6. ACTIVITIES IN MEMBER STATES

Public administrations must ensure compliance of their IT systems...

Governments in Members States have the primary responsibility for ensuring that information systems supporting their central and local administrations will be ready for the Year 2000, including their interconnection with communicating systems in other countries.

...and may cooperate with the private sector to raise awareness and stimulate action.

In some Member States awareness campaigns and other activities aimed at stimulating enterprises to take action and at providing assistance to more vulnerable categories, such as SMEs, have been organised. These tend to be jointly sponsored by central or local governments with representatives of the private sector (such as employers federations or chambers of commerce). In some cases a specific organisation is established with the task of planning and coordinating such activities.

Synergies between initiatives of different Member States are beneficial

Approaches differ, depending on the specific circumstances prevailing in each country and the perceived level of preparedness of its industry. However, scope for substantial synergies exists, as demonstrated by a first meeting with a number of national initiatives organised by the Commission services on December 19th 1997. The Year 2000 is high on the agenda of an increasing number of governments and more awareness and action campaigns are being developed.

Examples

- Action 2000 in the UK,
- the Millennium Platform in the Netherlands,
- the Year 2000 Action Plan in Denmark,
- Forum 2000 in Belgium,
- the activity of the IT Commission in Sweden.

[6] Such as the one of the British Standard Institution or the Swedish IT Commission

7. SCOPE FOR COMMUNITY ACTION

The European Commission is repairing its own systems.

The European Commission is a user and procurer of IT systems. As such it has, for the Year 2000, a primary responsibility for ensuring the survivability of its own internal systems upon which its proper functioning depends. An interservice task force has been established by the Commission services to address the impact on internal systems of both the Year 2000 and the changeover to the Euro and work is in progress. In view of the importance of the issue, this will be now steered by a working group chaired at the highest level in the Commission services.

and has consulted widely to determine where best it might add value

With respect to matters of general awareness and mobilisation, extensive consultations have been organised with the public and private sectors during the last quarter of 1997, in order to identify the main priorities for action and the roles for enterprises, associations, administrations and the EC itself.

The EC will:

As a result of the consultations and in accordance with the high priority indicated by the European Council of December 1997 held in Luxembourg, the Commission is now undertaking a number of activities.

support synergies between national and sectoral initiatives

- To encourage and facilitate the exchange of information and experience across borders among existing and new Year 2000 awareness and action initiatives undertaken by Member States and European associations, with a view to identifying how synergies can be established to reduce duplication of efforts and increase the overall impact.

> *Example*
>
> Periodic fora will be hosted to which those responsible for Year 2000 campaigns in Member States or European associations will be invited. The objectives include to report about the progress of the campaigns and the state of preparedness of countries or sectors; to exchange experience suitable for cross-border exploitation; to discuss specific issues, such as cross-border infrastructures-and international aspects. Specific measures directed towards vulnerable groups such as SMEs will be a particular focus of interest.

liaise with supervisors and regulators

- To liaise with the European and international organisations that are responsible for regulating or supervising infrastructural sectors with significant cross-border effects (finance, telecommunications, energy, transportation) in order to exchange information about the respective activities and identify where cooperation may be required. An area of particular concern is the planning and implementation of coordinated cross-border testing activities in those sectors that are likely to involve organisations in different Member States. The Commission will initiate discussions between relevant organisations and Member States.

stimulate discussions in the Council

- To support the discussion of the progress of the EU towards Year 2000 readiness and of any issue arising in the context of all relevant Councils as well as in the dialogue with third countries, with particular reference to all candidate countries engaged in future accession discussions.

stimulate progress reviews in the relevant committees

- To discuss the Year 2000 and its implications through all the relevant contacts available to the Commission services in industry and Member States. Particular attention will be paid to the impact on and preparation of infrastructural sectors, the impact on consumers and SMEs, and the potential impact on the functioning of the internal market, including the Economic and Monetary Union.

Example 1:
The Consumers Committee[7] has discussed the Year 2000 issue and decided to set up an ad hoc working group, with a view to identifying appropriate means of minimising the impact on consumers in terms of possible damages or limitations to their statutory rights.

Example 2:
Several other consultative groups have already put the Year 2000 on their agenda. They include the Telematics in Administrations Committee, the Public Procurement Group, the Banking Advisory Committee, the Payment Systems Group.

maintain information on Internet

- To maintain a World-Wide Web site on the Year 2000 computer problem and the IT impact of the euro (http://www.ispo.cec.be/y2keuro). This provides access to information about activities in different economic sectors and Member States, points to sources of advice on specific aspects of the problem, links to other sites as well as to all documents and reports produced by the Commission services on the subject.

coordinate and pursue these actions

- To establish an effective mechanism for the coordination and pursuit of these externally directed actions and to provide a Year 2000 point of contact for interested parties.

The Commission will regularly review the activities noted above and will issue periodic reports on progress as well as on the efforts made in Member States.

Relevant policies will be examined

The Commission will examine , in the context of its policies such as those on industry, SMEs, consumers, and training, whether a further contribution could be made towards helping raise awareness and address the problem.

Commission's internal management oversight

As concerns the level of preparedness of the Commission's internal systems, the current inter-service group will be augmented with a High-level Group of the Directors-General in charge of Personnel, Informatics, Information Technologies, and Telecommunications, in association with the Secretary-General, to provide highest level management oversight.

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[7] A body advising the Commission services in the management of consumer policy.

ISSN 0254-1475

COM(98) 102 final

DOCUMENTS

EN 15 16 10

Catalogue number : CB-CO-98-122-EN-C

ISBN 92-78-31673-3

Office for Official Publications of the European Communities

L-2985 Luxembourg