



European
Commission

Living and working in the information society: People first



Supplements 1996

- 1/96 The Commission's programme for 1996
Presentation to the European Parliament by Commission President Jacques Santer
Resolution of the European Parliament on the programme for 1996
- 2/96 Towards fair and efficient pricing in transport — Policy options for internalizing the external costs of transport in the European Union — Green Paper
- 3/96 *Living and working in the information society: People first — Green Paper*

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of the European Union

Supplement 3/96

Living and working
in the information society:
People first

Green Paper

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A great deal of additional information on the European Union is available on the Internet. It can be accessed through the Europa server (<http://europa.eu.int>).

Cataloguing data can be found at the end of this publication

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1. People first in the information society — executive summary

1. We are living through a historic period of technological change, brought about by the development and the widening application of information and communication technologies (ICTs). This process is both different from, and faster than, anything we have seen before. It has a huge potential for wealth creation, higher standards of living and better services.

2. ICTs are already an integral part of our daily life, providing us with useful tools and services in our homes, at our workplaces, everywhere. The information society is not a society far away in the future, but a reality in daily life. It is adding a new dimension to society as we know it, a dimension of growing importance. The production of goods as well as services is becoming more and more knowledge based.

3. However, the speed of introduction of ICTs varies between countries, regions, sectors, industries and enterprises. The benefits, in the form of prosperity, and the costs, in the form of burden of change, are unevenly distributed between different parts of the Union and between citizens. Understandably, people are worried and demand answers to questions about the impact of ICTs. Their concerns can be summarized in two main questions.

The first concerns employment. Will these technologies not destroy more jobs than they create? Will people be able to adapt to the changes in the way we work?

The second question concerns democracy and equality. Will the complexity and the cost of the new technologies not widen the gaps between industrialized and less developed areas, between the young and the old, between those in the know and those who are not?

4. To meet these concerns we need public policies which can help us reap the benefits of technological progress, and which can ensure equitable access to the information society and a fair distribution of the potential for prosperity. This Green Paper aims to stimulate the debate on the development of the European information society, and focuses on the key issues of the organization of work, employment and social cohesion.

Working in the information society (Chapter 3)

5. ICTs have led to an enormous reduction in the cost of storing and processing of information over the last 50 years. We are now witnessing a similar reduction in the cost of transmitting information. This is the beginning of the information distribution revolution. In this way ICTs are reshaping working life, the organization of enterprises and the whole of society. Enterprises are being transformed away from hierarchical and complex organizations with simple jobs to more decentralized and network-oriented organizations with more complex jobs. The most successful enterprises are combining ICTs with education and training and with organizational transformation in an integrated approach. Fostering this approach presents a number of challenges.

A first challenge is to build knowledge and raise awareness of the potential of the new paradigm of work organization to deliver both productivity growth and job satisfaction.

A second challenge is to help SMEs, the job generators in the EU, maximize the potential of this change to become more competitive.

A third challenge is to modernize the contractual framework for working life to find ways and means to reconcile flexibility and security.

Employment in the information society (Chapter 4)

6. Europe has had steady but low employment growth for several decades. The introduction of ICTs does not seem to have changed the rate of job creation. If anything, growth has become slightly more, not less, job-intensive. The introduction of ICTs has huge effects on skill requirements and employment policy must become more focused on human resource investment. This is underlined by the already existing mismatch between skill supply and the demand for new skills — the two-speed labour market.

□ What Europe needs is a substantial overhaul of education and training that can match the ICT revolution and keep pace with continuing technological development during the years to come.

□ The education system must be transformed from teaching to learning. Enterprises must offer more learning by doing. The unemployed must be offered retraining instead of long-term unemployment and de-skilling.

Cohesion: living in the information society (Chapter 5)

7. Strengthening economic and social cohesion remains a key objective of the Union. Progress towards convergence in income per head between Member States has been positive but slow, but disparities between regions within the same Member States have tended to widen over time. ICTs can play an important role in supporting regional and local development and promoting integration and empowerment, and the key issue is how to maximize the opportunities and minimize the risks of new ICTs for cohesion.

□ A first challenge is to ensure that the liberalization of telecommunications proceeds fully and rapidly across the Union and that the new regulatory framework supports cohesion objectives.

□ A second challenge is to integrate more closely the Structural Funds and information society policies, so as to stimulate the access to and use of modern ICTs. The process of stronger local involvement through local and regional employment pacts could be an important vehicle for a new, more employment intensive and human resource-oriented cohesion policy.

□ A third challenge is to ensure that the information society becomes a tool to create an inclusive society. The information society should be about people and it should be used for people and by people to unlock the power of information, not to create inequalities between the information rich and the information poor.

The information society — the European way (Chapter 6)

8. The way we develop the information society, the most fundamental change of our time, must reflect the ideas and values upon which the European Union is shaped. These ideas and values should be transparent in order to gain and deserve the broad support of European citizens. To this end, the Commission invites all interested parties to reflect on the possibilities of formulating a set of common Community principles for the development of the European information society.

2. Why a Green Paper? Invitation to a political, social and civil dialogue

9. The importance of the information society (IS) as a positive force for change was highlighted in the Commission's 1993 White Paper on growth, competitiveness and employment.¹ This White Paper, together with the subsequent report, 'Europe and the global information society', launched — with the full backing of the European Council — an important series of initiatives to help shape and promote the IS in Europe.

10. The Commission's 1994 action plan, 'Europe's way to the information society'² presented an overview of the Commission's work programme on the information society and placed an important emphasis on social and societal questions. These issues were also highlighted in the Commission's European confidence pact for employment.³ This Green Paper is part of a package of initiatives being developed by the Commission to update and take forward the 1994 action plan.

11. To meet the task of providing new insights into the social challenges of the information society, the Commission has sought advice from some of the most prominent experts in Europe on how to promote job creation, social solidarity, equality of opportunity and access and the preservation of Europe's cultural diversity in the information society.

12. Two main groups were set up by the Commission. A high level group of experts began its work in May 1995, and presented its preliminary report, 'Building the information society for us all' in February 1996. In parallel, the Commission created an information society forum, which is broadly based and consists of 128 members. The forum's first annual report was adopted in June 1996. The IS was also one of the four main topics of the first European forum on social policy held in Brussels in March 1996.

13. The reports of the high level group and of the forum were designed to stimulate the debate about issues beyond those business and

academic communities already familiar with them. They are available as complements to this Green Paper, and details of how to obtain full copies are at the end of this text.

14. The Commission has decided to present a Green Paper in order to promote wide discussion and awareness of the social and societal issues involved. Only through active participation of a wide range of actors can our societies come to terms with the new challenges and choices with which we are confronted.

15. The objective, therefore, is to invite comments on and discussion of the Green Paper, and of the two associated reports of the high level group and the forum, during the remainder of 1996. This process will be launched in September, in collaboration with the Irish presidency, at a European colloquium in Dublin. In the light of the reactions received, the Commission will present action proposals in 1997.

16. All Member States are engaged in one way or another in reviewing the social challenges of the emerging information society. The Green Paper raises issues which affect the responsibilities of governments and regional and local authorities, the social partners and civil society. Recognizing fully the principle of subsidiarity, the Commission will examine the extent to which there would be added value from pooling of experience through demonstration projects or other initiatives, joint sponsorship of research, and systematic exchange of information, as a complementary and catalytic contribution to the policies and measures pursued within Member States. The Structural Funds have a key role to play in this process, in particular Objective 4 and the ADAPT-BIS Community initiative.

17. The Green Paper also complements a range of activities already under way in other areas of Commission work, notably the White Paper on teaching and learning,⁴ which focuses on the skills and knowledge which will be necessary for people's full participation in the informa-

¹ Supplement 6/93 — Bull. EC.

² COM(94) 347.

³ CSE(96) 1.

⁴ COM(95) 590.

tion society, as well as the forthcoming initiative, 'Learning in the information society'.

18. Within the framework of existing cooperation this Green Paper is intended:

to deepen the political dialogue with the European institutions and the Member States, notably on employment policies in the framework of the Essen process (the single report to the European Council in December 1996 and the development of the multiannual programmes 1997),

to focus the social dialogue between employers and unions on these issues and stimulate joint initiatives at a European level;

to stimulate civil dialogue notably with the NGOs, on the basis of the conclusions of the European social policy forum in March 1996.

All concerned are invited to comment on the issues raised in this Green Paper.

3. Working in the information society

3.1. The concerns: skills revolution and job insecurity

19. During the last 20 years, we have witnessed an ICT revolution, more far-reaching than most of us could have anticipated. One of the main effects of new ICTs has been a dramatic reduction in the cost and time of storing, processing and transmitting information. Such dramatic changes in price relations have a fundamental effect on the way we organize the production and distribution of goods and services and, thereby, on work itself. These developments are reshaping work, skill structures and the organization of enterprises. Through this, they are bringing fundamental change to the labour market, and to society as a whole.

20. The resultant shifts in the structure of skills, work patterns, companies, and goods and services are bewildering, and make very different and new demands on workers and employers. Static function-based skills, and traditional management models and techniques, are rendered inadequate and inflexible in a workplace which demands the opposite of workers and managers — the development of a new industrial and enterprise culture characterized by flexibility, trust, commitment and ability to anticipate and harness change.

21. The rate of job destruction in the late 20th century is not so different from that resulting from the structural changes of the past. More problematic is the new nature of job destruction. The new pace of change, and the new modes of production it engenders, require broader-based skills and new production processes to respond to constantly changing market demands. This raises great concerns in terms of job security, job content, skills obsolescence, and the relationship between working and living patterns. It also creates challenges for the Union objective of equality of opportunity and access. However, this does not mean that, in the future, only highly educated IT-literate workers will find a job. Traditional or manual jobs will remain, but their relative importance will decline.

3.2. The facts: a new world of work

22. Our economies are being transformed away from standardized manual production towards a more diversified, knowledge-based, production of goods and services. This is why ICTs provide tremendous opportunities for improved productivity and real wages, and thereby for strong economic growth and new jobs.

23. The technological revolution was, for a long time, not transformed into faster growth of productivity. At the same time, the slow growth of productivity led to a limited increase in real wages and low consumer expectations, which have an effect on the willingness of consumers to buy and of enterprises to invest and to create new jobs. The main reasons why ICTs have not led to increased productivity are now well documented: in the past, the introduction of new technologies has been hindered by a lack of adequate organizational transformation.

24. Despite these problems, and despite occasional claims to the contrary, the EU economy and labour market systems are remarkably fluid. A Commission review of empirical research indicates an overall rate of enterprise creation and destruction in Europe of at least 10% a year and considerably higher in some sectors, with the average 'life' of a job of four to five years — comparable to the USA.

25. Overall, this evidence suggests that, whatever problems there may be in ensuring the successful integration of ICTs, they are not related to a lack of flexibility in employment at the level of firms. During recent years we have seen a growing number of examples where the introduction of ICTs has met the highest expectations. The main message from these examples is the need for an integrated approach, linking the introduction of ICTs with education and training and with organizational transformation.

26. The organization of such successful 'flexible enterprises' is becoming more and more based on processes, less and less on specialized functions. Workers perform a range of tasks, rather than pass the job on from one to another. Enterprises are being transformed from

hierarchical and complex organizations with simple jobs, to less hierarchical, more decentralized and network-oriented organizations, with more complex jobs. The new flexible enterprise has been described as a fleet of small boats, moving on the same course, as opposed to an oil tanker steered from a central point. It is important to understand this change not as 'a new model' for work organization, but as a process towards ever improving practices in work organization.

27. Europe has recognized this sea-change in organization. We are not short on innovative ideas and we already have a relatively well-trained workforce. Our weakness, as identified by the Commission's Green Paper on innovation,¹ has been in combining technological and organizational innovation. High-quality, high-performance strategies require enterprise-level training, careful job design and rapid implementation of innovations. The Competitiveness Advisory Group chaired by Mr Ciampi has made a case study of new forms of work organization. The findings of the Group confirm that these innovations in the organization of enterprises lead to improved business performance, better job protection and job enrichment.

3.3. The first challenge: to build knowledge and raise awareness of new forms of work organization

28. The most important obstacle to this development is the lack of awareness of the new forms of work organization and the potential of flexible organization. Managers may also be rightly cautious about innovations which alter systems and procedures currently delivering an acceptable level of performance, compared with entering an unknown realm in which there is uncertainty about how to complete the process of change and how long it will take. There are no 'turn-key' solutions. The very flexibility of the technologies means that they must be embedded in the social organization of the workplace in order to achieve a competitive combination of productivity, performance and quality. The key question therefore is how to

increase awareness of the potential of new approaches to organization of work.

29. It is essential to find the right balance between what has to be done at enterprise level and what could be done at national and European level. The key to success is enabling and supporting local initiatives, and the role of governments and European institutions is a catalytic one, one that encourages new initiatives. But the role of public authorities requires strong commitment and action at a number of levels. This involves an understanding of new forms of work organization and their implications for public policy and for enterprise, and responding effectively across many fields, from economic development to trade policies, from research policies to skills development, and imbuing these responses with the values of equality of opportunity and access.

3.4. The second challenge: to ensure that SMEs take full advantage of the IS

30. The new concept of an integrated approach of ICTs, education and training and organizational transformation offers enormous potential for firms to become more competitive and to create better working conditions. It has particular advantages for SMEs, the key engines of employment growth — and especially 'micro-firms' — since the whole concept is built on the small unit, market-driven, decentralized and based on teamworking.

31. The extent to which SMEs' job creation benefits from ICTs varies. For the more globally oriented SMEs, the IS offers important advantages. In some cases, the emergence of microbusinesses is directly linked to ICTs. In other cases, microbusinesses are just an extension of existing traditional consultancy and profession services. However, the constraints which SMEs face and their specific problems in accessing anticipation and training mechanisms justify priority attention. In this context, the prime concern should be to enable SMEs to act under their own responsibility as regards adaptation to the information society, and the tools and technologies of the information society will help them do this. The new integrated programme for SMEs² recently presented by

¹ COM(95) 688.

² COM(96) 329.

the Commission proposes to launch a pilot action to ascertain the priorities of SMEs and the obstacles hampering the use by SMEs of information technologies.

3.5. The third challenge: to modernize the institutions of working life

32. Alongside the question of raising awareness of the potential of new forms of organization of work, we have to address the question of the modernization of the institutions and the institutional framework of working life. The world of work needs to be organized in ways that support and facilitate positive developments, rather than making them more difficult. This also means improving the quality of skills and therefore of education and training (see Chapter 4).

33. It also means providing the right legal and contractual framework (labour law, collective agreements, industrial relations, etc.) to allow firms and individuals more flexibility, while providing adequate security to workers. Member States' labour laws based upon the standard model of full-time, workplace-based employment of indefinite duration, can no longer respond entirely to the needs of a more knowledge-based production of goods and services.

34. New work organization practices tend to blur the central element of the classic employment relationship: the notion of employer is becoming more complex (groups of undertakings, joint ventures, networks, subcontractors); the location of work has diversified; working time practices have been individualized to respond to particular needs and requirements; time-based remunerations may in some cases be replaced by task-specific remunerations and the scope of workers' autonomy enlarged. In other words, wage employment and self-employment are tending to converge, rendering the scope of labour law unclear and reducing its effectiveness in certain fields (non-standard contracts, telework and work which is outsourced or externalized).

Call centres in Europe

The type of work done by Europe's citizens is changing, with the information and service sectors being the main source of new employment in the last decade. The way people work is also changing, with a strong growth in work relocation. For example, more than 6 000 companies now have service 'call centres' to provide information to customers. These already employ about 130 000 Europeans and are expected to generate another 100 000 jobs by the year 2000. These developments are growing fastest in Ireland, but the UK has 4 000 call centres with revenues of ECU 450 million in 1996. In some of these centres the work is highly skilled and requires knowledge of several foreign languages. In others, it is more routine, but requires interpersonal skills and a willingness to work unsocial hours.

3.6. A new concept of security

35. It is important to have a well-informed debate on these basic conditions for the development of working life. However, the public debate on the institutions of working life is often confined to simplistic arguments on regulation or deregulation. The emerging information society requires a more sophisticated and fundamental debate on the institutional framework which can shape this new world of work.

36. ICT integrated with education and training and with organizational transformation offers great potential to improve productivity and create good jobs with good wages and salaries. Public policies must be based on this understanding. However, it is necessary to shift the focus of the debate away from regulation-deregulation and towards the more fruitful perspective of a new balance between flexibility and security and the mutual benefits for enterprises and workers of a balance between the two elements. This is the new perspective

that the Commission introduced in the consultation of the social partners on working time.

37. This new balance between flexibility and security includes, on the one hand, the use of part-time work, temporary work, fixed-term contracts, teleworking and new forms of employment relationship, where these are appropriate. On the other hand, it includes not only security against arbitrary dismissals and discrimination, but also the security which comes from increased involvement within the company and the possibility to develop skills and employability to the benefit of both company and employee. In this context, the question arises of how to provide the most efficient arrangements for workers' involvement in these matters.

38. These are examples of necessary renewal. More fundamentally there is a need for a radical rethink of all the relevant systems — employment protection, working time, social protection and health and safety — to adapt them to a world of work which will be organized differently, in particular one where the boundaries between work and leisure, work and learning, employee and self-employed are, or may become, less well-defined. The concept of security for workers has to be developed and broadened, focusing more on security based on employability and the labour market rather than on the security of the individual workplace. It should be focused on security in change, not security against change. Within this it is important to have particular regard to issues of equality, and to ensure that change enhances efforts toward both desegregation of the labour market and improved reconciliation of working and family life, for both women and men.

39. In the light of these developments, the Commission is preparing a Green Paper on work organization and working time which will examine, from an economic point of view, the policy implications for the European Union and the Member States of changes in work organization and working time, with a view to launching a debate, in particular with and between the social partners.

40. The Commission will also present in the second half of 1996 a communication on the impact of telework from the point of view of labour law, health and safety and social protection. The aim of the communication will be to encourage Member States and the social part-

ners to develop good practices and implement measures to improve the working conditions of teleworkers.

41. ICTs also offer new opportunities in the field of health and safety at work. In particular, the application of new technologies can bring considerable added value to risk assessment activities, the collection, screening and dissemination of information, education and training in occupational safety and health, and to end users, particularly SMEs. The fourth health and safety action programme (1996-2000)¹ actively addresses questions regarding the impact of the IS on working and living conditions, and a conference on these issues will be held in Brussels on 13 to 15 November 1996.

3.7. A new culture of anticipation

42. The European Social Fund interventions under Objective 4, together with the related Community initiative ADAPT, are aimed mainly at improving the management of human resources by anticipating the changes which the information society will bring, in particular by strengthening investment in human capital. Structural changes bring permanent changes in employment in terms of volume, structure, and qualifications. In particular, it is vital to develop a capacity for anticipation in enterprises which identifies and minimizes the negative impact of these changes. This will also help tap new job opportunities through training which addresses new skill needs.

43. The resulting adaptation needs are felt at both macroeconomic and company level. For this reason, one of the main objectives of the anticipation approach should be to enable companies to identify more readily their quantitative and qualitative needs, as regards human resources in the context of a better understanding of overall change, thus enhancing the internal and external capacity for adaptation.

¹ COM(95) 282.

3.8. Questions for further reflection

44. Developments in the relationship between the new forms of organization of work and the legal framework for work raise some fundamental questions to be discussed in the framework of the social dialogue and in the Essen employment process.

■ In seeking the right balance between flexibility and security, there is a need for both legislative activity at European and national level on the basic principles related to fundamental social rights, and for increased activity by the social partners to translate these rights into agreements and working practices at the workplace and in the labour market. Is the current distribution of regulatory powers between legislation and collective agreements the right one, or does a new balance have to be found?

■ In the past, many important issues concerning working life have been left to the State, such as employment, health and safety, family life implications, and the fight against exclusion. In this context should the scope of collective agreements

be reviewed? The proliferation of new production structures may require new approaches to these issues.

■ As the legal status of workers changes more frequently (between wage employment and self-employment, between employment and learning, between professions and workplaces), how can a coordinated approach to labour law, social security and social protection be ensured in order to take account of these changes within a context of social justice and economic efficiency?

In this context, it is also important to reflect upon:

■ how to promote best practice in terms of use of ICTs and job creation;

■ measures which help SMEs maximize the opportunities of the information society; and,

■ how to maximize the contribution of the Structural Funds to promoting best practice in using new technology and developing a new culture of anticipation.

4. Employment in the information society

4.1. The concerns: jobless growth and the end of work?

45. The main economic, social and political problem in Europe is high and persistent unemployment. Some 18 million people are unemployed, half of them have been out of work for a year or more. There are at least 9 million more discouraged workers who would look for a job if they thought the work existed.

46. This depressing situation has led to a debate on the 'end of work' and of 'jobless growth' linked to the effects of ICTs on working life. Several major studies have been undertaken by the International Labour Organization (ILO) and the Organization for Economic Cooperation and Development (OECD) as well as by the EU during the last few years to gain a better understanding of the nature of the employment problem in Europe, focusing on specific issues such as the relationship between technology and employment, as well as the more general relationship between macro economic and structural policies.

47. The transition towards the information society is already taking place, and this will inevitably provoke significant changes in the living and working patterns of European citizens. The challenge is to shape the emerging information society so that we neither miss out in the global stakes nor weaken the solidarity of Europeans. There are three aspects that deserve special attention in this Green Paper:

- the overall effect of ICT on employment;
- more effective management of the process of job transformation;
- the effect on labour markets in terms of supply and demand of skills and competencies.

4.2. The facts: steady employment growth since 1960

48. It is well recognized that the EU has had, on average, a much lower rate of employment

than the USA and Japan over the past two decades — some 60% compared with 70% or more — and that, in contrast to those countries, the EU's level of unemployment has remained stubbornly close to 10% over much of the last decade.

49. However, it can also be observed that the rate of employment growth has remained almost unchanged over the last three-and-a-half decades across different areas of the developed world, albeit at different rates — at around 2% in the USA, around 1% in Japan and 0.3% in Europe. It is worth noting that the rate of employment growth has not significantly slowed since 1973, the year of the first oil shock and the starting point for the slowdown of economic growth.

50. Hence, far from reflecting a decline in the amount of work provided, the rise in European unemployment is largely related to the fact that employment growth (0.3% on average per year) lagged behind labour force growth (0.6% on average per year). The steadiness of employment growth over the whole period from 1960 to 1995 does not support the view that jobs are inexorably disappearing, only that employment failed to grow sufficiently to keep up with the growth in the labour force.

51. Contrary to some claims that technical progress can only be labour saving, existing data suggest growth has become slightly more rather than less job-intensive, with the pace of job creation remaining steady in the face of the sharply reduced rate of economic growth in the 1970s and 1980s. The data also suggest that the relative capacities of United States and European economies to create employment have not changed since 1973. Until then, annual growth of 4.3% was required for the economy to start creating employment in Europe, and 2% was required in the United States. New jobs are now being created as soon as growth reaches 2%, in Europe, and 0.6% in the USA.

52. This new growth and employment pattern is reflected in the slowdown in measured productivity growth after 1973. The rate of growth of productivity and GDP fell, even though more and more ICTs were introduced, while the growth in employment continued at much the same speed as before. Whatever the

detailed explanation of this paradox — and debate and analysis continues — it is clear that the aggregate data do not support the thesis of 'the end of work' or even the beginning of jobless growth. The more successful employment performance in the USA, Canada and Japan, cannot be explained by less use of labour saving ICTs.

53. On the contrary, the development and introduction of ICTs have, in general, been more extensive in these countries — and particularly the US — than in the European countries. Moreover, within the EU the Member States which are more advanced in terms of ICTs also tend to have the highest employment rates. As with all technological change, the spread of ICTs is a growth factor, and there is a positive link between technological progress, productivity and economic growth which offers the potential for the growth of new forms of employment. Technological progress spurs innovation, thus creating the potential for new entrepreneurial opportunities, especially for SMEs. This higher growth potential must be exploited if unemployment is to be reduced and the European economies are not to fall behind in the global stakes.

54. The main impact of ICTs in relation to employment is a radical restructuring of jobs and the world of work. Manufacturing industry has declined, but this decline has not been uniform. Within manufacturing, low-technology, low-skill and low-wage jobs have been shed. High-technology, high-skill and high-wage employment has expanded.

55. The main source for employment growth is the service sector. Job gains are coming both from the dynamic part and from the more traditional part. Employment gains associated with new technologies have more than compensated for any labour displacement. In fact, employment growth in services has been faster in those countries which have invested most in the application of new technologies.

56. So far, employment growth in the European core ICT industries has been quite flat, due to the downturn in the business cycle. But this hides quite heterogeneous developments. Employment in consumer electronics, data processing and telecommunications equipment manufacturing has clearly declined. Employment levels in the components industry and telecommunications services has remained stable. By contrast, employment in software and

computer services has seen steady growth, almost tripling its size since 1980 and employing nowadays around 750 000 workers in the Union. This sector remains an area in which there are particularly high hopes for employment growth, especially in new high-skill, knowledge-intensive services, such as multimedia software and end-user training.

57. Overall, these trends are expected to be maintained in the short run, with the exception of telecommunication services, where expected job losses due to digitalization and liberalization will not be compensated by the new entrants' job creation in the short term. However, these trends do not take account of job creation in other areas related to the information society. Audiovisual services have shown a noticeable employment growth, with a 37 % increase over the period 1983-92, and the prospects are also good for further job growth. Additional ICT-related job creation has taken place in areas such as teleservices, telebanking, and retail distribution, but precise figures are difficult to trace statistically. The statistical observation of these new developments in the economy, and especially in the related service industries, is a challenge for the statistical system.

58. In addition, the positive employment effects of the information society are not expected to be concentrated only in the ICT and other IS sectors. Research undertaken by the Commission is showing that liberalization of telecommunications combined with a rapid adoption of ICTs will lead to job creation and improved welfare in the rest of the economy. The boost of investment in new telecommunication and data processing equipment, combined with the general price reductions and the real income increases resulting from the reductions in telecommunications tariffs, will yield positive effects in terms of employment and value added in the rest of the economy in the medium and long term. These job gains will largely compensate for any job losses that could take place in the telecommunication sector. This mechanism applies not only to telecommunications but also to the diffusion of all ICTs. The problem, however, is in managing the time lag between these processes, and in helping individuals adapt to the new challenges and opportunities of the labour market.

59. Though the longer term patterns of job creation in the information society are difficult

to quantify, forecasts show that new jobs will be created in the whole economy, not only in the ICT industry and in new and emerging multimedia services, but also in all the other services and industrial sectors, including traditional and declining ones. There is a plethora of examples where the introduction and use of ICTs in enterprises has had substantial positive impact on employment.

60. Over the period 1985-94 employment in the service sector in the EU grew by some 10 million. Although 80% of this overall growth in employment took place in the period 1985-90, the second half of the period still saw a growth of 2 million jobs in business, computers and research, the same increase as in the earlier period — with 0.6 million extra jobs in education, and 0.9 m jobs in health and sanitation — all sectors where ICT has an important impact. The only significant area of service sector job loss in the 1990-94 period was in wholesaling and retailing, where the decline in employment has been primarily due to lack of demand, not increased productivity.

61. These new employment patterns are also affecting the gender balance of the labour market. The growth in the service sector has offered new opportunities for women entering the labour market. Employment for women has been increasing from the middle of the 1960s to the beginning of the 1990s. Women have increased their share in the workforce, and a significant proportion of the new female jobs are part-time jobs. In contrast to the long-term trend for female employment growth, employment for men has been decreasing ever since 1965, except for some years at the end of the 1980s.

4.3. The first challenge: to prevent beggar-thy-neighbour policies

62. Across the labour market, one conclusion which must be drawn from past developments is that weak employment growth in Europe, around 0.3% a year, and concomitant high and persistent unemployment, must be explained by factors other than technological ones. Unemployment in Europe started to increase in the

middle of the 1970s. Until 1985, a significant number of jobs were lost, at the same time as the labour force grew faster than ever. Ten million new jobs were created during the long growth period of the second half of the 1980s. However, half of the new jobs were lost during 1992-93.

63. A number of factors — including macro-economic developments — played a role in the emergence and scale of unemployment. However, it is important to understand the structural aspects. The high level of unemployment is due to the lengthening of unemployment spells. Unemployment has been turned into long-term unemployment and social exclusion as a consequence of the passivity of labour market policies, offering mainly income support to the majority of the unemployed, but no new skills for a restart in the new, more skill- and qualification-based labour market.

64. With the single market, Europe is taking a great leap forward in the modernization of the economy. It is not only a huge structural improvement. It also offers new conditions for growth and employment-oriented macroeconomic policies. Member States must make better use of the multiplier effect, as emphasized in the Commission's 'Action for employment in Europe — A confidence pact'. It highlights the potential of the integration process. This potential has not yet been used to optimum effect. This is especially true in the fight for jobs.

65. The high degree of European economic integration and interdependence has intensified. Consequently, sustained coordinated action gives more value-added than the sum of individual, disparate, measures in each Member State. This approach will be addressed in the policy report being prepared at the request of the European Council in Florence, on the capacity of the European Union as an entity for employment policy. This involves replacing the zero-sum game of beggar-thy-neighbour policies with a plus-sum game of coordinated growth policy, creating confidence among consumers and investors. Such a growth-oriented policy would substantially improve the conditions for the development of jobs in the information society.

4.4. The second challenge: more effective management of the job transformation process

66. Job destruction and job creation are an integral part of the process of structural change resulting from the introduction of ICTs. Enterprises can do much to absorb these shocks by planning employment requirements, and there are now many examples of imaginative policies negotiated between social partners. These involve not only education and training, as set out below, but also working time, wage moderation in order to maintain jobs, issues of equity in the process of change and compensating job creation in local and regional economies.

67. In order to manage effectively the process of change, all economic and institutional actors — employers, workers, public authorities at all levels, education and training institutions and business support services — have to be involved. Forward-looking enterprise behaviour needs in many cases to be externally supported and help for this process may come from the development of inter-firm cooperative agreements and partnerships as well as private-public partnerships to enhance local business support structures. This is particularly relevant for SMEs, which need to be supported and involved in networks to enhance their capacities to innovate, define business strategies and anticipate their skill needs. The Structural Funds, and in particular Objective 4 and the ADAPT and SME Community initiatives, can also be used to facilitate these changes (section 3.7 above).

68. The bottom line is that if workers are to cooperate in the process of continuing change that the information society requires, new ways of handling the job transformation process have to be found. This is a responsibility both for governments and social partners.

4.5. The third challenge: to overcome the skills gap

69. The ICT revolution plays an important role in the functioning of the labour market, through the reshaping of work, skill structures and the organization of work. As the new technology is an information technology, it requires not only

stronger basic skills in numeracy and literacy, but also a new form of basic skill, the skill of interaction with the new technology, let us call it 'informacy'.

70. Technological developments and competition between enterprises are stimulating the speed of structural change. Each year, on average, more than 10% of all jobs disappear and are replaced by different jobs in new processes, in new enterprises, generally requiring new, higher or broader skills. There is a much slower pace on the supply side in the acquisition of new skills. Each year, one age cohort, 2-3% of the labour force, leaves working life because of age and other reasons, and a new one enters, with new education and training, with new skills. The high speed of transformation of enterprises, and the limited supply of new skills, leads to a severe mismatch, 'a two-speed labour market', with the redundancy of old skills and bottlenecks for new skills.

71. The real challenge for the transformation and upgrading of skills lies in the readaptation of those who are already in the labour force to the new requirements of the information society. However, many in the workforce have limited basic skills in numeracy and literacy, skills even more necessary in the information society, and a great number have no education and training in informacy. People with outdated or inadequate vocational training find it difficult to re-enter the workforce. Most training and retraining is organized for the young, not for people already in the workplace, nor for those who have been working for 10, 20 or 30 years and have lost their jobs.

72. Most of them are offered only income support until a new job turns up, or while awaiting early retirement. But new jobs, demanding old skills, are not turning up. The new jobs require new skills. The gap will continue to grow, unless governments and employers embark upon a new, much more radical policy to provide people with new skills and competencies, linked to the development of new forms of work organization and the introduction of new technologies.

73. This poses a major challenge to governments and to the social partners, enterprises and workers, the scale of which can be illustrated by the forecasts of a continued high speed of technological renewal and an ageing population. Ten years on, 80% of the technology we operate today will be obsolete, and replaced

with new, more advanced technologies. By that time, 80% of the workforce will be working on the basis of formal education and training more than 10 years old. Significant changes in the demographic profile serve only to highlight the scale of the challenge. The workforce is ageing, and the technology is getting younger.

4.6. Overhauling education and training to match the ICT revolution

74. What Europe needs is a substantial overhaul of education and training that can match the ICT revolution and keep pace with the continued ICT development during the years to come. We need a new interplay between work and training, instead of the old interplay between work and non-work, a new interplay which gives the individual the opportunity to develop skills and competencies and to grow in tune with the permanent revolution of skills that accompanies ICTs.

75. In the long term, the underlying need is for Europe to develop a new architecture of life-long education and training, involving all parts of education and training systems, including schools, and designed and delivered in more appropriate ways, with particular regard to gender, but also by engaging more effectively older people and those with disabilities. This effort is now being initiated by the 1996 European Year of Lifelong Learning and the White Paper on teaching and learning. But the urgent need is to arrest the growing skill obsolescence of the adult working population through a proactive approach to industrial adaptation and change. Speed and foresight are of the essence, because all the evidence points to a vicious downward spiral of job destruction, long-term unemployment and skill obsolescence which is harder to correct the longer it goes on.

76. Four areas are of great importance in enhancing employability.

□ **laying the best foundations:** the foundations of our knowledge and skills are laid

during the first years of education, and the processes involved will evolve as the IS develops. The quality and the organization of pre-school and school education will be profoundly affected. Teachers and trainers in particular must be targeted, and the quality of their initial training and continuing professional development secured to exploit new ICTs. The programmes and infrastructure to link schools into the full networking potential of the IS, especially in the more remote regions where infrastructure is at risk, are of special importance. Member States, which have unambiguous responsibility for the organization and content of school education, should continue to mount suitable programmes which take the IS into account and the EU can assist in supporting pooling of experience, particularly involving the less-favoured regions. In addition, the European Council in Florence asked the Commission to elaborate quickly an action plan on 'Learning in the information society', which will include the interconnection of school networks at European level, the promotion of multimedia educational content, and the stimulation of awareness and training of teachers and trainers to the use of new information society tools.

□ **From teaching to learning:** education and training must, according to the first annual report from the information society forum, be swiftly reoriented so that learning institutions are much more responsive to changes in the skill needs of business and industry. This is crucial to job creation and productivity growth. Higher education institutions have begun to lay the foundations for the learning communities of the future, and their efforts should be strengthened through the ties of partnerships with local industry and services recommended in the Ciampi report on competitiveness and piloted successfully in the Comett and Leonardo da Vinci programmes. The compulsory school system has also seen important initiatives, many spurred by EU programmes, but still needs considerable support and resources to build the necessary alliances with the world of work. This raises issues of investment capacity, methodology and curricular development, with particular regard to learner needs. More broadly, since learning retention is much higher by 'doing' (80%) rather than reading or hearing (5-10%), the potential for self-learning using ICTs is immense, and if shaped correctly,

could be a key tool for closing the knowledge gap itself. The basic principles of education and training have to be based more on the notion of learning capacities, rather than formal education and training.

Using ICTs in schools

Some Member States have launched plans for bringing their education systems in line with the dynamics of the information society. The German Ministry of Education recently announced one such initiative, *Schulen ans Netz*, through which 10 000 out of Germany's 52 000 schools over a three-year period will be connected to national and international networks and multimedia services. In some of the German *Länder*, it has been decided to connect all schools, a goal which in the longer term is shared by the Federal Government. The *Schulen ans Netz* initiative is made possible by an innovative partnership between government and private enterprises. Similar initiatives have been launched in other countries such as the United Kingdom, France, Italy, Denmark, Sweden, Portugal and Finland.

□ **Learning by doing:** 'the learning company' must emerge as a vital component of the learning society. People who work in such a company will be using their electronic access to knowledge and information to update their skills. This requires new forms of partnership between business, other organizations, and educators, to ensure that the new and changing skills required are made available. In this perspective, it is easy to understand that renewing education within working time will be more important than reduction in working time itself. The crux of this approach is continually to reinforce the employability of the workforce through training. The risk is that as firms develop more flexible employment contracts, with lower levels of job security, so as to adjust rapidly to changes in labour demand, the rationale for investment in the training of a principal labour force may be weaker rather

than stronger. For example, the propensity of large Japanese firms to invest in training may be explained by the policy of life-long employment, which means that the returns on training are kept within the firm. In Europe, therefore, it should not be assumed that flexibility and job insecurity are one and the same thing. Indeed, the capacity of enterprises to adjust continually to market and technological change depends on the cooperation of a core, stable and loyal labour force. Enterprises should be encouraged to invest more in the training of their core labour force, and special incentives and arrangements should be provided to extend these instruments to the peripheral labour force.

□ **Retraining instead of deskilling:** the most critical question is how people who have lost their old jobs are reintegrated into working life. Member States have mostly failed, during the last 20 years, to offer restarts for the unemployed. Tackling this problem is one of the central tasks of the Essen re-employment strategy, further underlined by the Heads of State or Government at the European Council in Madrid in 1995. Instead of having 9 million people in long-term unemployment and deskilling, the most expensive form of public spending, with the lowest return to the economy or the individual, and many more millions on their way to long-term unemployment, the Member States should have 9 million involved in upgrading, maintaining and improving their skills in literacy, numeracy and informacy. It should be a right, and an obligation, for all unemployed to maintain and develop basic skills for the information society and have them imbued with relevance to the real, dynamic, labour market. Reintegration should start long before people become long-term unemployed and discouraged. That is the fundamental difference between active and passive policies. In this framework, governments have to find ways to transform expenditures for passive labour market policies into active policies, preparing job seekers for a more knowledge-based pattern of production of goods and services. Focusing more of these financial resources on training grants and new skills, not merely cash assistance, will help in improving the dynamism of the labour market and of public finances overall. In this context, placement services also need to move towards the provision of more personalized ICT-based support for job seekers.

4.7. The platform: new priorities in the convergence programmes

77. There is now broad consensus in Europe that education and training play a fundamental role in a modern employment policy. This is why the Commission particularly welcomes the new emphasis given in the conclusions of the European Council in Florence to investment in human resources, in infrastructure, and in research and development. In this way, the ministers for labour and employment, education and training, research and development, transport and communication have a new platform for initiatives which are important for growth and employment.

78. Presenting education and training as a central element for a new re-employment policy can meet with opposition. The argument is that the deep-rooted employment problem in Europe cannot be solved through education and training if there are no new jobs to find after training. This argument is true, but misses the point. The purpose of education and training is not to replace macroeconomic policies for growth and new jobs. The purpose of a new education and training policy is to bring about a positive flexibility in enterprises and in the labour market that allows a more growth-oriented macroeconomic policy to be pursued. That is why the key to employment growth is the development of an integrated approach between structural and macroeconomic measures, as outlined in the broad economic guidelines and why education and training should be shaped to learner needs, with particular regard to combating inequality and disadvantage, in order to unlock the productive potential of the whole population.

4.8. Questions for further reflection

79. These challenges raise a number of questions that need to be addressed, notably in the

framework of the Essen employment process (the joint employment report to the Dublin summit and the 1997 multiannual programmes). They concern:

- the capacity of education and training; against the perspective of the skills needs of the information society, what are the Member States' plans for the next five years?

- the design and quality of education and training; how to reshape education and training to adjust to the existing and emerging needs of the information society during the next 5 to 10 years?

- the capacity for retraining those unemployed, which presently constitutes the weakest point in our system for education and training; how to give people who have lost their jobs a new start in working life; and,

- the degree to which equality of opportunity and access can be secured in order to ensure realization of the productive potential of the whole active population.

80. There are also some questions, where the social partners have a special responsibility, which need to be addressed in the framework of the social dialogue.

- What joint initiatives are the social partners prepared to take in the field of human resources to secure a continuous upgrading of skill and competence of workers to meet the needs of 'the flexible firm' during the next 5 to 10 years?

- What initiatives are the social partners prepared to take to give young people that have finished education and training a start in the real labour market, and opportunities to maintain and develop the basic skills required for the information society?

5. Cohesion: living in the information society

5.1. The concerns: concentration or cohesion?

81. ICTs have a powerful capacity to shrink distance and improve access to information and services. The new technologies and networks have the potential to bring work to areas of high unemployment, to reduce the disadvantages of less-favoured and more peripheral regions.

82. But there are also concerns about the impact of ICTs on cohesion. Many people fear that the new technologies will reinforce rather than reduce existing inequalities, leading to a concentration of jobs and production in a few core regions. There are also concerns about the development of a two-tier society of information 'haves' and information 'have nots'.

5.2. The facts: public policies make the difference

83. In our market economies, there are strong forces that lead to concentration. That is why strong, coherent, public policies for fair distribution and social cohesion are necessary to balance economic progress and social justice. Fundamental changes, such as the information revolution, make such policies all the more necessary, but offer also many new opportunities to use ICTs to create an inclusive, productive society.

84. Many Member States have realized the need for active ICT policies, and proactive strategies to develop the information society are evolving at the Member State and regional levels. Generally, strategies begin by focusing on the basic aspects of infrastructure development and the need to support companies — especially SMEs — in adapting to the information society. Once support for the infrastructure has been set in place, the development of private and/or public partnerships is encouraged to promote a broader participation in the IS. A number of Member States have devel-

oped policies, for example, which recognize the importance of integrating schools and other educational institutions into the IS infrastructures. One example of a broader strategy is Denmark's Info-society 2000 programme, which aims to promote a range of electronic public services to develop the information society and to promote social inclusion within it.

85. It is, of course, difficult to separate the impact of ICTs from the broader factors also affecting social and regional development. Generally speaking, there has been a slow trend towards convergence in income per head between Member States, but there has been virtually no change in overall income disparities between regions. While some of the weakest areas have moved strongly towards the levels of the rest, disparities between regions within the same Member State have tended to widen over time.

86. EU policies play a major role in the progress being made by the cohesion countries to catch up with the rest, and Structural Funds have been effective in reducing socioeconomic disparities, although the resources involved are not of the magnitude fully to offset general trends. Regional policies in the Member States seem to have been less successful. This presents new policy challenges concerning the relative economic advantage of non-core regions, and how best to maximize the opportunities and minimize the risks of new ICTs for cohesion in the Union.

5.3. The first challenge: to make the best of the new regulatory framework

87. The first challenge is the need to maximize the potential of telecommunications liberalization and the development of the new regulatory framework, which is at the heart of the move to the IS. The commitment to full liberalization by 1 January 1998 will have a strong impact on the development of ICTs, productivity and growth. ICTs are becoming the main arteries of

wealth creation, and access to efficient telecommunication networks is an essential prerequisite to taking advantage of IS. However, there remain significant differences between Member States and regions at the level of basic infrastructure provision, the cost and reliability of services, and the availability of advanced services.

88. The Commission is working to ensure that the combination of new technologies and liberalization reduces rather than widens existing regional differences. While full liberalization has not yet been achieved, experience in markets that have already liberalized is encouraging, and evidence shows high levels of ICT penetration even in remote areas. To give but one example, Finland has by far the highest connection to the Internet of all countries, measured in relation to population. The capacity to shrink distances is already deployed as an important element in developing regional policies.

89. However, liberalization will not automatically bring such benefits to all regions of the Community, partly because the existing levels of infrastructure and services are significantly lower in some areas, and partly because of educational and institutional barriers to the use of new ICTs. Care is needed to ensure that existing disparities are not widened. However, the solution cannot be to slow down the liberalization of telecommunications and create obstacles for the implementation of ICTs. Rather, it is to strengthen flanking policies for infrastructure and human resource development, and the Structural Funds have an important role to play in this context.

90. The definition of a universal service provision — a minimum set of services offered at affordable prices — is an important contribution to cohesion, and the Commission has already discussed this issue in its recent communication on universal service for telecommunications.¹ However, going beyond this there remain important questions concerning the level and quality of access of less favoured and less populated regions, groups with special needs, and public institutions such as schools, hospitals and libraries, to the full range of IS services. These and other questions will be addressed in the Commission's first monitoring report on universal service provision in 1998.

¹ COM(96) 73.

5.4. The second challenge: the human resource base

91. The second challenge is to strengthen human resource development to stimulate the formulation of proactive strategies in cohesion regions, so that they can reap the benefits of the information society. The importance of the new integrated approach to ICT and organizational renewal has been discussed in Chapter 3. The need for an updated policy for skills and competencies for the information society has been discussed in Chapter 4.

92. One conclusion is that human resources policies will be of growing importance in the future, as the production of goods and services will be more and more knowledge based. ICT equipment can be bought and used all over the world. A crucial factor in determining the longer run success of a region is the knowledge of the people and their capacity to use ICTs. There is a need to reorient the Structural Funds within the framework of the emerging IS to take account of this. Policies must be more oriented to stimulating the access and use of modern ICTs.

93. The prospects for success in less-favoured regions appear to be strongest where innovation involves significant change in organizational behaviour in both enterprises and public institutions. The new concept of the flexible firm could offer great opportunities for regional development.

94. In 'Action for employment in Europe — A confidence pact', the Commission has taken the initiative to develop local and regional partnerships in order to improve growth and employment. The aim, without setting up new structures, is to generate and boost political momentum at the local level, focusing on realistic economic and job-creation objectives. The most important element involves mobilizing all those concerned in business formation and job creation in political reflection and proposal-making forums. The European Council in Florence gave the go-ahead for the process of selecting pilot regions and towns prepared to take part in territorial employment pacts.

95. The process of stronger local involvement could be an important vehicle in developing a new, more employment intensive and human resource oriented cohesion policy approach in

the information society. The European Commission, by means of Article 10 of the ERDF and Article 6 of the ESF, is supporting two types of innovative actions in the regions to take full advantage of the information society. The first is the preparation of a regional information society strategy and actions plans based on establishing a regional consensus based on wide local partnerships on how to integrate the information society into regional development policies (including human resources and labour market aspects). The second is the development of transnational pilot applications which demonstrate best practice. Partners will work together to prepare and launch applications which contribute to regional development and employment growth. Emphasis will be given to user-driven applications which can generate social and economic benefits and are related to wider regional development priorities (including applications for specific social groups, employment services, training, open and distance learning, health care, and business support services). The experience of these and other initiatives can provide the basis for broader assistance through the Structural Funds.

5.5. The third challenge: empowerment and integration

96. The third challenge is to use the information society to strengthen social cohesion and enhance people's ability to participate fully in every aspect of social and economic life, to make it a tool for the creation of an inclusive society. The information society should be about people and it should be used for people and by people to unlock the power of information, not to create new or reinforce existing inequalities between the information rich and the information poor.

97. The information society provides many new possibilities to improve the quality of life of the citizens of Europe. It offers the possibility to generate new types of consumer and public service and new modes of access to existing services. In particular, many forms of disadvantage can be tackled in new ways.

98. But to achieve this requires a range of active public policies across many fields. This includes particularly workplace skilling and

classroom access, and making the mastery of ICTs integral to labour market measures and local community development and support. It requires also equipping people to understand and relate to the changes brought about by new technologies in fields as diverse as democratic representation and retail services, learning and leisure, care and culture. For both public policy, and for generation of markets for ICTs, participation, access and confidence must be fostered. Examples of concerns and how they can be addressed include those of the generational balance, the disabled, and health care more generally. They also concern the problem of gender bias in terms of both access and in terms of the broader effect of ICTs in the labour market.

99. Many of these questions have been discussed in more detail in the high level expert group report and in the first annual report of the information society forum. In the Member States, political initiatives are being taken, and enterprises and local authorities are responding. Access to the information society is improving. ICTs are becoming more user-friendly. The European Union has an important role to play in stimulating this process, for example, through the pooling of strength and experience, research and development, common pilot projects, and Structural Fund support.

100. In pursuit of the objectives of empowerment and integration in the information society, this Green Paper focuses on four main issues. The first is the issue of democracy and the importance of access. The second concerns equality of opportunity between women and men. Third, there is the question of promoting social integration, particularly for groups with special needs. The fourth issue is that of public health.

101. **Democracy** is not just a matter of voting in elections. It concerns participation and representation in a range of decision-making forums, at many levels. The European model is bedded in the concept of informed democracy. Real enfranchisement requires access to accurate current information on which to base democratic choices and decisions. For true, inclusive, democracy to exist, the whole population must have equal access to information to make choices effectively and equitably. The information society can enhance democracy by ensuring equal and public access to the ICT infrastructure, to networked information services

and to the skills required to access these services.

102. It is important that we realize the great potential for public expression and experimentation in the IS, especially in areas which are low cost and accessible to grassroots groups. As the information society forum noted in its first annual report, the new technologies could have extraordinarily positive implications for our democracies and individual rights by strengthening pluralism and access to public information and enabling citizens to participate more in public decision-making. The vitality of political debate could be reinvigorated through more use of direct democracy. At the same time, however, it is also important to counter the more negative aspects of the IS. The circulation of racist and pornographic material on the Internet, for example, gives rise to considerable concern.

103. An example of ICTs creating new opportunities for greater public participation in, and awareness of, the political process is the United States government's national information infrastructure, which includes an initiative for on-line government. Motivated by the desire to open up the relationship and dialogue between federal government and the general public, it is an important example of using ICTs to widen democratic participation. Another example, from Europe, is the Danish government's Info-society 2000 programme, which involves developing a range of electronic public services aimed at developing the information society and promoting social inclusion within it. It includes a programme for an open network of society, which is a coherent computing and telecommunication network which will be as easy for citizens to use, and as readily accessible, as the telephone system currently is.

104. This kind of approach would have substantial value for the European Union. If coordinated on a EU-wide basis, it could greatly enhance social cohesion across the Union, and promote citizens' sense of European identity. In particular, the benefits of including the European institutions themselves in open government initiatives would be substantial.

105. Clearly, the IS offers great potential for more accessible and effective public services. However, the move towards electronic public service delivery presents technical and organizational challenges. If public services are to go on-line some level of access to technical facil-

ities has to be guaranteed. Moreover, many people cannot afford to subscribe to IS services as individuals. Others live in locations where the IS infrastructural facilities are less well developed. Public access points or one-stop information centres therefore need to be established to complement the development of home based IS activities and services. In addition, it is important to take account of the needs of people who find ICT-based services difficult to use or hard to come to terms with.

106. **Equality of opportunity** between women and men can be enhanced by the potential of ICTs to improve the balance between family and working life. But change is taking place within a heavily segregated labour market, and the impact of ICTs on women is very different from that on men. It is important, therefore, to be aware of this differential impact in areas as diverse as education and training, labour law, working patterns and skill profiles in order to respond effectively. For example, gender bias can be overcome in the training process by making course materials more 'gender aware', by ensuring that education and training can take place in environments which are more sympathetic to and comfortable for women, and by supporting the establishment of teleworking agencies which are directly aimed at supporting female workers. Further, much progress can be made by women being involved in the design and specification of ICT products. A range of work on addressing disadvantage and inequality has been undertaken at European Union level, including working on gender issues with equality agencies in all the Member States, and specific action in the context of the fourth action programme on equal opportunities.¹

107. More broadly, the changes in employment systems developing due to technological advances must be informed by the need to place equality issues in the mainstream, both in terms of long run competitiveness and social justice, in order to maximize the potential, for both work and family life, of the changing roles of women and men.

108. **Social integration** can also be enhanced by the potential offered by ICTs to achieve access and democracy, and to combat exclusion and isolation in all its forms. ICTs will permit more people to work from, or near, home for at

¹ COM(95) 381.

least some of the time, opening the way for more communities to become alive during the working day, and will allow more services — especially education and community services — to be delivered at local level. As the high level expert group noted, such changes could help to reinvigorate whole communities and lead to stronger social networks and a sense of place. ICTs could also help to overcome some of the disadvantages associated with mobility problems and a lack of access. Moreover, the IS can increase participation and therefore involvement and co-responsibility of citizens in a wide range of issues, such as environmental protection.

109. At the same time, however, the transition to the information society also poses challenges to social cohesion. People living in isolated rural communities or in deprived inner city areas, people who are not in work or in education are unlikely to encounter, or have access to, new technologies. This brings the danger of creating a two-tier information society. It must therefore be accompanied by a strategy designed to enhance active participation within our communities. Revitalizing local communities and promoting a sense of pro-activity in the information society is important because:

- revitalized communities are better able to generate employment opportunities and wealth in the global market-place;
- changing demographic and social welfare trends mean increasing numbers of people require some form of care provision;
- ICTs have an important potential to support more cohesive and integrated communities and to reduce the exclusion facing disadvantaged groups;
- for many people, the relationship between work and leisure time is changing, and this has important implications at the individual, family and community level;
- for those who are unemployed on a long-term basis, new ways of playing an active role in society need to be found.

110. Promoting access to, and use of, ICTs in schools is vital to the development of an inclusive information society, and this issue will be tackled by the Commission's forthcoming action plan on 'Learning in the information society'. Learning can no longer be limited to

schooling. The information society will also be a knowledge society, in which the need for life-long learning — in school, in the home, and on the job — will be paramount. In this context, particular attention needs to be given to the needs of older people and disabled people who are often perceived as being less geared to the use of ICTs and unable to take part in the IS.

111. In fact, ICTs have the potential to improve the quality of life of older people and people with disabilities by facilitating independent living in the community and helping to open up new possibilities for access, participation and socioeconomic integration. Realizing this potential involves adapting the technology to people's needs. For example, ICT applications can provide alternative modes of communication and information presentation, such as multimedia services for people with sensory impairments. Equally, they can offer the opportunity to carry out activities from the home, such as telework or distance learning for people who have difficulties accessing employment and educational opportunities. They can also facilitate remote access to medical and social care and other support services.

112. In various cities and regions across Europe, projects have been set up which use ICTs in innovative ways to help older and disabled people. The importance of ICTs as a tool to help promote integration of older and disabled people has also been recognized in a number of EU programmes. Handynet, for example, is a European-wide computerized information and documentation system on technical aids for disabled people, and research and development into the use of ICT products and applications to help disabled and older people in their daily lives is currently being promoted under the EU's TIDE programme (Telematics for the integration of disabled and elderly). Consideration needs to be given to how this can be taken forward in the fifth research and technological development (R&TD) framework programme. These issues will also be covered in the Commission's forthcoming communication on disabled people.

113. However, realizing the full potential of these new applications raises important questions about the availability, the affordability and the accessibility of ICTs. While some applications require only a basic telephone line, others demand more advanced services which may not be within everybody's reach. In

addition to the ongoing work to develop user-friendly applications, therefore, it is also important to ensure that both social policy and the telecommunications regulatory framework and universal service provision take full account of the evolving needs of older and disabled people, to enable them to participate fully in — and benefit from — the information society. Many of these questions will be addressed in the Commission's first monitoring report on universal service provision in 1998.

114. **Health-care** design, delivery and scope is being reshaped by the emerging IS, and there is great scope for innovation. The introduction of ICTs in the health sector — and particularly health telematics — will facilitate better coverage of health services, improve the quality of diagnostics and health care and help to ensure the cost-effective delivery of health services to sparsely populated and remote areas.

115. The development of ICTs allows for and creates a need to reorganize work in health services at all levels. The entire health-care system will be affected as will health service provision and processes. The jobs and skills

The use of ICTs in health-care

The use of computers and computer-based patient records for primary care and in hospitals has increased quickly over the past 10 years in countries like the UK, where 90% of general practitioners (GPs) own a PC and 79% use electronic health-care records, Denmark where 65% of GPs own PCs and use electronic health-care records, and the Netherlands where the numbers are 80% and 40% respectively while in other countries the progress has been much slower. Great effort has been spent on standardization of the electronic patient-records and patients' smartcards in the telematic applications R&TD programme since the beginning of the 1990s. As a result, communication between hospitals, general practitioners and laboratories has shown great improvement in quality of care, efficiency and cost-effectiveness.

required of health service staff will change substantially. Major training and retraining of health-care professionals will be needed. In addition, health-care telematics systems should provide the physician with greater support in terms of diagnostic capacity and information.

116. As part of these developments, there will be greater collection and transfer of medical records than in the past. Ensuring a high level of privacy and protection of health data will therefore be a major priority. New safeguards will be needed in order to ensure that both professionals and patients have confidence in the new systems. As the high level expert group has noted, there may be a need in some cases for ethical standards in the health sector to be re-examined.

117. Standardization is also an important issue in telematics based health-care. Appropriate standardization of telematics and associated systems, including software is required at the European, national, regional and community levels if the potential system-wide benefits for health-care are to be achieved. This is an area in which the European Commission, along with the appropriate international standardization bodies, can provide some leadership.

118. Finally, evaluation of both the positive and the potentially adverse impacts of ICTs at various levels of health systems is crucial. Numerous pilot health-care projects have been initiated in Europe but little coherent evaluation of the impact of telematics innovations has been undertaken to date. As the high level expert group has noted, the information and experience gained should be systematically collected, analysed and distributed. They also recommended that clearing house activities for the analysis and exchange of such information should be established within the European Union framework.

5.6. Consolidating progress

119. Member States are developing public policies across the issues related to achieving social cohesion in the emerging information society. In all of these areas, the European Union is also playing its part, in terms of support of policy development, using mechanisms such as this Green Paper and the deliberations which have shaped it, through to the pooling of strength and experience on specific

issues. There is also significant Structural Fund support to all of these efforts.

120. An important aspect of this range of activity is the work which has been done in the context of the fourth R&TD framework programme to promote the social applications of ICTs. The aim of creating a user-friendly information society — for example, through work on the identification of ways of giving people easier access to information and education throughout their lives — is one of the priority themes identified in the Commission's recent communication on preliminary guidelines for the fifth R&TD framework programme.¹

5.7. Questions for further reflection

121. Harnessing the potential of ICTs to strengthen cohesion and achieve integration raises a number of important questions.

- What more should be done at Community, national and regional levels to maximize the benefits of the liberalization process and smooth the transition to the IS?
- What degree of priority are regional and local authorities giving to the IS within the

scope of their responsibilities? What lessons have already been learned from the development of regional IS strategies and pilot actions, and how can this experience be built on and disseminated?

- What strategies can be developed, in the context of regional employment pacts, to provide the capacity and the access to unlock human resources potential to maximize the development impact of ICTs at local level? What kind of local, regional and national activities can be launched to promote and facilitate the development of telematics applications of societal interest which will respond to the needs of users?
- In terms of enhancing the democratic process, what actions need to be taken to maximize the potential for people to engage fully in active society?
- How can we, in particular, ensure that ICTs work to combat disadvantages and inequality and, in this context, how can the contribution of Community actions be maximized?
- How can we facilitate the great potential of ICTs for developing better coverage and delivery of health-care?

¹ COM(96) 332.

6. The information society — the European way

122. The European Union is built on a strong tradition of cultural diversity, political democracy and market economy. The Member States have developed social models with many common features including strong social rights and independent social partners, able to take responsibility for working conditions and for fair distribution. In the framework of the European Union the Member States have created one single market of 370 million consumers with some 16 million enterprises — the largest economic entity in the world.

123. The European social model is built both on competition between enterprises and solidarity between citizens and Member States. The European information society must draw strongly from this economic, social and cultural strength, linking technological, economic and social aspects together in the creation of new opportunities for all its citizens.

124. The information society represents the most fundamental change in our time, with enormous opportunities for society as a whole, but with risks for individuals and regions. The way we develop it must reflect the ideas and values which have shaped the European Union. These ideas and values should be transparent and coherent with social justice in order to win the support of citizens. To this end, the Commission invites all interested parties to reflect on the possibility of formulating a set of common Community principles for the development of the European information society.

125. The Commission suggests that public policies *inter alia*:

1. should strengthen the capacity of the EU economy to create jobs, achieve high levels and sustainable rates of economic growth and employment, ensure that SMEs take full advantage of the IS, and improve cohesion across the Member States and regions, using the potential of ICTs to increase productivity in the use of labour, capital and material resources;

2. should improve democracy and social justice by ensuring that the potential of ICTs to provide relevant, up-to-date information on matters of common interest and to enable

citizens to participate in public decision-making is fully supported by governments, with the involvement of non-governmental organizations;

3. should ensure that the objectives of equal opportunity policies are enhanced, at work and in the home, by paying particular attention to the education of young people in ICTs, and by incorporating ICT information and training in the various policies and actions designed to correct imbalances in the gender roles of adults;

4. should overcome the disadvantages faced by disadvantaged social groups, and ensure that those who currently lack opportunities in society have the possibility to master ICTs and thereby to improve their relative position, rather than become further disadvantaged;

5. should support people with special needs, many of whom can be helped to improve their quality of life and address their own needs, as well as to enhance their contributions to society as a whole, with the help of ICT;

6. should reduce bureaucracy and improve the quality and efficiency of public administration at national, regional and local level, and improve the overall benefits of welfare state services, such as health care and education, through efficiency improvements and through the better matching of provisions and individual needs.

You are invited to make comments on all of the issues presented in this Green Paper. They should be sent to:

PEOPLE FIRST
European Commission
Directorate-General V
Employment, Industrial Relations and
Social Affairs
DG V.B.5
200, rue de la Loi/Wetstraat 200
B-1049 Brussels

by 31 December 1996.

Comments can also be sent by e-mail to: peoplefirst@fsc.dg5.eec.be

Copies of this Green Paper, the high level expert group report and the information society forum report are also available at the above address, or from the ISPO Web server at:

URL: <http://www.ispo.cec.be/infosoc/legreg/docs/peopl1st.html>
<http://www.ispo.cec.be/hleg/hleg.html>
http://www.ispo.cec.be/info_forum/pub.html

This Green Paper is also accessible by clicking on the following icons: 'The European institutions', 'European Commission', 'Directory of the European Commission', 'DG V — Employment, Industrial Relations and Social Affairs'; at the Web site of the European Union:

<http://europa.eu.int>

European Commission

Living and working in the information society: People first — Green Paper

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This document examines work organization in the information society and identifies the challenges to organizations and individuals. It then considers employment growth and the potential role of education and training in creating jobs and skills. Finally, it discusses ways in which the information society can be shaped to serve the needs and requirements of European people and to contribute to the revitalization of their communities.

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