

Sixth European Regional Meeting  
Geneva December 2000

# Globalizing Europe

Decent work  
in the information economy

**VOLUME I**

Report of the Director-General

INTERNATIONAL LABOUR OFFICE GENEVA

ISBN 92-2-112256-5

---

*First published 2000*

---

The designations employed in ILO publications, which are in conformity with United Nations practice, and the presentation of material therein do not imply the expression of any opinion whatsoever on the part of the International Labour Office concerning the legal status of any country, area or territory or of its authorities, or concerning the delimitation of its frontiers. Reference to names of firms and commercial products and processes does not imply their endorsement by the International Labour Office, and any failure to mention a particular firm, commercial product or process is not a sign of disapproval.

ILO publications can be obtained through major booksellers or ILO local offices in many countries, or direct from ILO Publications, International Labour Office, CH-1211 Geneva 22, Switzerland. Catalogues or lists of new publications are available free of charge from the above address.

---

# Contents

## Volume I

<b>Introduction</b> .....	<b>vii</b>
<b>Globalizing Europe: Decent work in the information economy</b> .....	<b>1</b>
ICT and the organization of work and production .....	2
<i>Effects on employment</i> .....	2
<i>Access</i> .....	4
<i>Skills as a critical bottleneck</i> .....	5
<i>Implications of ICT for the organization of work and         production</i> .....	10
<i>The independence of location</i> .....	12
<i>The changing boundaries of the enterprise</i> .....	13
<i>A diverse world of work</i> .....	13
<i>The ILO, technology and decent work</i> .....	14
Labour migration .....	15
<i>The demand for software specialists</i> .....	15
<i>Competing for the highly skilled</i> .....	20
<i>East-West migration</i> .....	21
<i>Protection for migrant workers</i> .....	23
<i>Development concerns</i> .....	23
The organization and representation of employers and workers .....	25
<i>Improving access through training</i> .....	27
<i>Employability and lifelong learning</i> .....	28
<i>Representation</i> .....	30
<i>Flexibility</i> .....	32
<i>Teleworking</i> .....	32
<i>Working conditions: Control, privacy and health issues</i> .....	34
<i>ICT's potential for employers' and workers'         organizations</i> .....	35
Social protection .....	39
<i>Job creation, job loss and unemployment</i> .....	39
<i>Employment status and social protection coverage</i> .....	40

<i>Complementary social protection</i> .....	41
<i>ICT and the implementation of social protection legislation</i> .....	42
<i>ICT and safety and health</i> .....	42
Questions for discussion .....	44

## Volume II

<b>Acronyms and abbreviations</b> .....	<b>vii</b>
<b>1. Development trends in Europe and Central Asia</b> .....	<b>1</b>
Introduction .....	1
Western European countries .....	2
<i>The Employment Chapter of the Amsterdam Treaty</i> .....	2
<i>Labour market success in four smaller countries</i> .....	3
<i>The persistence of high unemployment rates</i> .....	4
<i>The rise of services and “atypical” forms of employment</i> .....	4
<i>The situation of women workers</i> .....	5
<i>Social dialogue</i> .....	5
<i>Social protection</i> .....	6
The transition countries .....	8
<i>The legacy of the past</i> .....	8
<i>The “Washington consensus”</i> .....	9
<i>Development trends</i> .....	10
<i>The employment situation</i> .....	12
<i>International migration for employment</i> .....	15
<i>Social dialogue</i> .....	17
<i>Social protection</i> .....	19
<b>2. Activities of the ILO</b> .....	<b>23</b>
ILO structure in Europe and Central Asia .....	23
<i>Regional Office</i> .....	25
<i>Central and Eastern European Multidisciplinary Advisory Team</i> .....	25
<i>Eastern European and Central Asian Multidisciplinary Advisory Team</i> .....	27
<i>National correspondents</i> .....	29
<i>Branch offices</i> .....	29
Relations with the European Union and other regional institutions .....	31
International Training Centre of the ILO .....	33
Major trends in technical cooperation .....	34
<i>Technical assistance priorities</i> .....	36
Employment promotion .....	38

<i>Employment policy</i> .....	40
<i>Labour statistics</i> .....	43
<i>Strengthening labour market institutions</i> .....	46
<i>Vocational training</i> .....	55
<i>Enterprise development</i> .....	59
Social protection .....	65
<i>Occupational safety and health</i> .....	65
<i>Labour inspection</i> .....	70
<i>Programmes against drug and alcohol abuse</i> .....	71
<i>International migration for employment</i> .....	73
<i>Social security</i> .....	74
Social dialogue and tripartism .....	78
<i>Institutions of social dialogue</i> .....	80
<i>Wages and incomes policy</i> .....	82
<i>Employers' organizations</i> .....	85
<i>Workers' organizations</i> .....	89
<i>Social dialogue at the sectoral level</i> .....	92
Fundamental workers' rights .....	94
<i>The ILO Declaration</i> .....	95
<i>The Sofia Declaration</i> .....	96
<i>Cases of progress and issues remaining to be resolved</i> .....	97
<i>Freedom of association</i> .....	98
<i>Discrimination</i> .....	99
<i>Forced labour</i> .....	99
<i>Gender equality</i> .....	99
<i>Child labour</i> .....	102
 <b>Statistical annex</b> .....	 <b>107</b>
 <b>Bibliography</b> .....	 <b>123</b>





## Introduction

A regional meeting is a rare opportunity for us to explore together some of the major economic changes and social challenges Europe is facing today. We can take some distance from our everyday problems, look at what has happened over the past few years and identify the most important trends for the future.

Although other cross-European organizations and structures exist, the ILO's European Regional Meeting is the only forum available for the tripartite examination of the social and economic problems of the region as a whole. It can therefore act as a bridge between countries of the region which are at differing levels of development, and with other organizations which do not have the advantage of a tripartite structure.

### **Change and interdependence in Europe, East and West**

The last decade has been a turbulent one in Europe. New visions have driven both economic and political change, with varying degrees of success. In Western Europe economic and social integration has continued, and the convergence of European economies to meet the Maastricht criteria is remarkable testimony to commitment to a regional goal. But economic growth has been uneven, and for much of the decade too slow to deal with long-standing problems of unemployment; where unemployment declined, this mainly came from changes in labour market policies and practices, which have been most effective when based on social dialogue. The recent acceleration of growth is having a more general positive effect on employment, which offers better prospects for the future, but several years of sustained growth will be needed to reach full employment in most of the larger countries of the region.

Transition in Central and Eastern Europe has led to more varied results, and in most countries political transition is well ahead of economic restructuring. The consolidation of democratic institutions

by no means generated rapid economic gains, and some of the expectations at the beginning of the 1990s were far too optimistic. A majority of European and Central Asian States are still in the process of coping with the deep-rooted changes involved in the transition to a market economy, as well as a series of crises and conflicts.

Europe may no longer be a politically divided continent. But the differences between the levels of development of States in the region are very wide and are clearly growing. While the progress made by a number of transition countries in developing a market economy has been encouraging, particularly in the case of the candidates for accession to the European Union (EU), a major effort is still required if the region is not to be divided along different lines, between the richer and the less wealthy nations.

### **The European “social policy incubator”**

Europe in general, and the EU Member States in particular, can lay claim to some of the world’s broadest and most effective social policies, sometimes referred to as the “European social model”. This model varies from country to country; but the welfare state originated in Europe, and there remains a strong belief in an underlying set of values which shuns any kind of exclusion or excessive inequality, and which accepts the legitimacy of state intervention and active labour market policy measures to give a helping hand to initiative and to workers in vulnerable situations. In this way, competition between enterprises is combined with solidarity between citizens. Despite today’s pressures to reduce the costs of social protection, the essentials of these systems retain their social and political legitimacy across the region. But they are under pressure to modernize, to adapt to the changing economic environment.

The response to this challenge will have repercussions far beyond Europe; in many ways, it is in Europe that the future of social policy is being played out today, and the answers to the social challenges of globalization are being moulded. The EU has already taken significant steps towards mapping out directions for employment and social policy through the Amsterdam Treaty and the European Employment Strategy adopted at the Luxembourg Jobs Summit; this was endorsed at the highest level at the Lisbon European Council earlier this year. This framework also guides policy development in the countries preparing for accession, which face the challenge of redesigning economic and social institutions simultaneously; but the path has already been trodden, and solutions already exist in many domains.

A key characteristic of the European model is social dialogue. The participation of the social partners is an important means of developing consensual solutions and achieving the social stability which is the bedrock of a just and democratic society. The principle of social dialogue also lies at the heart of the International Labour Organization. There is much to be gained from sharing national, regional and institutional experience in the practice of social dialogue, and it constitutes an important base for pursuing a shared agenda.

### **Globalization and the information revolution**

The EU as a whole meets most of its economic demand internally; only 10 per cent of its gross domestic product is traded outside the EU. It can weather the shocks of the global trading system, as could be seen by the limited impact of the East Asian financial crisis. Not so for most countries of Central and Eastern Europe, which have abruptly found themselves in trading systems where they are not yet able to compete. Globalization for these countries means opportunity, but it also means the risk of increasing insecurity and the certainty of increasing inequality, both within and between countries.

But globalization is not just about trade. It is also about the development of global financial markets and accelerating capital flows, over which the European economy has only a limited influence. It is also about the global knowledge economy, in which Western Europe competes with a fair degree of success — but this is not an economy in which anyone can afford to sit on their laurels. Enterprises across the continent are facing this challenge. The information revolution is changing both the problems and the solutions, and it is changing them for everyone, in all parts of the continent. The responses will vary, according to skills and capital and research capabilities, but the underlying issue is the same for all: social and economic progress depends heavily on successful participation in the knowledge economy.

That is why this volume of the report addresses the information revolution. The focus of the Regional Meeting is ILO activities, and the emerging knowledge economy lies at the heart of our activities. I believe it is important to use this opportunity to discuss how information and communications technologies are transforming the economic and social landscape. This is where the key questions are, which will determine success or failure in the future of social policy. The knowledge economy brings with it unparalleled opportunities and challenges. It brings new forms of production, new enterprises, new forms of education, new forms of organization.

The emergence of the knowledge economy is changing many of our assumptions, and in particular it is changing the world of work. Each revolution in production creates a new pattern of work, new rules, new winners, new losers, new institutions. The Industrial Revolution created the urban wage worker. Mass production in Henry Ford's factories led to a new type of employment, stable, regular and protected, which became the reference point for workers and employers. Now the knowledge economy is creating its own new forms of work. Networking gives rise to striking new economic and social phenomena, such as new types of firms which are built around knowledge, and in the process creates new employment relationships. In some occupations the distinction between employment and self-employment is becoming blurred. Not only firms but also workers are able to organize in new ways. Consumers, too, may put pressure on firms to respect environmental or social standards by gathering information on their practices instantly and worldwide. New forms of economic activity, such as e-commerce, become possible; many types of work become location-free, and can move readily to where skills and capabilities are available, resulting in an increase in teleworking.

We are at the beginning of this transformation, and cannot yet judge where it will end. But already many critical questions for social policy are emerging which need to be addressed. I believe that, without waiting for more information to become available, it is the ILO's responsibility to work with its constituents to stay at the forefront of progress in this area.

### **Reaching the people: Decent work in the new economic environment**

The present ILO agenda is summarized in the goal of decent work, integrating the four strategic objectives of the Organization: fundamental principles and rights at work, employment, social protection and social dialogue. The ways in which the activities of the ILO over the past five years have addressed this goal are summed up in Volume II of this report. In the new economic and social environment, decent work captures the aspirations of people — to have productive work in which their rights are respected, with security and protection, and with the ability to participate in the decisions which affect them.

All of these dimensions of decent work need attention in the knowledge economy. Some rights are easier to establish and maintain, because access to knowledge is easier. But other rights may be under threat if new technologies increase work intensity or surveil-

lance. Employment may be less secure, or existing systems of social protection may be ill-adapted to new forms of employment relationship. On the other hand, the opportunities for creating new jobs are enormous, provided the institutions, the infrastructure and the macro-economic policies are right, supporting enterprise creation and growth. Migration also takes on increasing importance; both migration of workers to where there is demand for information technology skills, and migration of work to countries and regions with the capabilities to deliver and communicate. New forms of social dialogue are also emerging, and trade unions and employers' organizations are starting to offer new services to their membership, or to organize and negotiate in different ways. Volume I of the report reviews some of the issues which are raised by these changes, and identifies a number of key questions on which tripartite debate can help us move forward. They include how to make the information society socially inclusive; how to handle the linked questions of skill development, migration and investment; how to help management adapt; how to improve labour market institutions; and how to increase the capabilities of governments, employers and unions.

For this to be a positive-sum game, we need to forge a common vision on how to address the challenges. There are potentially substantial gains for all in this process.

In this I look to you for guidance. This Meeting is the occasion to review the partnership between the ILO and its constituents in the region, assessing the value of the ILO's work and pointing to areas which need strengthening or adjusting. With an increasing number of countries adhering to a common vision of employment and social policy, we need to reflect together on the most effective role for the ILO. I believe that we can look to the future with a sense of purpose and a commitment that reflects our shared ideals and values in the circumstances of each member State of the region. Endorsing an agenda in which we all believe, and to which we are all committed, will be the catalyst for finding creative ways to accelerate the movement towards the goal of decent work for all.

Juan Somavia,  
Geneva, September 2000.





## Globalizing Europe: Decent work in the information economy

Work is changing in European societies — its content, how and where it is performed. The organization of production is changing too. The transformations are only in their early stages. They will be gradual in some locations; more rapid and more radical in others. But as the applications of information and communications technology (ICT) continue to work their way through the economy and society, the effect will be pervasive. There are risks ahead, to be sure, but there is also great promise for improving the livelihoods and lives of Europeans.

The changes are driven by the simultaneous occurrence of several factors: the convergence of technologies (i.e. multimedia); the declining cost and rapid increase in the speed of computing; common standards — without which there would be no pervasive effect; the increasing capacity (bandwidth) in telecommunications; and access to the Internet. The result is that information and communication are less bound by time and space. When these boundaries are breached, so are the constraints on location and activity: working time and leisure time become blurred; the division between the workplace and the home becomes less distinct; learning and working become related pursuits; boundaries within and between enterprises are less fixed; and the distinction between dependent employment and self-employment grows more fluid. A small “start-up” firm can have immediate global market access. And beyond the workplace, the changes are as profound. Access to learning is available from any location. Job search becomes vastly more efficient — and this, in itself, could reduce unemployment.

Volume I of the report explores how ICT is affecting some key areas of the European labour market and labour market institutions. A comprehensive treatment of the subject in the context of the world economy is the theme of the ILO’s forthcoming *World Employment Report 2001: Decent work in the information society*. A selective

approach has been taken in this volume, which begins by discussing ICT's effects on the structures and behaviours of economic activity, then looks at the emerging debate over labour migration associated with ICT's diffusion and the labour shortages it appears to create. The next section gives examples of how the challenges of change are being addressed by workers' and employers' organizations, and is followed by a description of the effects of ICT-led change on social protection. This volume concludes with some questions for discussion.

### **ICT and the organization of work and production**

The ICT industry “encompasses the manufacturing of telecommunications equipment, computers, semiconductors and other electronic equipment, the provision of telecommunications services, computer services and software. It is the world's most important and fastest-growing industry”.<sup>1</sup> The industry itself employs no more than 5 per cent of the workforce in any European country — with the notable exception of Sweden, where it accounts for more than 10 per cent of the workforce. But the sweeping changes in European economies and labour markets, both occurring now and foreseen for the future, arise mainly from the *use* of ICT in non-ICT industries.

#### ***Effects on employment***

Beyond the certainty that the technologies will induce change, there remains much uncertainty over future directions, since these depend on policies, institutions and social choice. But the market incentives created by ICT — cost savings, higher productivity, expanded markets and new markets, innovation and entrepreneurial opportunity — are likely to make its spread inexorable. It is clear from both the evidence and the logic of this technological change that new patterns of job destruction and job creation emerge through ICT's diffusion. Job creation from the diffusion of ICT arises from:

- lower transaction costs, which result in improved efficiency and higher productivity, allowing a higher potential growth rate with reduced inflationary pressure — the so-called “new economy”;
- the higher potential growth, which creates jobs in the “old economy”, both domestically and, for example, through trade linkages between Western and Eastern Europe;

---

<sup>1</sup> UNESCO: *World Communication and Information Report 1999-2000* (Paris, 1999), p. 25.

- growth in the ICT sector itself, which is the fastest-growing sector in the most developed countries, and where growth is apparently constrained only by a shortage of skills;
- the Internet and its great entrepreneurial potential. Pervasive “network effects” of the new technologies mean the emergence of new markets, the expansion of existing ones, new services and new occupations. What is most favourable to this source of job creation is the fact that barriers to entry are lower than in the pre-Internet world. Physical and financial capital are less important than knowledge or intellectual capital;
- the potential to increase European labour supply. ICT enables the location of work to be independent of its performance. Persons whose labour market participation has been blocked by competing demands on their time (or discrimination) — such as women with household responsibilities or the mobility-disabled — find their entrance into the labour force eased.

Job loss will also occur, however, for the following reasons:

- ICT has in a very short time made it possible for certain sectors of the economy to reduce considerably the number of workers they need to employ, for example, to perform routine administrative work. Moreover, while the technologies appear to favour entrepreneurialism and small-firm growth, there has been a concurrent wave of mergers among large enterprises in the telecommunications industry and across related industries as technologies converge. While total employment in European telecommunications has grown, this has not been without job loss. The net effect on employment and unemployment of ICT's diffusion will vary by country, region and sector of the economy. Estimating such effects is itself extremely hazardous, as it is usually not at all easy to separate out the impact of ICT from conjunctural factors (i.e. general expansion or contraction of economic activity);
- the relocation of jobs also becomes easier. In fact, since Europe combines ICT skills in the West and the East with substantial differences in labour and other costs, the diffusion of ICT may induce great changes in the European division of labour;
- occupations or activities that exist primarily to receive, process and impart information — middle management, for example — are now in competition with more direct electronic means of communication. ICT provides alternatives to any intermediary function, such as that of a travel agent, a bookseller or a stockbroker. Similarly, products that can be transmitted digitally do not require

physical sales outlets. Today, less than 5 per cent of all software is sold on-line.<sup>2</sup> This percentage will increase, however. The same is currently true for audio products (music), and will soon apply to video products. The electronic ability to bypass the “middleman” has been called “disintermediation”. This will continue to occur, but there is a counter-trend toward “re-intermediation” or “info-mediation” — functions that arise in order to assist consumers to navigate through ubiquitous information.

### Access

The employment effects of ICT are shaped by many factors, but the first of these is access, and access to what has been called the “new economy” remains an issue in Europe, as elsewhere. Optimism about the *potential* of ICT is most often justified, even if sometimes exaggerated. This should not, however, distract Europeans from the real possibility that ICT’s diffusion will widen inequality as areas remain excluded from the gains. The European Council, convinced of the opportunities of ICT, also acknowledges the negative side: “more than 15 million [in the EU] are still out of work ... unemployment imbalances remain endemic in parts of the Union. The services sector is underdeveloped, particularly in the areas of telecommunications and the Internet. There is a widening skills gap, particularly in information technology ...”.<sup>3</sup> These problems are even more critical in Central and Eastern Europe. A likely scenario is thus that widening gaps will accompany the gains from ICT diffusion.

Europe as a whole trails the United States in “connectivity” or Internet usage. There were 50 million Internet users at the end of 1999 in Europe, about one-third of the United States total. Yet, at least for the European Union countries, Internet usage is now growing more rapidly than in any other region of the world.<sup>4</sup> For example, at the end of 1999, there were an estimated 29 million Internet users at the workplace in Europe, or 28 per cent of the workforce. This number is forecast to grow to 77 million, or 70 per cent of the workforce, by 2004.<sup>5</sup>

---

<sup>2</sup> Estimate based on Organisation for Economic Co-operation and Development (OECD): *OECD Information Technology Outlook 2000: ICTs, e-commerce and the information economy*, (Paris, 2000), pp. 69-70.

<sup>3</sup> *Presidency Conclusions*, Lisbon European Council, 23-24 Mar. 2000, para. 4.

<sup>4</sup> European Commission: *Strategies for jobs in the Information Society*, document drawn up on the basis of COM 2000(48), [http://www.europa.eu.int/comm/dg05/soc-dial/info\\_soc/index\\_en.htm](http://www.europa.eu.int/comm/dg05/soc-dial/info_soc/index_en.htm).

<sup>5</sup> *ibid.*, p. 15.

Electronic commerce or e-commerce, scarcely heard of two years ago, had US\$17 billion in revenues at year-end 1999, forecast to double in 2000 and again in 2001. Connectivity varies widely across European countries. As measured by the number of PCs connected to the Internet per 1,000 population, Finland has the highest degree of connectivity in the EU, while Greece has the lowest. Among the Central and Eastern European countries (CEECs), Estonia and Slovenia rate the highest, surpassing some EU countries, whereas in Belarus and Ukraine, connectivity is exceedingly low — for Belarus, 800 times lower than in Finland.<sup>6</sup> Table 1 shows PC and Internet usage, enrolment in mathematics and computer science, the percentage of women enrolled in such courses, and the number of PCs per student enrolled in such courses. Figure 1 shows a strong correlation between the extent of connectivity and telecommunications costs.

### *Skills as a critical bottleneck*

Beyond technical, regulatory or other barriers to access lie several socio-economic factors. At present, Internet usage is stratified according to population group. Usage is concentrated among younger, more educated, higher-income males — women accounted for only 25 per cent of Internet users in Europe at the end of 1998.<sup>7</sup> Figure 2 shows a correlation between the number of Internet hosts and educational attainment, measured as school enrolment. A critical bottleneck to the expansion of ICT is the shortage of skills. ICT has created a vast demand for people with computer skills to develop and maintain on-line information systems and to provide the type of services — such as e-commerce — which these systems have brought into existence. One estimate predicts that “in-house” ICT jobs will grow from 9 million in 1998 to 12.3 million in 2002 in Europe, an annual rate of 8.1 per cent. At the same time, however, there were 500,000 unfilled vacancies in 1998, and the skills gap is expected to widen to 1.6 million in 2002, at an annual growth rate of 33.7 per cent.<sup>8</sup> The skills required for the new jobs typically differ quite substantially from those of workers made redundant. The extent to which the latter will be retrained and redeployed will depend a great deal on whether other workers are available who already have such training. In view of

---

<sup>6</sup> idem: *Status report on European telework: New methods of work 1999* (Sep. 1999), p. 95, available at <http://www.eto.org.uk/twork/tw99/index.htm>.

<sup>7</sup> European Commission: *Strategies*, op. cit.

<sup>8</sup> *European Information Technology Observatory 2000 (EITO 2000)*.

Table 1. Personal computers (PCs) and Internet users; university mathematics and computer science enrolment (mid-1990s); annual growth rate of such enrolment (early 1990s); share of women in such enrolment; number of PCs by number of students enrolled in mathematics or computer science courses (mid-1990s)

Country	PCs (per 100 inhabi- tants)	Internet users (per 100 inhabi- tants)	Enrolment (per 1,000 inhabi- tants)	Enrolment growth (% per year)	Female enrolment (%)	PCs/ enrolment
Albania	...	0	0.1	36.4	45.5	...
Armenia	...	0	0.4	...	...	...
Austria	22.0	6.6	2.2	3.7	21.5	99
Azerbaijan	...	0	...	...	...	...
Belarus	...	0	...	...	...	...
Belgium	21.0	7.7	1.0	52.6	22.9	204
Bosnia and Herzegovina	...	0	...	...	...	...
Bulgaria	3.0	0	0.4	4.2	55.3	68
Croatia	2.1	0.9	0.2	-1.8	29.6	135
Cyprus	...	...	1.0	0	...	...
Czech Republic	6.8	1.9	0.3	7.7	13.8	230
Denmark	36.0	17.9	1.1	-18.0	26.1	333
Estonia	0.7	0.3	0.4	5.7	44.4	17
Finland	28.0	30.5	2.8	4.6	18.4	100
France	20.0	4.7	...	...	...	...
Georgia	...	0	0.3	...	...	...
Germany	26.0	8.6	1.4	0	24.1	185
Greece	6.0	2.2	...	...	...	...
Hungary	4.4	1.0	0.4	49.2	20.1	114
Iceland	...	32.0	1.0	...	...	...
Ireland	15.0	7.2	0.8	5.1	32.3	181
Israel	...	9.6	1.2	22.0	34.7	...
Italy	12.0	3.7	0.9	1.0	43.1	138
Kazakhstan	...	...	0.4	...	...	...

Table 1. (continued)

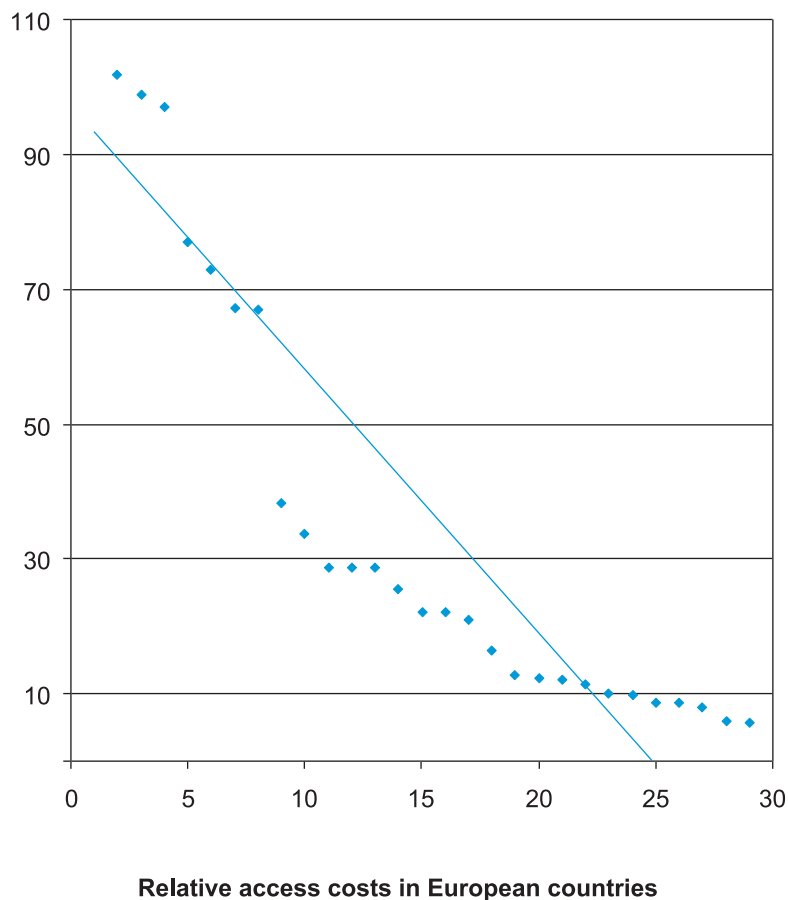
Country	PCs (per 100 inhabi- tants)	Internet users (per 100 inhabi- tants)	Enrolment (per 1,000 inhabi- tants)	Enrolment growth (% per year)	Female enrolment (%)	PCs/ enrolment
Kyrgyzstan	...	...	0.4	...	...	...
Latvia	0.8	1.6	1.9	63.2	31.2	4
Lithuania	0.6	0.3	0.5	...	...	13
Luxembourg	37.0	...	...	...	...	...
Moldova, Republic of	0.3	0	0.3	579.0	...	8
Netherlands	34.0	12.5	0.5	36.6	10.2	659
Norway	39.0	30.4	0.4	41.4	27.6	1 083
Poland	3.6	1.2	0.3	9.9	56.3	109
Portugal	13.0	2.5	1.3	34.3	46.2	100
Romania	0.5	0.2	0.6	...	57.8	10
Russian Federation	2.4	0.4	1.0	0	57.8	23
Slovakia	...	1.9	0.2	-0.5	22.5	...
Slovenia	4.8	5.0	0.1	-16.5	38.1	460
Spain	11.0	5.0	2.2	12.7	31.8	49
Sweden	36.0	29.0	1.8	9.1	27.3	197
Switzerland	44.0	13.8	0.4	0.4	14.4	1 073
The former Yugoslav Republic of Macedonia	...	0.1	0.4	-8.9	65.8	...
Turkey	...	...	0.5	19.5	33.0	...
Ukraine	0.6	0.1	...	...	...	...
United Kingdom	27.0	13.7	1.9	17.5	25.2	143

Note: ... = not available.

Sources: OECD: *OECD Information Technology Outlook 2000: ICTs, e-commerce and the information economy* (Paris, 2000), for Internet use (1998 data); UNESCO: *World Communication and Information Report 1999-2000* (Paris, 1999), for PC penetration and Internet use (1996 data); idem: *Statistical Yearbook 1998* (Paris, 1998), for enrolment (during the most recent academic year available between 1992-93 and 1996-97).

**Figure 1. Correlation of Internet hosts per 1,000 inhabitants by relative cost of access (Internet service provider and local telephone costs /GDP per capita)**

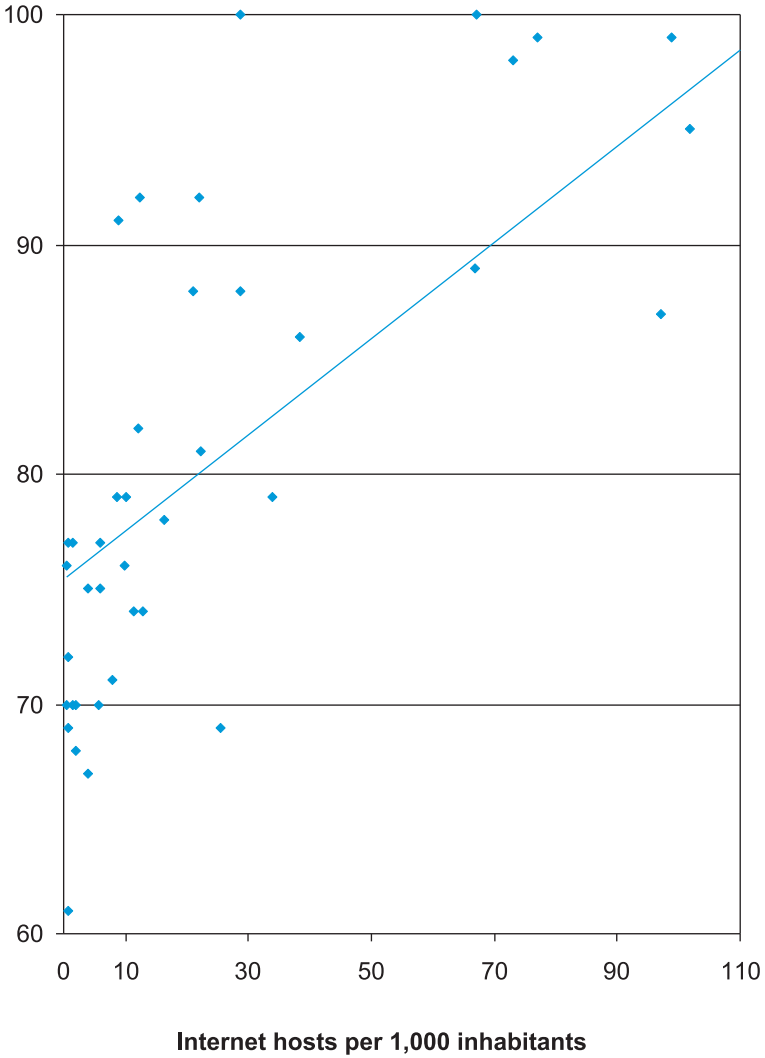
**Internet hosts**



Source: Correlations by ILO from data presented in United Nations Economic Commission for Europe (UN/ECE): *Information technology, globalization and development: Challenges and opportunities in the ECE region*, second draft (Geneva, UN/ECE, June 2000).

**Figure 2. Internet usage is correlated with the level of education**

**School enrolment (% of school-age population)  
in European countries**



Source: Correlations by ILO from data presented in UN/ECE, op. cit.

Europe's ageing population, the challenge of retraining is an especially important policy area to address.

There are several consequences of this skills gap:

- while high unemployment still prevails in some regions, skill shortages are emerging in areas enjoying the highest growth. Shortages slow investment in ICT and curb growth. One estimate for Western Europe claims that the skills gap has cost US\$106 billion in lost gross domestic product (GDP) since 1998, and will continue to do so in the absence of skills;<sup>9</sup>
- as skills are in short supply, training becomes a critical item on the policy agenda, as well as a priority for trade unions and employers — again, rendered more important still by the ageing of the workforce;
- as training is an investment that pays off in the long term, there is pressure from employers for immigration laws to be eased;
- with skills shortages widespread, migration might assist the receiving country, but result in a “brain drain” from the sending country;
- if skills shortages persist, moving jobs to where the skills are — relocation — may be viewed as increasingly attractive by firms.

Retraining and redeployment are more likely to occur in countries and in organizations where workers have a high degree of employment security. Employment protection legislation has the effect of making retraining and redeployment relatively more advantageous for the employer from a financial point of view. Thus, similar changes in technology may have quite different effects on the labour market of countries that have different levels of employment protection. Age and capacity to adapt to the new technology will also in some cases impose constraints, though in a tight labour market these problems are much less likely to prove insuperable. In a slack labour market, on the other hand, older, redundant workers are at much greater risk of becoming structurally unemployed.

### ***Implications of ICT for the organization of work and production***

ICT erodes the logic of how work came to be organized in the industrial world — large, hierarchical firms with discrete boundaries,

---

<sup>9</sup> C. Rhoads: “Germany faces storm over tech staffing”, in *Wall Street Journal* (New York), 7 Mar. 2000.

relatively stable job descriptions and employment security in normal (“typical”) full-time jobs. For example, one reason for the growth of many-tiered hierarchies in organizations was the existence of obstacles or inefficiencies in the flow of information and communication, flows that are of course vital to any organization. Because it was simply impossible at any one time for management to be able to communicate in a frequent, deep and interactive way with all employees, layers of hierarchy arose as physical channels through which information was received and repackaged down the line from top to bottom of the organization. The new technologies go far in removing these constraints of time and distance in the organization. In so doing, they undermine the need for the physical channels through which communications occurred. The trend toward the delayering or flattening of organizational hierarchies is likely to accelerate with ICT.

Already over half of the workforce in the wealthiest European countries is employed in work that consists primarily of information handling. The content of work itself is growing more knowledge-based and less physical. This is true not only of the new occupations that have arisen with ICT, such as that of website designer, but also of skills in which knowledge that was once directly applied to physical labour is now applied to software. Machinists, for example, are now likely to be computer specialists. Most of the value added in today’s automobile is software and electronic components.

There is much more knowledge embedded in the production of physical products — and there are many more “products” (i.e. services) sold on the market that consist of knowledge. Knowledge-based work changes work patterns, work organization and labour-management relations. Quality is now key to competitive advantage, and the source of that quality is the enterprise’s employees. Employees involved in knowledge production are empowered, as power devolves to those most responsible for competitive advantage. Since knowledge relies on access to information, this is another reason why hierarchies and narrow job boundaries are dysfunctional. Greater autonomy and teamwork are more suitable.

The “raw material” for knowledge workers is information, and the Internet has opened the floodgates of information, all of it immediate and around-the-clock. Perceptions of working time may now be changing. Since the “work tools” of the new shop floor — information and processing it — are not left behind at the workplace when the workday ends, the distinction between working time and leisure is blurred. And there is pressure for this blurring to continue. Globalization has increased competition for all businesses, but now that

time and space are not obstacles to competing, “time-to-market” has become the critical source of competitive advantage. Like the financial markets, the knowledge-producing global company can operate in a 24-hour day, seven-day week as a continuous global value chain. The “workplace” can be transferred across time zones and, unlike material work-in-progress, requires no physical channels of distribution. By implication, one country’s laws and regulations can become the weak link or the strong one in these global value chains, encouraging work to settle there, or the reverse. Although comprehensive data are hard to come by, the outsourcing of digital work from Western to Eastern Europe is already occurring, and is likely to increase. One can conceive of “sequential, electronic teamwork” shaping a more integrated division of labour across complementary time zones in the region.

### *The independence of location*

Much work requires no physical proximity, especially when the product is digital. There are an estimated 9 million teleworkers in the European Union at present.<sup>10</sup> The locational independence of work promises change in economic geography. It can be a solution to urban crowding and lead to more even spatial development. It can be a vehicle for integration into the world of work for the disabled and others who face constraints on physical mobility — or for women with family responsibilities, or those who face barriers of discrimination. It can allow work to occur where quality of life is deemed highest. It can enable work schedules to be customized to the individual who also has non-work-related demands on time. At the same time, telework is not free from the risk of exploitation, as discussed below.

The concept of telework also applies to “back offices” and call centres. By the end of 1998, there were 10,790 call centres in Western Europe. For years now, major enterprises have located data-handling functions in low-cost locations — Swissair’s accounting function in Bombay, for example. The guards who monitor the security cameras in Geneva’s banks are located in northern Africa. With the further diffusion of the Internet, the long-established trend toward outsourcing will accelerate.

For Europe, as elsewhere, one advantage of the independence of location is that work can be brought — electronically — to locations of high unemployment from locations of labour shortage. For

---

<sup>10</sup> European Commission: *Status report*, op. cit.

example, Manpower Inc. is a private temporary work agency that also acts as a labour market intermediary or “matchmaker”. It is working with the local authorities in North Wales, a region of high unemployment but also relatively high education levels, to reskill people to enable them to offer information and data-processing services for London’s banks.

### *The changing boundaries of the enterprise*

ICT breaks down boundaries within the enterprise; it also breaks down the boundaries of the enterprise itself and this leads to new forms of inter-enterprise relations. The Internet is causing a revolution in distribution channels, and its impact is similarly great on supply chains. A supply chain, for example, need no longer be structured in hierarchical tiers for the same reason that hierarchy within the enterprise is eroding. Dense, interactive communications can occur with all actual or potential suppliers at once. The result is an auction market in which firms can bid on price and design specifications. The significance of ICT in this context lies in its ability to sharply reduce transaction costs. This, in turn, makes it profitable for businesses to exploit even short-lived market opportunities. For example, “virtual factories” can arise in which a firm with a project contracts with other firms for specialized inputs for a finite duration.

### *A diverse world of work*

Opportunity, experimentation, instability in the marketplace, and the speed with which technologies are evolving are changing employment expectations. A rising number of young Europeans now seek self-employment rather than long-term careers in large enterprises.<sup>11</sup> Security in long-term, full-time employment with one enterprise has not disappeared — indeed, the data on job tenure over time show very little change — but the proportion of those to whom this situation applies is diminishing. Temporary work is on the rise, and the word “atypical” is becoming less appropriate to describe the range of new employment relations. The trend may well be in its infancy and is of course affected by norms, laws and institutions, but it is apparent nonetheless. For the European Union, “Member States’ labour laws based upon the standard model of full-time, workplace-based employment of indefinite duration can no longer respond

---

<sup>11</sup> Comments of Professor Luc Soete, Director, Maastricht Economic Research Institute on Innovation and Technology (MERIT), at the ILO, 14 June 2000.

entirely to the needs of a more knowledge-based production of goods and services.”<sup>12</sup> A more flexible, diverse world of work is emerging in Europe.

### *The ILO, technology and decent work*

The forthcoming *World Employment Report 2001* explores in depth the implications of ICT for decent work. However, this is only the latest in a long history of ILO publications and seminars on technological change and the chance for decent livelihoods. ICT is pervasive, affecting technological developments in different ways across different industries. This is why much of the research and tripartite discussion of technology's effects on employment have come out of the ILO's Sectoral Activities Programme or have been examined in the work of the Multinational Enterprises Programme.<sup>13</sup> With specific regard to ICT, for example, the Sectoral Activities Programme undertook substantial research on the labour market consequences of multimedia convergence. The work resulted in a tripartite Symposium on Multimedia Convergence in January 1997. More recently, in February-March 2000, the ILO held a tripartite Symposium on Information Technologies in the Media and Entertainment Industries: Their Impact on Employment, Working Conditions and Labour-management Relations. That impact will be substantial in view of the fact that information and entertainment are now flowing into homes, workplaces and schools at ever greater speed and using a wider variety of means.

At the ILO's Tripartite Meeting on the Human Resource Implications of Globalization and Restructuring in Commerce, held in October 1999, participants noted that e-commerce over the next decade would significantly restructure the industry. It was felt that many existing labour laws could equally apply to traditional and cyber-commerce, but that some provisions, such as those pertaining to hours of work, would prove difficult to enforce. In May 2000, the Sectoral Activities Department organized a major Tripartite Meeting on the Social and Labour Impact of Globalization in the Manufacture of Transport Equipment. Topics discussed included ICT's effects on the chang-

---

<sup>12</sup> European Commission: "Living and working in the Information Society: People first — Green Paper", document drawn up on the basis of COM(96)389 final, in *Bulletin of the European Union* (Brussels), Supplement 3/96, para. 33.

<sup>13</sup> See, for example, L. Dunn and H. Dunn: "Employment, working conditions and labour relations in offshore data service enterprises: Case studies of Barbados and Jamaica", Multinational Enterprises Programme, Working Paper No. 86 (Geneva, ILO, 1999).

ing content of work, and how the ubiquity of information and communication is radically altering supplier relations in the auto industry. Discussion of the impacts of ICT will become of greater relevance in each of the 22 groups of sectors covered by the ILO's Sectoral Activities Department.

In addition to addressing the implications of ICT in its publications and meetings, the ILO has been using the potential inherent in ICT to improve access to and delivery of skills training in the CEECs. One of its multimedia products is a CD-ROM providing interactive distance learning on the professional use of computers; this is currently being used in Bosnia and Herzegovina. Another ILO product is the Web-based International Network of Modular Training Providers, which is being introduced in the Russian Federation, Ukraine and Poland. The Internet site allows "one-stop" access to data and information on all training providers within each country.

## Labour migration

### *The demand for software specialists*

High rates of technological change mean a higher rate of skills obsolescence. One important consequence is the emergence of deficits in various segments of labour markets, partly on account of the lags in education, the failure of tradition-bound training systems, established labour institutions in welfare states and the stigma associated with certain occupations in more affluent societies. The United States has used immigration policy effectively (i.e. through H-1B visas) to acquire highly skilled foreign workers globally to plug skill deficits, largely for information technology (IT) workers. There is evidence of the same skill deficits in Europe but there is less readiness among the States to apply the same measures. More careful assessments of future requirements of European industries are not yet available, and certainly not at sufficiently disaggregated levels of skill to allow specification of shortages. These deficits are bound to arise not only in Western Europe but also in some of the more dynamic CEECs like Poland and Hungary, and even in some regions of larger States like the Russian Federation.

From the mid-1990s the European demand for software specialists expanded rapidly. This was only partly due to problems expected in the context of Y2K. The greater part seems to have originated from businesses moving from simpler data-bank solutions programmed in-house to more complex ones requiring professionals in their

planning, programming and implementation. This move is likely to continue as procurement and sales become linked to the Internet and companies integrate their information flows along the value chain. Consumer demand also rose steeply from the mid-1990s as a rapid succession of new microelectronic and therefore software-based communication devices came on the market. The liberalization of telecommunications services in the European Union (EU) played an important role in allowing these markets to grow. At the same time the all-encompassing shift from mechanical and electrical to electronic solutions gained momentum, resulting in significant demand for new software and its permanent upgrading.

Little is known about how this sudden surge in demand for software specialists was satisfied in European countries. It is unlikely there was a substantial pool of unemployed. Other sources are constituted by new graduates from universities and training courses, self-taught “computer kids” with on-the-job experience, and a certain, though very limited, amount of drift from vaguely related professions such as mathematics and physics. Apart from these the only likely source is immigration of professionals from other countries. Most European countries have regulations permitting the temporary employment of foreign nationals. They do not differentiate by skill level — the United Kingdom being an exception in ruling out the immigration of less-skilled workers — although they are often used primarily to allow entry for skilled personnel. However, all countries make highly specific exceptions. These regularly address, not immigration — even in a temporary sense — but the relatively free circulation of specialist staff normally resident elsewhere. The Netherlands, the United Kingdom and Austria also allow the admission of “keyworkers”, i.e. staff of various skill levels companies have been unable to hire locally. Switzerland and Austria maintain quotas for these categories of migrants; the other countries do not.<sup>14</sup>

The legal provisions in force in Europe make it next to impossible to identify highly educated immigration statistically. What limited evidence exists is always mixed up with other skill levels, but seems to indicate that the intake has been very low in recent times, i.e. only a few tens of thousands per year at best for the whole European Union.<sup>15</sup> In addition, those with skills pertaining to the “new economy” could

---

<sup>14</sup> See SOPEMI: *Trends in International Migration: Annual Report*, 1998 edition (Paris, OECD, 1998), pp. 187ff.

<sup>15</sup> See *ibid.*, p. 189, and *idem*, 1999 edition (Paris, OECD, 1999), p. 25.

only have been a fraction, and probably a small one, of the inflows. There may have been some further admissions of highly educated or skilled persons for permanent residence and as refugees, but no data are available. In other words, new immigrants have probably been playing a minimal role in supplying the burgeoning European software business with staff. In Germany, for example, in 1999, there were 14,994 computing specialists from other countries in wage- or salary-earning positions, 824 more than a year earlier (+5.8 per cent). They formed 4 per cent of the total wage and salary employment of computer specialists and, similarly to their German colleagues, 37 per cent had a university degree. A total of 6,751 of the foreign specialists were citizens of EU countries outside Germany, and 8,243 were from non-EU countries. Of the latter, 49.9 per cent were from European countries outside the Union.<sup>16</sup> It is unclear, though, how many of the 14,994 foreign nationals were actually born and raised in Germany or arrived as refugees or were intra-company transferees on a limited-time assignment.

There is some evidence that the way immigration is regulated in practice does take some account of the demand for highly educated personnel. Data on the educational composition of stocks of immigrants obtained from European Union Labour Force Surveys (LFS) were analysed for the period 1988-94.<sup>17</sup> "Highly educated" was defined as having completed tertiary education. Allowing for some notable exceptions, there is some suggestion that the share of the highly educated among immigrants may be relatively big in those EU countries where the same share among country nationals is relatively small and vice versa.<sup>18</sup> There is a background to this. In EU countries, the proportion of the highly educated among resident nationals tends to be small when the share of labour in agriculture is large, and the other way around. Countries like Greece, Portugal, Spain and Ireland had relatively large shares of their labour force in agriculture in 1990 and the proportion of the population that was highly educated was fairly small, whereas the opposite was true in Belgium, the Netherlands and Germany. As a result, the former were able to satisfy the

---

<sup>16</sup> W. Dostal: "Anwerbung kann Ausbildung nicht ersetzen", in *IAB Kurzbericht*, No. 3, 2000.

<sup>17</sup> A. Wolter: *Globalisierung der Beschäftigung: Multinationale Unternehmen als Kanal der Wanderung Höherqualifizierter innerhalb Europas* (Baden-Baden, Nomos, 1997).

<sup>18</sup> A. Gächter: "Emerging issues in the employment and protection of migrant workers in Europe", unpublished draft, Geneva, ILO, 2000.

demand for unskilled labour from their internal reserves in agriculture, while the demand for skilled labour was harder to meet locally. Hence, investors from abroad were likely to recruit managers and top engineers from countries with a more plentiful supply and to transfer them to operations in the more agricultural country, especially since highly educated people in the latter tend to be doctors and lawyers, not managers and engineers.

It follows that labour migration in the EU has had a certain compensatory role, making up for educational shortages in the receiving countries. The same is not true of the free-flow intra-EU migration, suggesting that European migration policy in practice, despite the lack of stated policy goals to this effect, has been tracking the economy's skill and education requirements.

Skill shortages were mostly offset by recruiting in the immediate non-EU neighbourhood. Migrant workers in the EU countries whose share of highly educated migrants increased between 1992 and 1994 were for the most part from non-EU Western European countries, such as Austria, Finland, Norway, Sweden and Switzerland. Among these nationalities the share of the highly educated went from 20.9 per cent in 1992 to 24.2 per cent in 1994. Among non-European groups there was a considerable upward shift among Middle Eastern nationals from 15.8 per cent in 1992 to 17.7 per cent in 1994, as was the case among African nationalities, going from 4.5 to 6 per cent. Among North and Central Americans there was also a slight increase of the highly educated from 20.2 per cent to 20.8 per cent, while it stagnated at 4.3 per cent among Central and Eastern Europeans. All other groups recorded decreases, including South Asia, East Asia, Oceania and South America.<sup>19</sup>

In Germany, a new ordinance was passed that permits the entry of 20,000 computing specialists from 1 August 2000. The ordinance contains a four-point list of examples: systems, Internet and network specialists; software, multimedia developers and programmers; developers of circuits and IT systems; and IT consulting specialists. The entries are intended to be spread out over a period of three years. German and EU nationals with the required skills are to be given precedence over new applicants. After 10,000 entries have been granted a review is to take place to assess the need to continue the programme. The programme is also open to new graduates of German university-level IT curricula. Meanwhile, normal entry procedures will

---

<sup>19</sup> Wolter, *op. cit.*, p. 44.

remain open to applicants and are, in fact, intended to be speeded up. Industry had been aiming for a package of 30,000 entry permits. The move by other industries to be granted a similar programme was resisted by the Government.

The United Kingdom Government, on 1 May 2000, proposed measures meant to alleviate skills shortages in a number of occupations, primarily “e-skills”, but also including health service workers, actuaries and occupational therapists. The supply is to be drawn from Asia, especially India, and from Eastern Europe. One measure under consideration is a pilot programme in autumn 2000 in which companies would be given powers to certify staff for United Kingdom work permits. This is meant to speed up approval procedures from three months to only one week. In addition, highly qualified individuals will be able to apply on their own behalf rather than through a company, and, as in France in 1998, restrictions on change-overs of high-level university students from temporary student visas to full employment permits will be eased and the permits’ duration stretched to five years from the current four.

In Israel, in June 2000, a proposal was circulated to admit 10,000 hi-tech workers on two-year visas. It included the suggestion that companies should contribute NIS50,000 (US\$12,200) per foreign employee to a technology education fund for Israelis.

Apart from India, it is Romania, the Russian Federation, Algeria and others that are looked to for supplies of highly skilled ICT workers, either university graduates or self-taught. In Romania, around 1,000 software professionals are thought to be leaving for other countries, mostly Canada, the United States and the EU member countries, each year. In April 2000, Germany and Ireland were negotiating bilateral labour agreements with Romania, and France and Spain were getting ready to do the same.<sup>20</sup> As a reaction to the March 2000 announcement in Germany that immigrants with high ICT skills would be sought, 2,730 applications were received by 17 May 2000, 504 of which were by Indians, 356 by Algerians, 221 by Bulgarians, 135 by Hungarians and 127 by Russians. These five nationalities totalled 1,343, nearly half the applications, but this does not mean that they were actually filed from these countries. Nonetheless, these numbers suggest that aside from India, some supply from areas bordering the EU would be forthcoming if the EU extended an invitation.

---

<sup>20</sup> M. Bran: “Comme en Inde, les informaticiens roumains sont une matière première”, in *Le Temps* (Geneva), 1 May 2000.

### *Competing for the highly skilled*

Note must be taken of whom Europe competes with for skilled immigrants and on what terms. In Canada, for instance, immigrants in the 1990s accounted for about one-third of the increase in employment among computer engineers, systems analysts and computer programmers. This attractiveness appears to stem at least in part from the favourable welcome given to immigrant professionals. This is reflected in the fact that estimated lifetime earnings of immigrant computer scientists are less than 1 per cent below those of Canadian-born colleagues, but it is also expressed in a legal framework favouring permanent settlement and family formation. Even so, Canada has also been losing highly educated workers, among them some of the immigrants. From 1994 to 1999, 49 per cent of Canadians aged 16 and over migrating to the United States held university degrees, while only 12 per cent of the population as a whole had completed university. Engineering, computer services and communications suffered the greatest losses, along with medicine, nursing and teaching. Nonetheless, Canada gained four university graduates from abroad for every one it lost to the United States.<sup>21</sup>

If Canada has experienced some throughput of skilled immigrants, this will be all the more likely for Europe. If a programme is for a fixed period only with no way of extending the stay, as is the case with the German “green card” programme, highly skilled immigrants may turn out to be viewing this only as a stepping stone to employment in a country offering a more favourable welcome. As a result, their stay may be much shorter than the period envisaged by the programme, and turnover may be high.

As shown above, although the idea of using immigration policy as a tool to compensate for skills shortages may be new in Europe, the practice is not. Immigration of the highly skilled and the highly educated from non-EU countries has, by default, long been linked to the internal availability of skills. What is new, then, is the concept of consciously trying to attract persons who will decide of their own free will to migrate to Europe rather than being asked to transfer there, and to enter into competition for them with other labour demand centres in the world, mainly the United States. This is a far cry

---

<sup>21</sup> D. Drew; S. Murray; J. Zhao: “Brain drain and brain gain: The migration of knowledge workers from and to Canada” in *Education Quarterly Review*, Vol 6, No. 3, 2000, [http://www.statcan.ca/english/indepth/81-003/feature/eq2000\\_v06n3\\_spr\\_a01\\_hi.htm](http://www.statcan.ca/english/indepth/81-003/feature/eq2000_v06n3_spr_a01_hi.htm) [visited on 14 Sep. 2000].

from the passive stance evident in merely furnishing admissions policies — and from the 1960s experience of competing within Europe for unskilled labour. What has occurred so far in Europe is a very gradual evolution of the inherited admissions policies and regulations towards the new situation.

The World Bank foresees the dawning of an age of free movement for the highly skilled: “The market for highly skilled workers will become even more globally integrated in the coming decades, and increasing returns to skilled people might continue to favour spatial concentration. Knowledge workers will cross borders freely, facilitating the circulation of technology, inducing the growth of technology-intensive industries ... and helping to create a truly global market-place of skills.”<sup>22</sup> It goes on to urge education at all levels in an effort to create a workforce that can attract or retain the skills required for economic development. The hint at “clustering” is quite clear: to be able to interact intensively and to exchange information is of particular importance and a source of satisfaction for knowledge workers. The opportunity to do so will tempt them to migrate, in the case of ICT, to the “Silicon Valleys” of the world. This is a further indication that Europe may not become the final destination of skilled migrants and may in fact keep losing highly skilled ICT workers to North America. Given that skills are the key input into the development of the software industry, this poses particular challenges for European migration policy.

### *East-West migration*

As one observer pointed out, “After the collapse of Communist regimes in the Eastern Bloc, their science sectors were relatively overstaffed yet underfinanced. The subsequent reduction of staff in these sectors occurred very quickly. It would appear that the majority of personnel who left the science sector remained within their country but sought employment in alternative work in the private sector”. It seems that only in the former Soviet Union did increased migration of scientific personnel occur as a result. Migrants to and from the Russian Federation have had a noticeably higher level of education than that of the general population. Similarly in Ukraine, 18 per cent of emigrants in 1996 had higher education, resulting in an estimated net loss of 11,000 highly educated people.<sup>23</sup>

<sup>22</sup> World Bank: *Entering the 21st Century: World Development Report 1999/2000* (New York, Oxford University Press, 2000), p. 39.

<sup>23</sup> J. Salt: *Current trends in international migration in Europe*, <http://www.coe.fr/dase/en/cohesion/action/publi/migrants/currentmig.htm> [visited on 14 Sep. 2000].

According to some data, it seems that most of the migration of the highly skilled from Eastern Europe took place in the first five years after 1989.<sup>24</sup> More particularly, the share of the highly educated in the emigration to Germany seems to have varied greatly between countries. Between 1992 and 1994, 10 per cent of Russian and Romanian emigrants to Germany were highly educated. This percentage probably exceeds the population average of these countries and yet is low in contrast to the 39 per cent recorded in the case of Bulgaria and 35 per cent in the case of Hungary. Other countries lay somewhere in between, Polish emigration being 19 per cent highly educated and Czech and Slovak 17 per cent. These differences may reflect the intentions and biases of German admission policies as well as spatial distance rather than being market driven. The exodus from the former Yugoslavia that occurred at the same time — over the composition of which the German authorities had very little control — contained only an 8 per cent share of highly educated immigrants.

Increasing investments by Western companies and their subcontracting activities in Central and Eastern Europe may be a factor militating against the emigration of skilled workers: “For Western firms this is a cheaper and more convenient substitute for migration.”<sup>25</sup> Aiming to achieve greater productivity, they pay above-average wages, allowing the workers to realize higher incomes without incurring the costs, uncertainties and discomforts of migration. Therefore, at the level of skilled and highly skilled workers, the convergence of wages and per capita incomes hoped for in the EU may be advancing faster than at the level of unskilled labour. In general, however, convergence is a very long-term and contingent project and too uncertain to make a policy factor.<sup>26</sup> Recent studies for the European Commission seem to expect that migrants from the CEECs, irrespective of their actual skills, will be working in lower-skilled occupations.<sup>27</sup>

---

<sup>24</sup> SOPEMI, 1999, op. cit., p. 271.

<sup>25</sup> A. Nesporova: “Education systems and labour mobility: The particularities of Eastern Europe”, in G. Biffi (ed.): *Migration, free trade and regional integration in Central and Eastern Europe* (Vienna, Staatsdruckerei, 1997), p. 293.

<sup>26</sup> *ibid.*, p. 294; see also H. Werner: “Regional economic integration and migration: The European case”, in M. Miller (ed.): “Strategies for immigration control: An international comparison”, in *Annals of the American Academy of Political and Social Science* (Thousand Oaks, California), Vol. 534, 1994, pp. 147-164.

<sup>27</sup> H. Brücker et al.: *The impact of Eastern enlargement on employment and labour markets in the EU Member States: Final Report*, Part A — Analysis (European Commission, 2000), [http://www.europa.eu.int/comm/dgs/employment\\_social/parta.pdf](http://www.europa.eu.int/comm/dgs/employment_social/parta.pdf) [visited on 20 Sep. 2000].

As it seems, most of the emigration from the former Communist countries occurred during the late 1980s and the early 1990s. Skilled as well as unskilled workers, in as far as they were available for migration, seem largely to have moved already, either with or without the required permits. As a result, enlargement of the EU, allowing nationals of the new Member States to make their stays legal, may primarily result in bringing to light the extent of past migration rather than triggering new flows.

### *Protection for migrant workers*

European societies have accumulated much experience in the integration of immigrants which would deserve to be documented and evaluated for best practice; this has only been done very partially. At the same time, the ILO's research has revealed widespread discrimination in the labour market against immigrants and minorities. Ways need to be devised to combine the experience and the findings productively in order to minimize social tensions while Europe experiences renewed immigration, most of which is "unwanted". Even regarding the small part that is accepted and the even smaller part that is invited, such as the highly educated ICT professionals, there is a conspicuous lack of vision and measures to forge a society that includes them. Europe is now in a position, or could easily put itself into the position, of consciously devising policies for their fruitful and beneficial integration into society rather than leaving it largely to chance as in the past. This will most likely become a necessity if immigrant specialists are to be retained in Europe.

### *Development concerns*

The migration of the highly educated is habitually linked to development concerns: less developed countries lose skills to the more developed ones. Countries might lose not only the use of those skills, but the cost of having invested in them. For example, the education costs to their home country of the Bulgarians who emigrated in the 1990s has been estimated at US\$50 billion.<sup>28</sup> This is clearly happening, but it is not a one-way deal. Through remittances and the return of the highly skilled at a later date, countries of emigration also stand to gain. The net effect depends greatly on how attractive it is to remit and to return — and on how attractive it is to leave in the first place. Among the highly skilled, the wish to emigrate frequently arises from

---

<sup>28</sup> Information from the Bulgarian Industrial Association.

a lack of professional or personal opportunities or from a sense of being in an insecure and possibly dangerous position.<sup>29</sup> The return migration of the highly skilled also appears to be linked not only to economic opportunities in the country of origin but to the political and social environment. Ireland, for instance, underwent rapid development along with significant emigration of the highly educated. They appear frequently to return to Ireland at a later stage in their careers. "Estimates based on 1991 Irish Census data reveal that no less than 30 per cent of the population aged over 40 years with third-level qualifications had resided outside the country for at least one year. The corresponding proportion for the adult population as a whole (i.e. 25 years of age and over) was 10 per cent. This represents a very high return rate (it is undoubtedly higher now) for the most educated emigrants ..." <sup>30</sup> Similar observations could be made for Taiwan, China, which has also had considerable rates of skilled emigration while developing rapidly and which is attracting return migrants in substantial numbers.

Almost all European countries benefited considerably from the remittances of emigrants during crucial phases of their economic development. Today France is the biggest recipient of workers' remittances in the world.<sup>31</sup> European countries have a vital interest in making sure newly emergent economies can benefit in the same way in order to diminish migration pressures as swiftly as possible. Globally, remittances run to US\$75 billion each year, 50 per cent more than total official development assistance.<sup>32</sup> The effects of remittances were for a long time poorly understood. One of the important conclusions from recent research is that "income and employment multipliers from remittances are quite high, and many of the indirect benefits do not accrue to migrant households themselves, but to others who provide them with goods and services that would not be consumed in the absence of international migration".<sup>33</sup> The increased consumption induces invest-

---

<sup>29</sup> R. Iredale: "The need to import skilled personnel: Factors favouring and hindering its international mobility", in *International Migration* (Geneva, IOM), Vol. 37, No. 1, 1999, Special issue: Migration and development, pp. 89-123.

<sup>30</sup> SOPEMI, 1999, op. cit., p. 156.

<sup>31</sup> J.E. Taylor: "The new economics of labour migration and the role of remittances in the migration process", in *International Migration*, op. cit., p. 68. Combining workers' remittances and compensation of employees, France received more from its residents abroad than any other country in 1994, largely because it received US\$3.7 billion in compensation of employees.

<sup>32</sup> World Bank, loc. cit.

<sup>33</sup> J.E. Taylor et al.: "International migration and community development", in *Population Index* (Princeton, Princeton University), Vol. 62, No. 3, 1996, p. 411.

ment, even if it is not the original remittance-receiving households that invest.<sup>34</sup> Indeed, lacking experience, they may not be the best placed to do so. The beneficial effects, however, are conditional on circumstances, and none of the many pessimistic country case studies on the effects of emigration “refer to countries that are models of sound macro-economic management or growth-oriented development policy”.<sup>35</sup> As with every other issue discussed in this volume, policy choices matter.

### The organization and representation of employers and workers

As in the area of migration, how European labour markets adjust to ICT will be determined by far more than market forces alone. The tradition of social dialogue in many European countries implies that the transformations now under way in the world of work will be shaped by negotiation and compromise. Nevertheless, the organization and representation of workers and employers conform to arrangements, institutions, laws and practices arising out of an earlier organization of work and production. It is thus likely that worker and employer organizations, and the interactions between them and with their constituents, will need to adapt to the new knowledge economy. As discussed below, ICT offers these organizations themselves new opportunities. ICT’s varied and as yet interdeterminate transformations of work will make social policies and institutions of dialogue even more necessary, if the problems of rising inequality, access to lifelong learning opportunities, and the continued need for social protection are to be addressed efficiently and fairly.

Preparing for the information society has been the subject of extensive policy dialogue and debate for much of the 1990s in the European Union.<sup>36</sup> In December 1999, the Commission launched

<sup>34</sup> Taylor: “The new economics ...”, op. cit., p. 65.

<sup>35</sup> J.E. Taylor et al.: “International migration and national development”, in *Population Index*, Vol. 62, No. 2, 1996, p. 203.

<sup>36</sup> At the special “Jobs Summit” in Luxembourg in November 1997, EU Heads of State and Government discussed the employment potential of ICT and requested the European Commission to study this. The result was a Commission report, *Job opportunities in the Information Society*, published in 1998 (COM (1998) 590 final). Thereafter, a High-Level Group was established in which EU Member States exchanged their own strategies for the Information Society. In 1999, in the context of the European Employment Strategy initiative, Member States included plans for the information society within their own national action plans. From the identification of job opportunities, the Commission has now moved further with a report on *Strategies for jobs in the Information Society*, published in 2000, and, finally, as of this writing, with the European Council’s Draft Action Plan of June 2000, “eEurope 2002: An Information Society for All”.

an initiative, “eEurope — An Information Society for All” which, by “creating a digitally literate Europe”, aims to bring “every citizen, home and school, every business and administration on-line and into the digital age”.<sup>37</sup> These and related goals were reiterated at a special meeting of the European Council in Lisbon in March 2000, the main objective of which was to “agree a new strategic goal ... in order to strengthen employment, economic reform and social cohesion as part of a knowledge-based economy”.<sup>38</sup> These initiatives have culminated in a Draft Action Plan, “eEurope 2002: An Information Society for All”, endorsed by the European Council at its meeting in Feira in June 2000. The action plan, both ambitious and comprehensive, follows up the Lisbon Summit aim for the EU to “become the most competitive and dynamic economy in the world” with a series of targets and timetables, such as ensuring that all schools in the EU have access to the Internet and to multi-media by the end of 2001.

Other European countries have also given priority to adapting to the information society. For example, in 1998, the Romanian Government launched its National Strategy for Informatization and Fast Implementation of the Information Society.<sup>39</sup> Estonia has taken a particularly active approach to linking schools to the Internet. The plan, called “Tiger Leap”, resulted in 25 per cent of schools being connected to the Internet in 1997, and more than 70 per cent of schools had direct access by May 2000. Estonia has more Internet hosts per 10,000 population than any other country in Central and Eastern Europe except Slovenia. Hungary inaugurated a similar plan, “School-Net”, in 1996.<sup>40</sup> It has also set up a Governmental Committee on Information and Telecommunication Technology and created a “National Informatics Strategy”, while Lithuania has established a Ministry of Communications and Informatics.<sup>41</sup>

Planning for the knowledge economy has also entered the strategies of worker and employer organizations. The discussion below provides illustrations of how the social partners are adjusting to change.

---

<sup>37</sup> European Commission: “eEurope: Prodi launches ‘eEurope’ initiative to accelerate Europe’s transformation into an Information Society”, press release, IP/99/953, Brussels, 8 Dec. 1999.

<sup>38</sup> *Presidency Conclusions*, Lisbon European Council, op. cit.

<sup>39</sup> European Commission: *Status report*, op. cit., p. 97.

<sup>40</sup> UNESCO, op. cit., pp. 232-233.

<sup>41</sup> *ibid.*, p. 239.

### *Improving access through training*

One of the key areas in which Europe's trade unions have sought to influence the policy debate involves the area of access, since unequal access will widen inequalities and lead to social exclusion. In the context of the European Commission's "eEurope Action Plan", the European Trade Union Confederation (ETUC), and the European branch of the newly formed Union Network International (UNI-Europa) have advanced trade union positions on needs. Some of the key elements of UNI-Europa's views are excerpted in the box. Many of these focus on the need to promote continuous learning for those who otherwise risk exclusion from the growth of the information society, such as older workers.

Addressing the apparent skills shortage is fundamental to growth, job creation and preventing inequality or marginalization. In Germany, a cooperative programme set up by IG Metall (the German metalworkers' trade union) and the information technology industry association within the context of the Alliance for Work (*Bündnis für Arbeit*) will address the structural problems underlying the skills shortage and make recommendations for change.<sup>42</sup> Meanwhile, the German vocational training system, designed by the social partners, has created several new occupational training categories over the past two years to generate skills in newly emerging core ICT skills.

#### **UNI-Europa contribution to an eEurope Action Plan**

The European branch of Union Network International (UNI-Europa) included the following among its proposals for incorporation in the European Commission's eEurope Action Plan:

- encourage industry, the social partners and the public authorities (primarily the education sector) to work together both to attract young people and women into ICT and to retain older employees;
- facilitate access and usage of the Internet through wide-ranging training and availability of high-speed and broadband Internet access everywhere in Europe;
- promote the idea of providing public access points to the Internet, for example in libraries, supermarkets, town halls and post offices;
- provide training and retraining in ICT to the unemployed and those working in industrial or service areas which will become obsolete through industrial change.

<sup>42</sup> U. Klotz: "The challenges of the New Economy", in *Gewerkschaftliche Monatshefte*, 10/1999.

As noted earlier, one approach to the skills shortage in Germany is to encourage labour migration through the granting of temporary work permits. Germany's trade unions played a pivotal role in ensuring that migration would not be seen as a substitute for training German workers. In May 2000, just as the "green card" migration scheme was agreed upon, it was also agreed in tripartite talks that industry would raise the number of ICT training slots from about 40,000 in 2000 to 60,000 in 2003, that internal training by enterprises would be stepped up to increase the Internet competence of existing staff, including older workers, and that efforts would be redoubled to interest young people in ICT jobs as well as increase the share of women in such jobs.

A major source of ICT-related employment growth is call centres, in which services or information are provided over the telephone. These are jobs in which a high proportion of women are employed. In a project backed by the European Commission, UNI-Europa is working with the Federation of European Direct Marketing (FEDMA) to develop common training standards and qualifications for people working in call centres. The project will also investigate the feasibility of providing training to these workers through computer-based distance learning.<sup>43</sup> In another example, Unison, the British public sector trade union, employs no fewer than 39 education officers. This is a high number of staff devoted to skill formation and a reflection of the priority the trade union has given training in the ICT economy.

### *Employability and lifelong learning*

Future prospects of more rapidly eroding workers' skills, coupled with shorter periods of job tenure with any one enterprise, with more frequent spells in the external labour market, underscore the need to ensure employability. The 88th Session of the International Labour Conference in June 2000 adopted a resolution concerning human resources training and development, in which the importance of employability and lifelong learning in a context of rapid technological change received great emphasis. So, too, did ICT's potential "to improve enormously people's access to quality education and training ... Countries should expand their investment in the infrastructure needed for use of ICT, in education and training hardware and software, and in the training of teachers and trainers". The resolution noted

---

<sup>43</sup> Union Network International (UNI): "Call centres qualification and training project", [http://www.union-network.org/unisite/events/campaigns/call\\_centres.htm](http://www.union-network.org/unisite/events/campaigns/call_centres.htm) (20 July 2000) [visited on 13 Sep. 2000].

further that: “Enterprises may provide ICT facilities or support schemes for workers for the use of ICT at home or in general, and to schools or other training providers, in order to promote the diffusion of ICT skills and access in society.”<sup>44</sup> Similar recommendations emerged from the ILO’s Joint Meeting on Lifelong Learning in the Twenty-first Century: The Changing Roles of Educational Personnel, held in April 2000. Among other points, the Meeting’s conclusions voiced strong support for the promotion of distance learning, with priority to be given to disadvantaged and rural areas.<sup>45</sup>

In the Netherlands, following a series of recommendations from the Economic and Social Council, collective bargaining agreements on employability are beginning to diffuse. For example, in the textile industry, the right to training for individual employees has been guaranteed. Enterprises devise a training schedule in consultation with the works council. Where this does not happen, every employee is nevertheless entitled to an average of four days of training per year devoted to the individual’s employability, whether within or outside the enterprise.<sup>46</sup>

The collective bargaining agreement at Akzo Nobel Netherlands holds employers and workers jointly responsible for employability. Employees have the right to seek advice on employability from an outside professional institute. The employer is obliged to consult once a year on a worker’s employability and to discuss employment possibilities in the outside labour market. Identifying the employability of older workers is an explicit feature of the agreement.<sup>47</sup>

Awareness of the importance of lifelong learning is increasing. In Ireland, the fourth national tripartite partnership agreement, Partnership 2000, promotes the concept of lifelong learning at the workplace.<sup>48</sup> In the EU’s Joint Committee on Telecommunications, the social partners consider that “the issue of lifelong learning is a necessary condition for the success of the European economy”, and that “the

---

<sup>44</sup> Resolution concerning human resources training and development, International Labour Conference, 88th Session, 2000, *Provisional Record*, No. 21, p. 62, <http://www.ilo.org/public/english/standards/relm/ilc/ilc88/com-humd.htm>.

<sup>45</sup> <http://www.ilo.org/public/english/dialogue/sector/techmeet/jmep2000/conclude.htm>.

<sup>46</sup> European Trade Union Institute (ETUI): *Collective bargaining in Europe 1998-1999* (Brussels, 2000).

<sup>47</sup> *ibid.*

<sup>48</sup> *ibid.*

main tasks of the education system are to teach people to learn how to learn, to leave them enthusiastic to continue learning and to teach them not to fear new technology".<sup>49</sup> The EU's Action Plan of June 2000 calls upon the social partners by the end of 2002 to: give all workers the chance to become digitally literate through lifelong learning; significantly increase IT training places and courses, both at work and in educational institutions; and promote a network of learning and training centres for demand-driven training and retraining of post-graduates.

The issue of employability and the changing nature of training needs are matters that have not fully diffused throughout Europe. For example, survey evidence shows that, of 12 bargaining subjects in Slovakia, the issue of learning and training is 11th, trailing behind concerns such as wages and working time.<sup>50</sup>

### Representation

Alongside new opportunities, the knowledge economy also brings new challenges, one of which is ensuring the strength of organizations of employers and workers. Diversity and the individualization of employment relations challenge trade unions to maintain membership levels and redefine their services. But it is not just the employment relationship that is diversifying — so, too, are enterprises. New types of enterprises are emerging; there has been an increase in start-ups, and a growing number of these exist only in cyberspace on the Web. As an official of the Swedish Employers' Confederation (SAF) recently observed: "New types of companies, such as those in information technology and information services and provision of data services, employ people who have little interest in belonging to a union. The employer, too, has little interest in belonging to an employers' organization."<sup>51</sup> This might be true in some instances, but it is surely not always so; there are also strategies being developed and deployed by trade unions and employers' organizations alike that specifically address the new needs of workers and employers in such industries. Since it is clear that there are such needs, moreover, these strategies are promising and are discussed further below.

---

<sup>49</sup> European Commission Joint Committee on Telecommunications: *Joint opinion on the European Commission Green Paper "Partnership for a new organization of work"*, 9 Feb. 2000.

<sup>50</sup> ETUI, op. cit.

<sup>51</sup> *Report of the ILO International Symposium on the Future of Employers' Organizations*, Geneva, ILO, Apr. 1999, p. 13.

For trade unions and employee representatives to be able to provide services to their constituents and to attract new ones, they also need to communicate with them. In March 1998, the then International Federation of Commercial, Clerical, Professional and Technical Employees (FIET) launched a campaign called “On-line Rights for On-line Workers”. Since then a number of collective agreements have been signed, for example with the German postal authority and with several of Digital’s European operations. National affiliates, such as the manufacturing, science, finance (MSF) union in the United Kingdom, have also adopted the campaign and have used FIET’s Model Electronic Facilities Agreement in their negotiations. The campaign focuses on: (1) ensuring that employees, trade unions and works councils have access to corporate e-mail systems, including teleworkers, who might otherwise be cut off from information flows; (2) the right of free access to the Internet (and corporate intranets) by employees, so that they may have access to trade union websites and other information of value to their rights; and (3) no electronic monitoring by the employer of employee e-mails or the websites visited by employees.

On 6 April 2000, UNI signed an agreement with the Spanish-based multinational enterprise in the telecommunications industry, Grupo Telefónica, whereby the enterprise undertakes to comply with the ILO Conventions on freedom of association and trade union rights, and “to recognize trade unions and to negotiate with them where they exist in their rapidly expanding global operations”. (The agreement also addresses the issue of access, and the parties commit themselves to telecommunication services that are both affordable and universally accessible.) The agreement comes as close to a truly global collective bargaining compact as any yet seen.<sup>52</sup>

The CEECs combine a skilled workforce with lower production costs than in the West — production costs of software are 40 per cent lower in Romania, for example<sup>53</sup> — and are thus increasingly attracting the relocation of digital work. While employment creation is a beneficial outcome, UNI is working with CEEC trade unions to ensure that organization rights of the workforce are guaranteed. Innovative means to address the problems of organization and representation are discussed further below.

---

<sup>52</sup> “Telefonica and UNI sign up on union rights”, press release on UNI-Europa Executive Committee Meeting, Lisbon, 13-14 Apr. 2000.

<sup>53</sup> Bran, *op. cit.*

### *Flexibility*

Competitive pressures and the flexibility possibilities inherent in ICT could give rise to the conclusion that collective, standardized solutions are no longer possible. This appears far from the truth, however. Evidence suggests that although some elements of standardization may no longer be possible, collective bargaining solutions are still available for greater enterprise and individual worker flexibility.<sup>54</sup> Negotiations over flexibility are nothing new, of course, but rise in importance as ICT diffuses through to changes in work organization and the aspirations of individual workers. A recent example is the national negotiations in the Netherlands Economic and Social Council in April 1999, the outcome of which was an opinion entitled: “Towards custom-tailored working conditions: Increasing options for employees with regard to the composition of working conditions”.<sup>55</sup> The opinion advocates that the parties to collective agreements include a “multiple-choice model” in their agreements, tailoring working conditions more closely to employee choice. A similar approach is being taken in Denmark,<sup>56</sup> where agreements have continued to hold the 37-hour work week as a standard, but have destandardized its application for different workers and over different time periods. Collective approaches to greater variety in working time and working conditions can be useful in preserving bargaining structures where enterprises are sometimes under pressure to opt out.

### *Teleworking*

Many collective agreements have concentrated on telework. While telework can improve worker welfare and offer a more efficient balance of work and family demands, there is a potential for deteriorating working conditions as well, such as worker isolation or exclusion from career opportunities, inferior contractual terms, or the unwanted conversion from employment status to self-employment, or, indeed, the rise of “self-exploitation” in a location — the home — where common regulations do not apply. While self-employment is often voluntary, this is not always the case. In some countries, such as Slovenia, homeworkers are treated as self-employed and are thus not covered by the basic labour law. Telework can thus expose gaps in

---

<sup>54</sup> M. Ozaki (ed.): *Negotiating flexibility. The role of the social partners and the State* (Geneva, ILO, 1999).

<sup>55</sup> ETUI, op. cit.

<sup>56</sup> *ibid.*

social protection. A new publication from the ILO nevertheless shows that there is a “high road” to teleworking in Europe and elsewhere, and shows how to get there.<sup>57</sup>

Most agreements on telework seek to ensure that it is purely voluntary and does not lead to erosion of terms and conditions of employment, and that teleworkers retain the right to return to the common workplace when they so desire. For example, the Danish Government issued guidelines on telework after consultations with the trade unions and employers’ organizations. The social partners have also prepared guidelines for telework in Ireland, while in Austria the trade unions have created standardized contracts for telework, and the issue has been taken up in collective agreements.<sup>58</sup>

The CEECs possess advantages for the location of digitized work, including a tradition of high educational standards in technical areas. Lower labour costs, of course, are another advantage. “Countries with a good supply of software specialists and with comparatively low wages are strong in the market as destination countries for software development” (for example, the Russian Federation, Bulgaria and Romania).<sup>59</sup> Labour-cost advantages raise concern in higher labour-cost countries given the ease with which digitized work can be relocated. Strengthening trade unions is one means of keeping wage differences from widening. To this end, trade unions and international trade secretariats, such as UNI, have given assistance to trade unions for the promotion of collective bargaining in the CEECs. At the present stage, most CEECs are thought to be about five to ten years behind the EU in the development of telework. In the context of high unemployment, moreover, the Polish trade unions are concerned that the use of telework could develop as the choice of the involuntarily self-employed, who would then be without social protection.<sup>60</sup>

MIRTI (Models of Industrial Relations in Telework Innovation) is a research project funded by the European Commission. The project has assembled an extensive database of case studies and collective bargaining agreements on telework. The EU’s Action Plan of June 2000 calls upon the social partners to support greater flexibility in the workplace, inter alia through teleworking, where appropriate, through agreements backed up by Member States, and to achieve these agreements by the end of 2000.

<sup>57</sup> See V. di Martino: *The high road to teleworking* (Geneva, ILO, forthcoming).

<sup>58</sup> European Commission: *Strategies for jobs ...*, op. cit., p. 19.

<sup>59</sup> idem.: *Status report ...*, op. cit, p. 49.

<sup>60</sup> ibid., p. 97.

### *Working conditions: Control, privacy and health issues*

New forms of work and working arrangements are often far more rewarding than the jobs they have replaced, offering greater autonomy within teams, creativity and a broader range of skills. This is not the only outcome, however. There are also several new concerns over the erosion of working conditions brought on by technological change. As noted earlier, ICT allows invasions of worker privacy to occur with relative ease. UNI's "On-line Rights for On-line Workers" campaign (and the Model Electronic Facilities Agreement) seeks to end employer surveillance of employee e-mails and Internet usage. Software is available that easily allows the sorting and mining of e-mails by any criteria. The campaign recognizes that limitations on the private use of e-mails and the Internet are appropriate. It also permits employer monitoring under certain circumstances, but provides that this should occur only in the presence of an employee representative.

Electronic surveillance may not only be invasive of privacy: computers also allow for strict, real-time control of worker performance. A measure of productivity in call centres, for example, is the length of each phone conversation, which is readily monitored. This is in itself a source of stress for the employee, irrespective of the mood and verbal behaviour of the client on the line. Conditions of work appear to vary greatly in call centres. While many provide a rewarding work environment, some do not. Scottish trade unions, in collaboration with the majority of call centre employers, have drafted a code of conduct. The intention is to extend a decent work environment throughout the industry in Scotland.

The International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers' Associations (IUF) cites an additional consequence of surveillance: "New technologies used for surveillance and control reduce the amount of social interaction between workers in the workplace and this undermines union activity, as well as workers' capacity to organize in non-unionized workplaces."<sup>61</sup> Stress is related to control over the pace of work and, in some instances, to the blurring of the distinction between hours of work and hours of leisure. One of the causes is "the difficulty, sometimes impossibility, of reconciling multiple conflicting demands ... Multiskilling, flexible work patterns in which individuals and teams

---

<sup>61</sup> International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers' Associations (IUF): "New technologies in the HRCT sector", <http://www.iuf.org/iuf/hrct/19%2D09.htm> [visited on 12 Sep. 2000].

have to rank and choose what to do first are not always stimulating".<sup>62</sup> While an earlier generation of technology-related health issues, for example visual display unit (VDU) usage, remains relevant to collective bargaining, stress-related health problems are just now emerging as a concern for which solutions need to be found. In the Netherlands, for example, trade unions are now taking up the issue of stress for future bargaining.<sup>63</sup>

### *ICT's potential for employers' and workers' organizations*

A visit to the website of the Business and Industry Advisory Committee to the OECD (BIAC) ([www.biac.org](http://www.biac.org)) gives the user access to the detailed policy views of employers in the world's most industrialized countries on just about every issue of significance in the social, economic, technological and political spheres. BIAC members have access to even more services, interactively designed to suit specific needs. The fact underscores a new reality of employers' organizations: the provision of information has become the most prioritized service they can offer members, and the Internet is becoming a powerful tool to deliver this service. When employer organizations become "infomediaries" or "search engines" for their members, they greatly leverage their own knowledge base and, in turn, custom-tailor information solutions for their constituents.

The International Organisation of Employers (IOE) is using the Internet to supplement and enhance its relationship to affiliated employers' organizations worldwide, as well as to reach non-members. The IOE's website provides easy access to employers' positions on a range of policy concerns, and the IOE itself is moving increasingly to electronic publications. Its major periodical is now on-line — *IOE.net*. An indication that the IOE's members are themselves increasingly connected to the Internet is the fact that IOE affiliates are more frequently accessing the publication electronically, rather than requesting that it be faxed to them. The IOE is frequently called upon by affiliates to provide advice and assistance on strategies for creating or boosting their on-line presence, and the sorts of services that connectivity makes it easier to deliver.<sup>64</sup>

<sup>62</sup> S. Pursey: "Social dynamics of the inter-active age", presentation to the Siemens/Deutsche Bank Workshop, Düsseldorf, 1 Apr. 2000, p. 3.

<sup>63</sup> ETUI, op. cit.

<sup>64</sup> Information on the IOE's activities from a telephone interview with the IOE's Brent Wilson, 17 Aug. 2000.

The advantages that accrue when employer organizations incorporate ICT in the redefinition and delivery of their services were highlighted at an ILO International Symposium on the Future of Employers' Organizations, held in 1999:

Knowledge needed by employers is one of the most valuable products an employers' organization can provide to members. With the development of information technology and the explosion of information, knowledge management is a new service area of great potential for employers' organizations. The challenge is to package the information in ways that make it immediately useful for enterprises. Employers' organizations should have a major advantage over others in being able to gather, analyse and package labour market information for members and potential members, including overseas investors. Cooperation with employers' organizations in other countries, and the use of their international network, can significantly add value to their information services<sup>65</sup>

– this is another example of how knowledge can be leveraged.

ICT's potential use as a tool conforms well to needs that have arisen for the most part independently of the technologies. For example, as one participant in the ILO Symposium noted: "The membership is no longer an amorphous mass; members have to be treated as individuals, and the relationship between each of them and the employers' organization requires to be carefully managed."<sup>66</sup> There is evidence that the Internet and intranets are enabling employers' organizations to respond to these new needs. For example, the Swedish Employers' Confederation (SAF) uses the networking potential inherent in ICT not only to leverage its own knowledge base in responding to the individual needs of members — such as the rising demand for knowledge management — but as a forecasting tool as well, to anticipate future needs of a diversified membership. When information provision becomes a principal service, of course, first access to it is a vital advantage. The New Zealand Employers' Federation (NZE) and the country's national Chamber of Commerce have formed a private company to provide complete business information service to the Government. Networking has enabled the French employers' organization, Movement of French Enterprises (MEDEF), to adopt a more anticipatory, proactive stance toward the Government's policy process, as well as to instil a more interactive style of working among its affiliates.

A key role of worker and employer organizations, of course, is involvement in the policy process on key issues affecting their mem-

---

<sup>65</sup> *Report of the ILO International Symposium ...*, op. cit., p. 28.

<sup>66</sup> *ibid.*, p. 21.

bers. One such issue is the expansion of e-commerce. The Bulgarian Employers' Federation was instrumental (and successful) in its advocacy of electronic signature rights legislation, an area of regulation that is a prerequisite for e-commerce to grow under conditions of transparency and security of transactions, and for the jobs associated with the new business models to be created.<sup>67</sup>

Using ICT to revitalize employers' and workers' organizations is highly feasible. It is also necessary since, as earlier passages in this report have shown, the Information Society brings with it a number of concerns over workers' rights and protection. While dramatic changes in the nature of work and the labour market may ensue, there is an arguably greater need for employee representation and dialogue with employers. In much of Europe, mechanisms for dialogue are both mandated at the enterprise level and implemented through collective bargaining at the industry level. Issues can thus be channelled through many existing structures of employee participation and negotiation.

There are challenges ahead, however. Employer organizations will need to confront issues relating to the new kinds of business alliances, as well as the likely growth of small, entrepreneurial firms. As for trade unions, working conditions and worker interests are now likely to be far more varied and difficult to address through a standardized approach to collective bargaining. Knowledge workers themselves may not have a close identification with trade unions — nor may the women workers who make up the overwhelming majority of the workforce for call centres. More direct labour-management communications in small units where work, moreover, is organized into semi-autonomous teams may make the “intermediary” role of trade unions or other forms of employee representation at the enterprise appear less necessary to workers. The separation of the location of work from the traditional workplace is an additional challenge to organization. This applies not only to individual teleworkers (whose status as “employee” may in any case become that of “self-employed”) but also to the relocation of organizational units away from urban areas to areas where traditions of trade unionism may be less strong.

In addition to the continued need for worker protection, there are new needs emerging in the diversified labour market that organizations of workers and employers could fulfil. As it does for employers' organizations, ICT offers possibilities of creating new services for trade

---

<sup>67</sup> Information on this initiative comes from the IOE. See note 64, *supra*.

unions as well. In fact, trade unions in Europe have been using computerized networks since the 1980s. The rise of the Internet now makes communications with members and non-members both more direct and more widespread. This has implications for the ability of trade unions to mobilize solidarity and support. A greater amount of timely information is now available at the bargaining table; solidarity with workers (“cyberstrikes”) can now be expressed. In fact, the “empowerment potential” inherent in the Internet increases trade unions’ leverage where, in the past, that leverage was constrained by absence of information. The webmaster of a French trade union website describes the change: “In a company such as Air France, which employs some 35,000 ground staff, in addition to 11,000 flight attendants, a trade union cannot expect anything better than a fortnightly publication interval using traditional media, whereas the Internet offers instant publication of new information.”<sup>68</sup>

ICT also offers individuals the chance of direct access to services from trade union or employer organization providers. This potential is leading some trade unions toward a more service-oriented approach to members. A health care trade union in the United Kingdom, the Royal College of Nursing (RCN), now meets the varied individual needs of its members through its own call centre. The centre operates 24 hours daily, mirroring round-the-clock nursing shifts. A key difference of the call-centre approach over more traditional means of serving members is that the requests for services are more numerous, more direct, and more varied — in short, more individually tailored services are provided, as in the market at large. Unison, the British public sector union, has also opened a call centre.<sup>69</sup>

The likelihood of more frequent job changes has also created the need for new services, e.g. information on salaries and terms and conditions, legal advice, the portability of health care coverage and pensions, and access to training. Trade unions have provided these services of labour market intermediation since the nineteenth century in some industries in which temporary work is the norm, as in the construction trades. As for employers’ organizations, the model could now be a reinvigorated form of trade unions’ “re-intermediation” or “infomediation” of ICT labour markets. Of course, the model is not

---

<sup>68</sup> C. Magne, webmaster of the site run by the French Democratic Confederation of Labour (CFDT) at Air France, quoted in “E-trade unions”, in *Connectis*, 29 June 2000, <http://www.ft.com/specials/spca62.htm> [visited on 14 Sep. 2000].

<sup>69</sup> A. Bibby: “Trade unions develop call centre operations”, <http://www.eclipse.co.uk/pens/bibby/unions.html> [visited on 13 Sep. 2000].

confined to worker organizations alone. Companies such as Manpower offer such intermediary services. It is even conceivable that the self-employed or the entrepreneur could benefit from services as much from workers' as employers' organizations. Access to training for trade union members and non-members alike — one of the services that trade unions have traditionally provided — is emerging as one of the key services. Distance learning possibilities created by trade unions can be targeted to particular population groups, such as older workers. This is not just hypothetical: a recent web search for a combination of “trade union” and “distance learning” yielded 1,260 entries.<sup>70</sup>

### **Social protection**

As the foregoing discussion suggests, ICT's effects are in some ways positive and in other ways negative from the point of view of workers and their families. Some of these effects are felt in areas where new needs for social protection may arise. It may first be noted, however, that social protection systems have themselves been pioneers in the use of ICT, notably for recording and storing data and for calculating and paying benefits. In this sense, ICT has undoubtedly served to increase the technical efficiency of the organizations responsible for administering social protection systems. This has made it possible to lower costs, and to provide faster and more accurate information to the people whom these systems serve.

### ***Job creation, job loss and unemployment***

As the diffusion of ICT and expectations of continued rapid technological change shape new patterns of job creation and job destruction, a key question is to what extent these same technological factors result in workers changing jobs more frequently and in a higher level of frictional unemployment. For example, frictional unemployment in Germany rose from a mere 0.6 per cent of the labour force in 1970 to an estimated 1.5 per cent in 1997, because of the much faster changes taking place in the economy and the labour market. Account also has to be taken of the way in which ICT improves the working not only of employment services but of the labour market as a whole. The quicker and wider dissemination of information about jobs may contribute to the reduction of frictional unemployment — though it is to be feared that those most in need of work may be least likely to have easy access to the Internet.

---

<sup>70</sup> On <http://www.google.com>, 18 Sep. 2000.

### *Employment status and social protection coverage*

ICT affects not only the content of jobs, but also employment status. As noted above, teleworking makes it easier for employers to have work done on a freelance or self-employed basis. Many of the jobs in question would in the past have had to be performed by employees working on company premises. In some countries, being freelance or self-employed may mean that the workers concerned enjoy little or no social protection. In others, it may mean that they have to pay all the contributions themselves and usually qualify only for a restricted range of benefits (often excluding, for example, unemployment and short-term sickness benefits). In practice, whatever the legislative position in the country concerned, compliance rates tend to be far lower among self-employed workers than among employees. The result is not only that those concerned lack social protection; social protection systems themselves may be financially undermined, particularly if the workers in question are relatively young and relatively well paid (as workers in this category typically pay more into the system than they take out, especially in the case of health insurance).

There may also be broader implications for the financing of social protection. Given the prospect that ICT may lead to an explosive growth in capital productivity, some commentators have suggested that a greater part of social security financing could come from capital income. This is sometimes conceived as a measure to help offset the tendency for an increasing percentage of income to accrue to the owners of capital. However, with globalization leading to ever greater capital mobility, national governments are finding it increasingly difficult even to maintain revenues from existing taxes on capital. It seems likely, therefore, that most social security financing will continue to come from labour income.

If the coverage of social protection systems is to be preserved and their financial integrity safeguarded, increased attention will have to be paid to cases where “self-employment” is really “employment”, although there is no doubt as to the controversial nature of this issue and the technical difficulties involved in adequately dealing with it. In the ILO’s recent Meeting of Experts on Workers in Situations Needing Protection, the experts’ common statement noted that: “the global phenomenon of transformation in the nature of work has resulted in situations in which the legal scope of the employment relationship (which determines whether or not workers are entitled to be protected by labour legislation) does not accord with the realities of working relationships”.<sup>71</sup>

---

<sup>71</sup> ILO: *Report of the Meeting of Experts on Workers in Situations Needing Protection*, MEWNP/2000/4(Rev.), Geneva, 15-19 May 2000.

Laws may in consequence need revision. The most promising approach may be to take account of the maximum percentage of a worker's annual income that is derived from working for any one company or client. It would then become relatively clear which cases correspond to traditional notions of self-employment, where that percentage would be low, and which are forms of disguised employment, where the percentage is likely to be in the range of 50-100 per cent. Such an approach would no doubt have to take account of the nature of the occupation: for example, although doctors, dentists and solicitors all typically have hundreds of different clients in the course of a year, an architect may work on only one or two different projects in the same period.

Teleworking facilitates the relocation of jobs to other countries where labour costs are lower and where workers may not enjoy the same levels of social protection. The relocation of jobs is of course nothing new, but ICT greatly extends its potential scope: as noted above, the locational independence of services is on the rise. As the tertiary sector typically accounts for more than half of a country's total employment, the potential for relocation could create substantial change in the division of labour within Europe, as elsewhere.

### ***Complementary social protection***

ICT appears favourable to the growth of entrepreneurialism and small firms, yet these enterprises tend to provide relatively little in the way of complementary social protection. This may simply be a reflection of the fact that they are new and relatively small. It may also indicate a lower awareness of the importance of pensions, health insurance, etc. among a workforce which is on average very young and often free of family commitments, and among employers who themselves tend to be relatively youthful. Such schemes are often introduced as a result of collective bargaining, so the absence of union representation may also be an important explanatory factor. In countries where statutory social provision is of a low level, many of the workers concerned may find themselves in mid-career facing a difficult situation caused by the absence of long-term benefit entitlements from their earlier working life.

If, as seems likely to be the case, ICT results in greater mobility between jobs and, for many workers, a greater tendency to work for more than one employer, then this will make it less feasible for workers to rely on their employer to fulfil their social protection needs, for example for pensions and health care. The advantage of national social security systems has always been that they place no obstacles

in the way of labour mobility and do not give rise to the problems of continuity in protection or transfer of entitlements that tend to arise with certain types of complementary systems, for example when workers change from one company health or pension scheme to another. However, the efficiency of national systems is a factor that is sometimes overlooked by those who argue in favour of private over public arrangements.

### ***ICT and the implementation of social protection legislation***

As noted above, ICT has already served to increase the efficiency of the organizations responsible for administering social protection systems. Advances in ICT can and should further improve not only the efficiency, but also the transparency, accessibility and scope of social security schemes. The technology provides tremendous opportunities to process data faster and more accurately, as regards the registration of employers and insured persons, the collection and recording of contributions, the calculation and payment of benefits, and the management of funds. It also makes it possible to conduct more rigorous monitoring of compliance. Improvements in compliance should take place as a result of the increased use of ICT not only by social security institutions, but also by employers: computerized payroll systems, formerly used only by large companies, are now becoming common, even in small enterprises.

However, ICT puts pressure on social security planners and managers to provide higher levels of service than before and to implement schemes of greater complexity. Legislative bodies feel less bound than in the past to keep systems simple and standardized. They are taking greater cognizance of the diversity of people's social protection needs, now that the administrative technology makes this feasible. As a result, the expected administrative economies may not necessarily materialize and schemes may well end up being more costly to manage, because of their growing complexity. Furthermore, high costs are involved in changing IT systems and time is needed to adapt staff resources to the new requirements. Consequently, it may take quite a few years to achieve the economies made possible by advances in ICT.

### ***ICT and safety and health***

ICT's advancement has a number of positive impacts on safety and health by providing better means for information exchange. However, it has also created new types of problems to be tackled, such as

musculoskeletal disorders and psychological stress. There is also a need for in-depth research into possible risks associated with the use of mobile telephony and display radiation emission.

As with “telemedicine”, recent developments in ICT also make safety and health information available to a wider audience through various databases, websites and CD-ROMs. All those who are involved in safety and health, including managers, experts and workers, can easily obtain information, such as chemical safety data sheets for hazardous chemicals, through computer networks and the Internet. There is an increasing amount of active dissemination and sharing of information on best safety practices, as well as alerts regarding new types of hazards, contributing to the improvement of safety and health. The ILO’s International Occupational Safety and Health Information Centre (CIS) and its national and collaborating centres have benefited from ICT in improving their information services.

Much has already been written about the potential dangers of prolonged work at computer terminals. These can be effectively minimized where measures are taken to ensure the provision of ergonomically designed furniture and equipment, to test the eyesight of operators and to enforce regular work breaks. The question is whether best practice is in fact observed by employers and workers, particularly in the small enterprises that are now mushrooming. As for people who work outside the employer’s premises, it seems almost certain that very many of them are doing so in conditions that are far from adequate in terms of health and safety. Home is a dangerous place — and home computers are probably no exception, at any rate for those who use them extensively in order to earn their living.

Teleworking can also have considerable benefits for workers’ health and well-being, to the extent that it obviates the stress involved in commuting and makes it possible to reside in areas with a superior environment and quality of life. Rather a different trend has been identified among insurance representatives and others whose jobs traditionally require a high degree of mobility and travel. It is less and less necessary for them to spend much, or indeed any, time in the office: wherever they are, their laptop computers allow them to record information and give them access to all the files that they may have to consult, while they can receive communications from clients and instructions from their supervisor on their mobile telephones. The end result is that they spend a higher proportion of their working time on the road and that they may be subject to high levels of stress. Employment injury schemes are observing an increasingly high incidence of traffic accidents involving people with this pattern of work.

Stress, in general, is probably the greatest potential problem resulting directly or indirectly from ICT. It is not only bad for the workers themselves, but it is bad for the enterprise and may ultimately impose considerable costs on social protection systems, in terms of health care expenditure, sickness benefits and, in extreme cases, disability benefits. Employers can do much to relieve the stress that may be associated with ICT, but this will happen only if they are aware of the productivity losses brought on by stress and of the kind of remedies that are effective. Many small employers may lack this knowledge and may not have ready access to appropriate information and guidance. Social protection systems — both insurance against occupational risks and health insurance schemes — therefore have an important role to play in helping to provide the necessary information. In so doing, they will perform a valuable service to employers and workers and at the same time prevent the development of health problems which could in the long run result in high benefit costs.

### Questions for discussion

1. The advance of information and communications technologies is irreversible; the resulting widening digital divide in Europe is not. What policies, particularly with respect to education systems, are necessary to ensure that access to the Information Society is socially inclusive?
2. The shortage of ICT-related skills is an inducement for people to move to where the work is, resulting in migration. Conversely, the technologies allow digital work to move to where people with the right skills are located. What are the appropriate linkages between migration, training and investment policies that will allow a complementary, socially and economically sound occupation pattern to emerge in Europe?
3. ICT is thought to lower barriers of entry to entrepreneurial start-ups. It can also improve the competitiveness of existing businesses and further job creation. For these salutary effects to occur, not only workers, but managers, too, need to adjust to the new technologies and opportunities. What can be done to strengthen the capacity of management to adapt?
4. ICT has the potential to enable greater inclusion of those currently excluded from participation in the economy and society. For example, older people face not only the risk of skill obsolescence, but isolation in general; women with family responsibilities find it difficult to balance these with labour market participa-

tion; and persons with mobility disabilities also face exclusion. How can initiatives target these population groups with a view to greater inclusion?

5. Existing labour market institutions — for example, systems of social security and protection, the various operations of labour ministries — both affect and are affected by the diffusion and impact of ICT. Are existing labour market institutions the most appropriate for adjusting to the new technologies? How can ICT be harnessed by governments to improve their services?
6. How are trade unions, employers, and their organizations negotiating the rules for the new economy? How are the actors themselves using ICT to attract new members, offer new services, or deliver them in new ways? Are there new practices which should be supported or developed?
7. How can the ILO best help its constituents in adjusting to the information economy? How can the ILO itself harness the new technologies in the delivery of its technical advisory services and the diffusion of its knowledge?