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COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

ON "STANDARDIZATION AND THE GLOBAL INFORMATION SOCIETY : THE EUROPEAN APPROACH"

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INTRODUCTION

Standards are not only a technical question. They determine the technology that will implement the Information Society, and consequently the way in which industry, users, consumers and administrations will benefit from it. They play an important role in co-operation and competition between companies, are a key element for the effectiveness of the Single Market and are essential for the competitiveness of European industry.

It is evident that the Information and Communications Technology (ICT) market is dominated by specifications from the USA. However, most of these specifications are open in nature, and there is no restriction on their use by European enterprises. Nonetheless, proximity to those who set standards[1] gives enterprises a competitive advantage, since they are able to bring their products earlier to market. It is therefore important that European enterprises become world-class, either in order to become leaders in the market and to set the standards themselves, or at any rate to cooperate with them. In this sense, standards cannot compensate for weaknesses in market positions.

Nevertheless, there are some areas in which it is observable that standards have contributed to European competitiveness in the market place. One example is provided by the World Wide Web (WWW), which is a European invention, originally by CERN, but whose further development is now market-driven, and economically widely used in Internet; and the GSM mobile telephony standard which has led to European leadership in many parts of the world. One may conclude from this that standards are necessary but by no means sufficient for competitiveness. The development of appropriate world level standards will depend on the participation by European industry in international specification-writing organisations. Thus standards form a vital part of European industrial competitiveness policy.

The aim of this Communication is to examine how, in the light of the characteristics of the ICT market and the ICT standards process, the best possible conditions can be created for the drawing up of standards needed for the implementation of the Information Society, and to indicate by what means the Community intends to promote those aspects for which it has a particular responsibility.

I. THE ROLE OF STANDARDIZATION IN THE ICT MARKET

1. Information technology has evolved from stand-alone or closed user systems to a mass-market product. This has highlighted issues such as the emergence of networks and the need for components to work together. The ability of products from different manufacturers to work one with another ("interoperability") is

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[1] In customary usage in the information and communications technology field, the term "standard" is used loosely to denote any technical specification. In the usage of international, European and national standards bodies, and also in certain Community legislative instruments, the term "standard" has, by contrast, a specific, defined meaning; it generally indicates the documents drawn up by a consensus process involving all interested parties, for voluntary application and whose issue is by a recognised standardization organisation. Given the defined legal definition of standards in Community law and the link between Community law and "formal" standards, in this document, the term "standard" should be understood as the standard adopted by a formal standards institute. Other standards will be referred to as "technical specifications" or "de facto standards".

important in the use of many ICT products and services. Standardization is a voluntary process and reflects the dynamics of the market. For products with short life cycles and immediate economic profits the market will tend to adopt technical specifications in the framework of consortia or use *de facto* standards; in other cases, the market will prefer to adopt formal standards, for instance in the case of large-scale investment, or with a view to adopting international standards.

Standards have to follow the life-cycles of products or services, but since ICT product cycle times are short and becoming shorter, standards adopted following traditional procedures often prove inappropriate because of the lengthy procedures involved in their elaboration. In some areas, however, such as the development of basic telecommunications infrastructures, technical specifications need to have long-term stability and will constitute a guarantee that will allow users confidently to make the large investments that are needed. In telecommunications, the market tends to be fragmented because of national telecommunications monopolies, residual or continued national regulation, and different national implementations of similar technical specifications. For the user to benefit from this new situation, the interconnection of networks of different operators is critical.

2. ICT markets are likely to show a standardizing process in which a minimal specification will emerge, followed by the development of a number of competing technical specifications as the technology becomes more widely used. This implies that several common technical specifications may emerge in parallel, followed by a shakeout in which one or possibly two common technical specifications representing the technology that is dominant in the market are all that survive. Whilst the ideal standardization process consists of an open consensus of all those with a market interest in the product being standardized, followed by the issue of a formal standard, in the ICT area, because of the rapidity of technological advance, and the advantage to be gained from the control of dominant specifications, it is not unusual for dominant market players to attempt to reinforce, by means of technical specifications, their dominant position in the market place.

3. The role of formal standardization has changed. Because of the time necessary for its procedures, and the constraints of consensus, formal standardization has not always been able to deliver standards in due time for their wide acceptance in innovative technology and in such a way as to prevent the emergence of dominant proprietary specifications. Both the scope and procedures of formal standardization therefore need to be considered. As a reaction to the limitations of formal standardization, fora and consortia have emerged that are drawing up specifications for common use by their participants. Such documents can rapidly achieve widespread market acceptance. Where established in the market place they are sometimes known as de facto standards. When made publicly available, they are sometimes known as publicly available specifications (PAS). Such documents can make technical contributions that already incorporate a significant level of consensus to the relevant standards bodies.

4. Major questions that have therefore to be addressed are:

- Will the necessary and sufficient standards be available? Will they cause fragmentation or help convergence in markets? Will they be used to confirm or create dominant positions, or *de facto* monopolies in ICT? Will they enable users to take full advantage of the telecommunications liberalization that will take place in 1998?
- What changes are necessary to the scope and procedures of formal standardization?
- How is it possible through standardization to enable European citizens and enterprises to take full advantage of the possibilities offered by the Global Information Society?

II. STANDARDS IN A COMPETITIVE ENVIRONMENT.

1. The leading role of market players.

5. European industry and services providers need to seek proximity to world leaders; without participation in the global strategic process they cannot achieve world-class status. Therefore, they should be encouraged to participate in the international fora that define strategies for ICT standardization at the world level. European companies should be at the forefront of the strategic process in order to reap the full benefits from the ICT market.

If the European economy as a whole is to benefit from the elaboration of publicly available specifications, a high degree of transparency will be needed and the incoherence that might arise from the emergence of a large number of groups, not to mention the waste of resources involved in duplication, should be avoided. The Commission therefore, welcomes the formation of a High-Level Strategy Group, representing various sectors of industry and European industrial organisations, intended "to oversee standardization at a strategic level and to determine the key requirements for standards in a business context"[2].

6. Standardization is a commercial activity, and must be regarded as such. In the ICT sector, specifications are an expression of market power, and breadth of consensus is of less importance. With respect to Community competition law, i.e., Articles 85 - 86 of the Treaty *de facto* standards or PAS must be considered as cooperation between companies and have to be assessed for this reason. In all cases competition must remain possible.

On the basis of the general principles contained in the 1968 Communication on agreements, decisions and concerted practices concerning co-operation between enterprises[3], cooperation between companies in consortia should meet a number of criteria. The parties concerned must respect the open membership/constitution character of consortia (fora), that is, the possibility for any interested company to participate. This implies that the existence of the consortia must be made public.

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2 "Europe towards the Global Information Society: new directions arising from the Genval Workshop", OPOCE, Luxembourg, 1995

3 OJEC N° C75 of 29.07.1968, p.3

Further, within such entities decision-making processes must be transparent. Such mechanisms must be careful to permit genuine participation in the work by less favoured partners who wish to take part: a certain equality and balance between the partners, even though limited by practicalities, must characterise the functioning of these fora. The specifications issued by such consortia must be drawn up in such a manner as to allow competition within the framework of the envisaged technical solutions. This is also desirable to reduce the possibility of conflict with intellectual property rights (IPRs). Any lack of transparency regarding the existence of patents in the chosen technologies, or any possibility of discriminatory conduct in the issuing of licences, would demonstrate the existence of ulterior motives incompatible with a technical co-operation agreement.

2. A changing role for formal standardization

7. It is for commercial reasons that the role of formal standardization in the ICT sector has declined, at least where standards are required in the short term. Formal standards should be directed to those areas that need a broad consensus, where the market sees it as necessary, for example, where specifications should form a lasting basis, or should become established as international standards.

8. Formal standards organisations in Europe, recognised by law at European level (Directive 83/189/EEC), are CEN, CENELEC and ETSI. These three European organisations develop formal standards through agreed, open and transparent procedures, based on a consensus of all interested parties. Even though detailed procedures differ based on the characteristics of membership (in CEN and CENELEC the work is organised largely around national delegations, whereas in ETSI economic players can join directly as members) this consensus is sought and expressed through a public enquiry and a vote organized at national level. Formal standards, therefore, present a particular legitimacy which distinguishes them from de facto standards and from PAS, and which allow national and Community law to have recourse to them.

Although market operators are responsible for the output and quality of standardization, the European standards organizations have a role of maintaining a "cohesive system of European standards"[4]. This covers two different aspects: that of conferring - if all the necessary requirements are met - the status of standards on market developed documents, and, secondly, ensuring greater coherence between technical specifications.

9. Technical specifications elaborated by consortia may be based on a consensus of all interested parties, but in the view of those parties the disadvantages of the standardization process, i.e., lengthy and costly procedures without direct participation, may outweigh the advantages granted by the ultimate status of the document as a formal standard. In such cases standards bodies should examine how, through specific procedures or arrangements, such documents can still be brought within the ambit of European standardization by conferring upon them

4 Council Resolution of 18.6.1992 on the role of standardization in the European economy (OJEC No. C173 of 9.7.1992, p.1)

the status of standards. Given that the European standards organizations already have a number of "fast track" procedures, part of their task may be to provide better information and to promote their services more actively.

Conferring the status of standards upon publicly available specifications is not appropriate where technical specifications do not have a consensus of all interested parties; where documents, whether or not yet based on consensus of all interested parties, concern a technology that is so rapidly evolving that existing standardization procedures are unable to follow its evolution; where the status of standard does not add value to technical specifications used by industry or where the position regarding IPRs is not yet settled.

10. It is the view of the European Commission that the European standards organizations should assess the extent of their role. They should strengthen their cooperation with other organisations that write specifications in ICT related areas. Close links will enable organisations of users in particular technical sectors to offer particular standardization requirements, and the technical infrastructure of the European standards organisations could support the work of user organisations.

European standards organizations have to examine whether their present range of deliverables still meets market requirements. In particular, the European organizations have the necessary infrastructure and experience to elaborate common technical specifications which do not have the status of standards, but which are still capable of catering for a large sectoral consensus and geographical coverage. In appropriate circumstances, such documents could also serve as a European input to the international standardization process. In this context, it may be useful to mention that ETSI, and EWOS, the European Workshop on Open Systems have embarked on this route.

Where a technical sector stands in need of common specifications, but does not need to confer the status of standards upon them, the European standardization organizations should examine the possibility of offering their infrastructure for the elaboration of such common specifications on the basis of open workshops. They should also examine the possibility of their acting as an official depository for Publicly Available Specifications. They might also offer technical assistance, contribute to increased transparency and provide a structure for distribution.

11. The issue of PAS raises the question of the extent to which the European standards organisations can promote "competing" documents, even where they are presented with different status, such as a European Standard (EN) in parallel with a PAS. In this respect it is necessary to bear the voluntary nature of standardization in mind, and also that standardization should never constitute a formal impediment to the introduction to the market of new products or new technologies. Competing products and technologies should not be excluded from standardization. However, the difference between competing standards and the standardization of competing technologies may in reality sometimes be difficult to discern. The following points should be noted:

- the nature of standardization, and of the standstill obligations upon the member bodies of the European standards organisations, make it obligatory that no conflicting solutions be offered in *standards* for the same product or technology;
- European standards organisations bear a significant responsibility for coordinating and drafting standards in such a way that competing technologies are not in practice excluded from the market;
- the possibility open to a European standards organization to make available, as PAS, documents containing other technologies, should not be considered as an "appeal" procedure if another technology has been selected in a European standard by consensus of all interested parties;
- where public interests are at stake, and if the need therefore arises, the public authorities should, by way of mandates adopted in conformity with Directive 83/189, give the necessary guidance to European standards organizations, in particular for conferring the status of standards upon PAS.

12. In the field of formal standardization there also remains a need for coordination. The Commission, therefore, welcomes the setting up of the ICT Standards Board by CEN, CENELEC and ETSI with the participation of other specification-writing bodies. Its task is to coordinate and supervise standardization activities that fall within its scope, defined by the governing bodies of CEN, CENELEC and ETSI, broadly covering the ICT field. The Commission however, invites the standards bodies to implement a workshop structure in order to achieve the best possible level of coordination between themselves and with the market operators, who remain responsible for the establishment of a coherent structure.

13. In formal standardization, the search for consensus is organised through national representation. The Commission considers, however, that alongside national representation there is an urgent need to increase direct user participation in strategy planning and standardization activities. In particular, there should be a discussion of how users' representation could be further improved in the CEN/CENELEC/ETSI ICT Standards Board.

III. EUROPEAN STANDARDIZATION POLICY FOR BUILDING THE GLOBAL INFORMATION SOCIETY.

1. Improving global competitiveness

14. If the Information Society is to prove effective, a clear political commitment by the Member States to openness to its implementation is necessary. The persistence of regulatory barriers to trade will continue to impede European access to the advantages offered by the Information Society. Consequently, the Commission will need to ensure that such obstacles are identified and where necessary removed. Further harmonization of national provisions concerning telecommunications networks and terminal equipment will already open the market substantially. Action needs to be maintained to ensure that no new barriers of this type are erected. Statistics on telecommunications-related notifications made under the framework of Directive 83/189/EEC suggests that Member States still have a high regulatory activity: for example, in the three years from 1992 to

1994 telecommunications was the largest sector in which draft national measures were notified, comprising in all nearly one third of all notifications. New measures may need to be adopted to ensure that actions by the Member States that are liable to create barriers to the implementation of the Information Society can be made the subject of prior scrutiny.

15. While in principle standards or PAS promote market-based competition, the drawing up of technical specifications can sometimes have discriminatory effects. For example: companies proposing a certain specification could in certain circumstances gain an unjustified headway or know-how advantage compared to their competitors; and the process of choosing between competing specifications could in certain cases be unduly influenced by particular private interests. Therefore, public authorities have a role in ensuring that standardization respects competition rules. In this context, it should be borne in mind that standardization bodies are also subject to Articles 85 and 86 of the EU Treaty.

16. As users of information technology, within a relatively homogenous application area, public authorities are an important market player. Furthermore, public procurement is a large factor in the European economy and public authorities are significant purchasers of ICT technology[5]. The market's perception of its interest will be influenced by the fact that governments and other public procurement entities are themselves major economic players. The use of specifications by public procurement entities will establish them to a great extent in the market. Public Procurement Directives, whilst establishing a hierarchy in specifications to be referred to in calls for tender, allow a derogation for projects of a genuinely innovative nature for which the use of existing formal European specifications is obsolete. This possibility is a major tool for the introduction of new technologies in the Public Procurement market. It allows public authorities to promote the use of pre-standardized technologies and products resulting from RTD.

17. The development and uptake of electronic commerce is conditioned by standardization and de facto standards. Interoperability extending across organisations and enterprises has an impact on enterprises and on complete industries or service sectors and their global competitiveness. Achieving this implies addressing standardization in the global context in coherence with technological developments. The current speed of technological developments, the high stakes in the uptake of electronic commerce, and the efforts of Europe's competitors to try to establish market dominance make a more coordinated and targeted approach to standardization in electronic commerce a matter of urgency. The Commission is therefore currently analysing the position of standards and specifications in electronic commerce, and is preparing initiatives, in collaboration with all relevant market operators, for the development, application and promotion of specifications and standards for electronic commerce in Europe and world-wide.

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5 Various initiatives have been developed in this context. Examples are the European Procurement Handbook for Open Systems (EPHOS) project, the Interchange of Data between Administrations (IDA) programme, and the "STEPS" (solutions for telematics in European public services) Handbook developed by the Telematics for Administrations sector within the Telematics Applications Programme. A review process for the EPHOS and IDA programmes has been launched.

18. The transmission of sound and pictures by cable and/or satellite is moving towards full digitization with significant quality improvements and added flexibility, but the techniques which are needed to multiplex, compress and encrypt the signals require the reverse process to be embodied in decoders (often referred to as set top boxes). Without agreement on such systems and their common implementation, the compatibility may be jeopardized and markets segmented. On the other side the market could determine the best solution amongst competing specifications. The work done by ETSI and CENELEC, following detailed input from the European Digital Video Broadcasting Group (DVB) and with the cooperation of an industrial consortium known as DAVIC, has led to the preparation of standards which are expected to provide a suitable technical base to support the digital distribution of audiovisual programmes all over Europe, with a reasonable hope for world-wide compatibility. It remains to be seen if the common implementation of such standards in set top boxes can be quickly achieved with the help of all economic actors. The importance of the stake explains the interest of the Community to ensure equality of access and interoperation of systems.

19. The role of demonstration and trial projects, which are significant in areas outside Community funded RTD, or which are a more market-oriented complement to it, is to verify that new specifications lead to working equipment, to minimise risks by sharing the experience to be gained by testing prototypes, and to help remove barriers to the acceptance of information technology products in business. It is not the aim of demonstration projects to replace market dynamics or to favour specific solutions. Without creating unjustified expectations, they nonetheless have a role in promoting standardization and the use of new products in certain niche markets, in sectors reflecting social needs and in areas where there may be lack of economic interest.

So far, pilot projects have been launched aimed at identifying user and supplier needs for standardization. Feedback from these projects has already provided valuable pointers for future lines of action in ICT standardization[6]. In view of the encouraging results, it is planned to continue and extend this activity. An open call for proposals is planned for publication in the third quarter of 1996 for a follow-up phase of initiatives. This will address the domains of multimedia systems, electronic commerce, teleworking, and health-care networks.

20. The public authorities in Europe can act to improve the situation by promoting activities to develop awareness of standardized ICT products and services. Suitable means are communication and demonstration actions such as workshops. Action should be directed towards other (that is, non-ICT) sectors of industry and to associations of individual users, consumers, workers and those with special needs. Experience shows that action is necessary to bring to the attention of industrial management - preferably at board level - the role and importance of ICT technical specifications and specifications as instruments for the improvement of competitiveness. Of particular importance are measures in favour of small and medium sized enterprises.

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6 Examples of projects are given in Annex A, part 3.

2. Promoting new technical solutions.

21. Standardization needs to be based on sound applied science and research results can find a practical implementation in the market by technical specifications. This is in particular true for ICT. Policy should therefore be directed towards more closely associating standardization with the process of research and development and *vice versa*. To wait until research programmes have reached their conclusion before considering standardization or examination of existing technical specifications may result in long delays and additional costs. Experience shows that standards emerging from co-operative research have a higher rate of success in international consensus building. Furthermore, RTD projects can help to overcome a possible barrier to proper standardization. The potential commercial gains for a limited number of companies to undertake standardization are often not large enough to be justifiable from their own individual perspective, even if for the market as a whole such a development would be beneficial.

In addition, RTD projects in ICT can contribute to the competitiveness of European industries on a global scale if the need for standardization is recognised at an early stage. This contributes to the likelihood that the defined technical specifications will be developed faster and will get leverage on the global market and in world-wide fora. However, it is essential that the technical specifications can be shown to work and are acceptable to the market, and that European industry is well represented in the international fora[7].

3. Protecting the public interest

22. Market instruments are not always sufficient on their own to extend the benefits of the Information Society to all the elements that make up society. Many groups of citizens or companies are likely to benefit from participation in it, but their specific interests, e.g. privacy, or special needs of groups of citizens like the disabled and elderly, may not be sufficiently taken into consideration in a process based exclusively on commercial considerations.
In order to safeguard the public interest, such as the interoperability of decoders, or to meet their own requirements, such as the exchange of information and the security of messages, the Community has to monitor developments in standardization and to encourage research projects to include standardization development wherever appropriate. If there is a need, they can use their influence as customers or promote standardization by organising trial or demonstration projects, or by drawing up mandates addressed to the European standards organisations. Where public interests are at stake, the ultimate solution, in cases where no satisfactory consensus exists, consists of regulatory measures, adopted in conformity with the common regulatory principles promoted under the WTO.

23. The Commission has the possibility of promoting standards in areas where the European Union wishes to see their development, by the medium of mandates addressed to the European standards organizations. Mandates are an instrument

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7 Examples of Community funded RTD projects (Fourth Framework Programme) related to ICT are given in Annex A, part 1. Examples of demonstration projects are given in Annex A, part 2.

that should be handled with care as a means of promoting the public interest. Provided that they identify the incentives for the market to deal with the request they constitute a valuable tool for the development of standards for the Information Society and formal indication to the standards organizations of the Community's and Member States' standardization priorities. Mandates may also be given as an instrument to call for the involvement of appropriate groups, such as consortia and professional and end-user groups, in the standardizing process.

4. Reinforcing international cooperation.

24. The information and communications technologies market is a global one, and international cooperation will serve to assist a co-operative development of an integrated world market which will be in accordance with the principles of the WTO. European suppliers and manufacturers must have an opportunity to participate fully in the commercial opportunities offered by the Information Society at the world level. Implementation of a policy based on the principles adopted by the G7 meeting in Brussels in 1995 on this subject is important to establish the global dimension of the Information Society, and to keep Europe integrated into the rest of the world.

25. In view of this global dimension, the Commission has proposed the organisation of a world-wide Conference that will follow up the conclusions of the G7 meeting in Brussels in February 1995 on the Global Information Society. This conference, to be held in 1997, will bring together users, standardizers and public authorities. It will review progress made so far, identify needs for further work and build consensus on future actions. Together with the G7 partners, the Commission will take steps to stimulate world-wide cooperation to develop a global architecture, global interoperability rules and compatibility properties for the different parts of the Global Information Interface. For this, the G7 pilot project themes[8] established in February 1995 are an important tool.

26. As regards international openness, the Community is fully committed to the WTO agreements. It is endeavouring to bring negotiations on the overall basic telecommunications service sector to a successful conclusion. These conclusions provide a unique opportunity to obtain a progressive liberalisation of worldwide telecommunications markets with a correlative improvement of access to third countries.

27. In relation to the Central and Eastern European countries (CEEC), the European Commission will continue to provide advice in relation to regulatory and standardization aspects of telecommunications, in order to facilitate the process of liberalisation and harmonization in the sector. Through the steering committee of the PHARE multi-country telecommunications programmes, it will urge all CEECs to participate in the relevant PHARE projects planned, such as the ones on cost based tariff tools, on regulatory authorities, type approval and licensings.

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8 Theme I: Global Inventory; II: Global Interoperability for Broad-Band Networks; III: Cross-cultural education and training; IV: Electronic Libraries (Bibliotheca Universalis); V: Electronic Museums and Galleries; VI: Environment and Natural Resources Management; VII: Global Emergency Management; VIII: Global Healthcare Applications; IX: Government Online; X: Global Marketplace for SMEs; XI: Maritime Information Systems.

At the same time, CEEC governments will need to take, as soon as practicable, the measures necessary for the adaptation of telecommunications regulations in particular in the field of conformity assessment procedures for equipment and mutual recognition of their conformity, as well as licensing regimes. Furthermore, in view of their pre-accession strategies, the CEEC will need to establish the independence of their standardization organisations and to support their integration into the European standardization system.

28. European industry and standards organisations have a good record in participating in the ICT work of the international standards organisations and in transposing the results. The Commission encourages a stronger participation of European industry in global consortia developing standards and expects that Europe's trading partners will also match its commitment to international work and in particular will contribute to and adopt international standards in ICT.

IV. THE POSITION OF PUBLICLY AVAILABLE SPECIFICATIONS IN COMMUNITY LAW

1. Technical specifications and the New Approach

29. Technical specifications elaborated by consortia do not have the status of standards, as defined by Community law, and in particular Directive 83/189. The question has, however, been raised of whether technical specifications which can be qualified as publicly available, can be assimilated to standards, and whether they can therefore fulfill a role in Community policies, where reference is made to standards. At the same time, the question arises of the position that should be adopted if the formal standardization mechanisms cannot present the appropriate technical specifications at the right time. Finally, there is the problem of whether notifications of new draft technical regulations under the terms of Directive 83/189/EEC can be challenged on the basis of the existence of a PAS[9]. Since different legal and policy instruments issued by the European Union refer to standards in different ways and with different implications, it is appropriate to deal with them case by case.

30. The New Approach Directives concern requirements of public interest, such as health and safety or other public interests such as interoperability. Harmonized standards provide a legally binding presumption of conformity with the requirements of the relevant Directives. Other means of demonstrating compliance with the requirements are available to economic operators on their own initiative. Therefore, the Commission considers that the consensus basis presented by European standardization, expressed through votes organized by the national standards institutes, is indispensable. Given the advantages conferred upon the use of standards, the New Approach contains an incentive for the market to elaborate and use formal European standards. For these reasons, in the New Approach, it is not appropriate to foresee a specific role for PAS similar to that of

[9] All of what follows is intended, in the present Communication, to refer exclusively to policies for the development of the Information Society. However, much of its conclusions can to a certain extent be extended to cover the general case, and it is expected that the question of the acceptance of publicly available specifications in Community policy will be raised in a broader context.

standards with the same conditions of application. Among the New Approach Directives, only the Telecommunications Terminal Equipment Directive has major significance for the Information Society. In its present version, this Directive refers to common technical regulations (CTRs), providing the necessary harmonization of a binding nature. In the near future, a new proposal to amend this Directive will foresee a wider role for formal European standards and envisages the selection of technologies - perhaps specified in PAS - by the public authorities.

2. Enhancing technical specifications for public procurement.

31. In Public Procurement, Community directives aim in the first place at achieving transparency in calls for tender on technical specifications and at avoiding the discrimination that might occur if only national or custom specifications were used. They introduce a hierarchy of documents to which authorities are obliged to refer in calls for tender, i.e., European standards, then international standards, then national standards. Unlike the New Approach, the legal framework does not contain an incentive to elaborate standards. Only where the market itself perceives an interest in opening-up markets will real progress be made.

32. Provided that some form of recognition by the public authorities can be defined, of normative resources or simply of documents, in particular by declaring - for the purposes of public procurement - specific documents to be equivalent to standards, the scope of technical specifications to which reference has to be made by procurement entities could be enlarged. A procedure to this end might be embedded in Directive 83/189, involving the Commission and the Member States. In such conditions, publicly available specifications may be the appropriate instrument, provided that their originators meet as a minimum the conditions outlined in point 4.

3. Interoperability and applications for use by authorities

33. In most cases, the market and its standardizing mechanisms for information and communication technology, products and services function well. In some cases, however, one can observe failures of the standardization process, such as inability to deliver the appropriate standards in due time, or market failures, in which the appropriate products are not available to the customer or where customers are locked into proprietary specifications.
The public authorities have a responsibility with respect to public interests, such as ensuring sufficient interoperability between systems; in other cases they need common specifications in order to meet their own specific requirements, e.g., for cooperation between administrations. If formal standardization is not capable of providing the appropriate solutions to meet such needs, even with the support of the measures outlined above, then the European Union will be obliged to take administrative action. To this end, a procedure should be created which allows a call for technology, contained in documents other than standards. This procedure might be based on a new instrument to be created within the context of Directive 83/189, or within the context of specific Directives, in the latter case limited to their respective fields of application. This procedure would involve the Member States.

SUMMARY AND CONCLUSIONS

Standards determine the technology that will implement the Information Society, and consequently the way economic players, users and administrations will benefit from it.

This Communication examines how, in the light of the characteristics of the Information and Communications Technology (ICT) market and of standardization in ICT, the best possible conditions can be created for the drawing up of standards needed for the implementation of the Global Information Society, and to indicate by what means the Community intends to promote those aspects for which it has a particular responsibility.

Standardization in ICT shows particular features that arise from the nature of the ICT market. Standards have to follow the life-cycles of products or services, but since ICT product cycle times are short and becoming shorter, standards adopted following traditional procedures often prove inappropriate because of the lengthy procedures involved in their elaboration. Therefore, there has been a tendency to develop de facto standards as a complement to formal standards. Formal standards should be directed to those areas that need a broad consensus, where the market sees it as necessary, for example, where specifications should form a lasting basis, or should become established as international standards.

European policy for the Global Information Society is aimed at improving global competitiveness, through the identification and the removal of regulatory obstacles, through their own intervention in the market, through research and demonstration actions, and through the promotion of new technical solutions. Since the Information Society is global, European authorities are committed to the promotion of the global integration of ICT standardization, and to promotion of its benefits to the rest of Europe. In addition, the Community has a specific role in protecting the public interest, for example, the needs of the elderly and disabled.

Against this background:

- The Information Society is market driven. The main role in the development of specifications and standards in this domain is therefore for market operators.

- The Commission will investigate the existence of standards-related obstacles to the creation of new ICT-based services, in particular electronic commerce. Where necessary, it will take steps to eliminate them.

- The Member States should refrain from adopting new regulations that will generate new technical barriers stemming from the development of divergent technical specifications and standards in the area of the Information Society.

- The European standards organisations are invited to promote the possibilities of the adoption of specifications that originate outside their formal structures. They should examine the possibility of adopting PAS.

- Co-operation in standardization between the regional and international standards organisations is encouraged.

- The Commission underlines the importance of the forthcoming World-wide Conference on Standardization and the Global Information Society, which will follow up the conclusions of the G7 meeting in February 1995 and which will review progress and identify needs for further work in standardization for the Global Information Society.

- The Commission will protect competition and will encourage open and non-discriminatory specifications and standards for new services and ICT applications.

- The Commission stresses the importance of RTD and demonstration to the development and implementation of technical specifications and standards, at the European and international levels.

- The Commission will bring forward proposals for the use, where appropriate, of PAS or de facto standards in Community law, such as public procurement and interoperability.

ANNEX A

Research and Technological Development and Demonstration

Part 1: Examples of ICT-related actions under the Fourth Framework Programme

The Fourth Framework Programme for Research and Technological Development (RTD) comprises a series of specific programmes of major importance for European competitiveness and the Information Society.

As regards Information Technology, the Information Technologies Programme (ESPRIT) is designed to help Europe's industries gain competitive advantage by focusing on the needs of users. Particular attention is given to fostering collaboration between users and suppliers. To this end, ESPRIT supports a broad-based RTD environment, in which RTD is complemented by measures to raise awareness, and to facilitate access to technologies. Where necessary, ESPRIT contributes to, and stimulates standardization initiatives.

Examples of such current initiatives are:

- An action undertaken to secure global interoperability and European competitiveness in the Global Information Society is the pilot project WEBCORE, addressing the development of the World-Wide Web (WWW) based on the cross-platform HTML standard. The WWW allows users access from different sources to information in a uniform way via networks. In WEBCORE standards in particular on text transfer (HTTP), security and the generation and access of documents are developed. The WWW Consortium (W3C) established in this project comprises European, US and Japanese organisations, enabling a continuing European contribution to a technology originally developed in Europe. The closely related accompanying measure W3UserNet aims to include users, in particular SMEs into the development of the WWW and its standards.

- IMPRIMATUR (Intellectual Multimedia Property Rights Model and terminology for Universal Reference) and the related project, COPEARMS (Co-ordinating Project for Electronic Authors Right Management Systems) have the objective of developing technology and consensus building at the global level for securing Intellectual Property Rights and the development of related payment systems in the Information Society in a "privacy-friendly" way, in cooperation with partners from the US and Japan who are involved in order to ensure that a globally interoperable system is developed.

- The aim of the I^3 (Intelligent Information Interfaces) initiative is to make interaction with information an effortless task for the broad population of non-specialist users. It is a response to the rapidly growing amounts of information being made available in our information society, for which access and management is still difficult and time consuming. The initiative centres around

research to create intelligent information interfaces that can be used naturally and intuitively, flexibly spanning across different devices, applications and media.

- The objective of the Open Microprocessor Initiative (OMI) is to identify and take account of technological advantages and trends in the market such as the move to greater on-chip systems integration, the need for simpler architectures, the wish to avoid redesign through portability and the need for easy upgrading. OMI aims to converge with accepted technology and technical specifications rather than compete with them, and to help Europe build critical mass by recognising and consolidating its strength.

- The STEP (Standard for the Exchange of Product Data) has the objective of improving the efficiency and effectiveness of information exchange in all kind of manufacturing processes. It is a highly successful global technical specifications resulting from work initiated in former RTD Framework Programmes.

- The CAFE (Conditional Access For Europe) project has the objective of designing and demonstrating an electronic means of payment; an "electronic wallet". The CAFE specification is a new European technical specifications for electronic payment systems; the terminals are compatible with all wallets and clearing systems designed to meet the specification. The terminals are operated by the customer inserting a smart card, containing the electronic cash. Also remote operation is possible. This high security system is protected by tamper-proof devices and sophisticated security algorithms. Presently the concept is being tested on premises of the European Commission.

- Linking biological databases is a project that proposed the development of a pilot experience aiming to test the applicability of the Common Object Broker Architecture (COBA) to the Biomedical field. COBA is an emerging technical specifications providing a coherent framework in which distributed applications can interoperate. Future development in cancer and AIDS research, vaccine development and agronomical improvement of farm animals, to cite only a few examples, will greatly depend on the ability to integrate vast amounts of diverse biological information sources. COBA is a major step in this direction.

As regards telecommunications technology, the Advanced Communications Technologies and Services (ACTS) Programme under the Fourth Framework Programme covers the broad spectrum of convergent communications from advanced telecommunications networking to multi-media and digital audio-visual communications. Its approach enables standardization cycles to be accelerated, by having projects validate their concepts and technical specifications in field trials involving users.

Through concertation mechanisms, participants in ACTS projects collaborate wherever appropriate on common trials or common specifications. The specifications that emerge from this process are then supported in the standardization bodies by the organisations involved in the ACTS projects.

ACTS projects are designed to develop common models describing the roles and interfaces of each category of operator, service provider and user. Guidelines in the context of advanced communications are being devised at the level of technology,

services/applications, and business/practices. All the ACTS projects are expected to contribute to some extent to formal standardization or to *ad hoc* fora. Some ACTS projects have been recognised by a world-wide initiative called Telecommunications Information Networking Architecture Consortium (TINAC).

Part 2: Examples of ICT-related demonstration actions under the Fourth Framework Programme

Demonstration of technologies that result from RTD is an important element under the Fourth Framework Programme. The Telematics Applications Programme covers, *inter alia,* the following areas:

- The "Telematics Applications for Health Care" sector was intended to contribute during its AIM (Advanced Informatics in Medicine) exploratory action phase to the establishment of European standardization on health informatics standards. The "Directory of the European Standardisation Requirements and Programme for the Development of Standards" is a comprehensive and detailed action plan, including research projects previously undertaken under the AIM initiative and its successor, i.e. Telematics Applications for Health Care:

  - The aim of the BEAM (Biomedical Technology Assessment and Management) was to develop information and coding related to medical technology. It led to a final pre-standard framework document that is intended for use by organisations involved in the development and maintenance of nomenclatures and coding systems for medical devices, and by designers of databases or information systems including medical devices.

  - The objective of the OEDIPE (Open European Data Interchange and Processing for Computerised Electrocardiography) project on open data interchange and processing of ECG data is to demonstrate and promote the SCP-ECG (Standards Communication Protocol for ECG) by setting up demonstrators for cart-to-host and host-to-host data interchange and by developing an experimental European network of distributed cooperative databases for the follow-up of selected heart diseased populations.

- The "Telematics Applications for Transport" sector contributed during its DRIVE phase to validation and demonstration of RDS-TMC (Radio Data Systems-Traffic Message Channel) traffic information. In cooperation with CEN which shares the Transport Telematics standardization activities with ISO, standards have been elaborated on location referencing rules (RDS-TMC), ALERT-C event list (Advice problem Location for European Road Traffic) and ALERT-C protocol for message coding and management. Other examples include Road Traffic Data elaboration, storage and distribution. Advanced traffic information services are now part of the priorities for Trans-European Networks for transport, and most European countries will introduce RDS-TMC by 1998.

- The "Telematics Applications for Disabled and Elderly" sector - previously the Technology Initiative for the Disabled and Elderly (TIDE) - has launched also a

number of significant actions and projects in relation to pre-standardization work in assistive and rehabilitation technologies. Preliminary studies undertaken under TIDE (e.g. the HEART project) resulted in planning European standardization activities in this area.

- ADLIB (Advanced Database Linkages in Biotechnology) has brought together the major European scientific publishers, biological information provides and users to test the technical feasibility of linking scientific literature database and factual databands (DNA, genomes, molecules). This requires the implementation of the CCDB data model, which is the result of a previous project, as well as the SRS protocol, developed under a "BIOMED" project, allowing different databases to link information. ADLIB is a perfect example of how previous research efforts with different origins (academy, industry) crystallizes in a product oriented, close to market project.

Part 3: Examples of demonstration and trial projects complementary to the Fourth Framework Programme

As examples of Community action in demonstration and trial projects complementary to the Fourth Framework Programme, the following can be mentioned:

- A programme to provide multimedia information services to citizens by city administrations in partnership with local industry, on the basis of a common platform employing a mixture of existing and novel technical specifications. (EUKIOSK)

- The development of requirements for the architecture of a universal set-top unit (the device which forms the bridge between data streams from broadcast, cable, or telecom sources and the screen in the home). The European Broadcasting Union. (UNITEL)

- A project that aims at the development of visualisation suites for images produced by the most recent medical imaging techniques; it will develop standard techniques for fusing and processing images from multiple sources and presenting 3-D models to the specialist. (EUROMED)

- Under the policy of Trans-European Networks for transport, the Community supports standardization work in Eurocontrol, together with studies on architecture and data modelling as well as demonstration projects for improving air traffic management system capacity.

- Finally, education and training establishments have a contribution to make to the Information Society, and actions such as the Communities Socrates and Leonardo Programmes can help to validate ICT technical specifications associated with distance learning.

ANNEX B

Glossary of Abbreviations

Note: This glossary includes all abbreviations regularly used in the text of this Communication. Titles of Individual Research and Demonstrations Programmes, which, where they are known by acronyms rather than titles, are explained in the text, and are not included in the list.

CEEC	Central and Eastern European Countries
CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
CTRs	Common Technical Regulations
EDI	Electronic Data Interchange
EN	European Standard
EPHOS	European Procurement Handbook for Open Systems
ETSI	European Telecommunications Standards Institute
EWOS	European Workshop on Open Systems
ICT	Information and Communications Technology
IDA	Interchange of Data between Administrations
IEC	International Electrotechnical Commission
IPR	Intellectual Property Rights
ISO	International Organisation for Standardization
JTC1	ISO-IEC Joint Technical Committee N°1
PAS	Publicly Available Specification
PHARE	Poland and Hungary: Aid for Economic Restructuring
RTD	Research and Technological Development
SME	Small and Medium Sized Enterprises
WTO	World Trade Organisation

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