LABOUR/MANAGEMENT PROGRAMME

GLOBAL INFORMATION INFRASTRUCTURE -- GLOBAL INFORMATION SOCIETY

Report on a joint meeting of management and trade union experts
held under the Labour/Management Programme

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Paris 1996

42245

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JOINT MEETING OF MANAGEMENT AND TRADE UNION EXPERTS ON ‘GLOBAL INFORMATION INFRASTRUCTURE -- GLOBAL INFORMATION SOCIETY’

Report on a joint meeting of management and trade union experts held under the OECD Labour/Management Programme

(Paris, 3 June 1996)

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FOREWORD

Under the OECD Labour/Management Programme for 1996, a joint meeting of management and trade union experts on "Global Information Infrastructure -- Global Information Society" was held in Paris on 3 June 1996. The meeting was prepared in collaboration with the Business and Industry Advisory Committee to the OECD (BIAC) and the Trade Union Advisory Committee to the OECD (TUAC).

Below is the Discussion Paper for the meeting, along with an overall report of the discussions of the meeting of experts. Both papers were prepared by Mr. Georges Ferné, Principal Administrator in the Directorate for Science, Technology and Industry of the OECD.

THE OPINIONS EXPRESSED AND ARGUMENTS EMPLOYED IN THIS REPORT ARE THE RESPONSIBILITY OF THE AUTHOR AND DO NOT NECESSARILY REPRESENT THOSE OF THE OECD.
1. INTRODUCTION

It is generally recognised that a new Global Information Infrastructure (GII) is being set in place, to open the way for the emergence of a Global Information Society (GIS) that will affect all dimensions of activities, in the political, economic, social and cultural spheres. The deployment of the GII will be guided by the demands of individual, business and public sector users that will generate a host of market-driven opportunities for growth and job creation based on new applications and services. The private sector is thus expected to take the lead in the development and implementation of the GII, to the extent that its success, in social as well as economic terms, depends on its dynamism.

Although the situation differs from country to country, the OECD Member nations, and indeed countries outside the OECD area, are reshaping their policies and regulatory regimes in order to favour development of GII, speed its deployment and exploit the potential it offers in terms of investment, job creation and growth. Progress towards the development of the Global Information Infrastructure and transition towards the emerging Global Information Society is thus likely to accelerate. Investment by the private sector and public agencies in their own spheres are essential driving forces. Technological breakthroughs and development of networks have continued apace. Competition has driven down prices of services, though much progress remains to be accomplished in this domain, and has encouraged the development of new offerings. Applications, real and potential, in transactions involving businesses, households as well as public sector and governmental institutions have multiplied. The development of communications systems and networks (including in particular the Internet) have raised the "GII-GIS" to the consciousness of the mass consumer and business markets.

The key structural element underlying these developments is competition, aided by an exceptionally vigorous private sector. In telecommunications, monopolies that have dominated since their inception can no longer do so in a competitive environment, especially when that environment is transnational.

The development of the GII-GIS depends on international collaboration. The common vision is based on a small set of principles, first enunciated in this form at the G-7 Ministerial conference on the Global Information Society in Brussels in 1995, and to which most OECD countries have generally agreed:

- promoting dynamic competition;
- encouraging investment by the private sector;
- defining a flexible regulatory framework; and
- providing open access to networks for service and content providers.

In order to:

- ensure universal service;
- promote equality of opportunity;
- encourage diversity of content; and
- recognise the necessity of world-wide co-operation.
Although full and detailed consensus on some aspects of the implementation of these principles remains to be achieved by Member countries, e.g., the balance between the respective roles of the private sector and governments, it is clear that major adjustments need to be made by all concerned: businesses, the workforce, households and governments.

The vast majority of these questions have hitherto been viewed as domestic ones. This can no longer be the case: the networked global economy fosters powerful forms of solidarity and interdependence between countries. In this sense, there are fewer and fewer issues that remain purely domestic in scope.

It is along these lines that the following themes are presented for discussion.

2. **MAJOR ISSUES FOR BUSINESS**

More and more firms now try to explore and utilise as fully as possible the whole range of potential opportunities provided by new business approaches often based on Information and Communications Technology (ICT) tools. Revolutionary changes in the more advanced firms now affect processes and management at all levels. Smaller firms are also affected, since they can now aspire to tools that will make them as operational as larger ones in their respective niche markets. ICT applications, particularly network-based business operations, are introduced in conjunction with a process of structural adjustment within firms.

2.1  *From networking to process re-engineering*

Corporations that adopt ICT tools and establish networks can rapidly gain in sophistication and gradually change from passive buyers to active seekers of technological solutions and creators of imaginative applications, thus directly triggering similar developments by producers, suppliers and business partners. These new patterns of business behaviour provide for the establishment of various forms of strategic relationships with other firms and public agencies, with trust progressively built in to encourage more effective interaction at all appropriate levels, such as long-term procedural arrangements with customs or transporters, or the provision of access to inventories for suppliers. Global networks of co-operation emerge, with partnerships based on the use of common ICT platforms.

These new structures foster the development of electronic commerce based on digitisation technology (ranging from telexcopy and telephone to multimedia, and including various forms of structured information tools such as Electronic Data Interchange) driven by the increasing automation of business to business transactions. A more recent dynamic development results from increasing opportunities to offer goods and services on the global consumers market via networks such as the Internet.

While the initial investment required for the development and implementation of such networks may be high, operating costs are minimal. Closed networks of this type thus acquire a dynamism of their own. Once launched, they become very attractive to prospective partners, and each new member makes the network even more attractive.

Exploiting these opportunities leads firms to shift away from traditional hierarchies and adopt new forms of flat organisation. Offices are decentralised. Physical proximity to markets is no longer a decisive factor, as many functions can be relocated to achieve economies of scale and scope. Organisations become scattered, more flexible, and more mobile. “Virtual firms” emerge, in which different units work closely together on specific projects as if they were a single organisation. Simultaneously, partnerships...
and alliances become ever more flexible and mobile. These structural changes within industry are commonly referred to as "business process re-engineering" (BPR), a management technique developed in the United States which has attracted the interest of corporations around the world. BPR is a way of reorganising business around processes rather than functions, and leads to a more focused customer-driven organisation. It is often accompanied by contracting out of non-core activities.

BPR results in greater flexibility and reduction of fixed costs through the use of part-time, associate and outsourced workers whose involvement is flexible and temporary. Thus, companies can react more rapidly to external pressures and bring in skills as needed at critical times. Companies that undertake the BPR process become slimmer and flatter, with fewer layers of management. At the same time, firms that emerge in response to the demand in outsourced services reap the benefits of economies of scale.

2.2 ICT, production and markets

One development that directly affects the core processes within industry stems from the globalisation of markets. It is generally recognised that new forms of competition combine with changing patterns of demand to require products to be based on more cost-effective production processes, to be increasingly niche-oriented, and to address steadily expanding markets at international level. This prompts the adoption of flexible integrated manufacturing systems, diversification of suppliers of parts and components on a global basis, implementation of more and more sophisticated forms of customisation, and enrichment of the scope of products offered to customers.

Quality has become a global consideration even for smaller firms that must confront the challenge of international competition. Products must be steadily improved and adjusted, as must the provision of associated services such as maintenance. In addition, success will depend on the logistics of supply, delivery, and distribution. ICT is thus all the more attractive, as flexible technologies can help adjust to fluctuations in an increasingly unpredictable economic environment.

2.3 The strategic importance of SMEs

Small and medium-size enterprises (SMEs) have long played a vital role in industrial societies as major sources of employment and innovation. These functions can only be enhanced in the emerging information society. Smaller firms can be expected to contribute massively to the creation of new jobs for several reasons. First, the largest firms and groups will continue to undergo profound restructuring and may offer fewer jobs, while SMEs may provide shorter-term opportunities for expansion and job-creation. Second, large firms will abandon their non-core activities and will outsource a broadening range of services, thereby generating creation of new firms. Third, opportunities for new commercial activities in new market niches will multiply for SMEs at national and international levels. Finally, new information infrastructures will add a new dimension to the activities of SMEs, which can now more easily access foreign markets.

Another aspect of the importance of SMEs concerns their innovative capabilities. In the past, SMEs have demonstrated their ability to develop and launch new products that challenge the more conservative technological strategies of larger groups. In some ways, the GIS threatens this pioneering function because of the risk that many of the more technologically advanced SMEs may become captive of large groups, since a necessary condition of access to markets may be acceptance of a particular set of electronic commerce channels from which they would find it difficult to escape.
To safeguard, as much as possible, the autonomy of SMEs, there is a need for a seamless information infrastructure, based on principles of interoperability, which allows each firm to enter world trade competition.

2.4 One world

The expanding horizon of business activities due to the ease of telecommunications and electronic mail, greater international mobility and more awareness of developments abroad, along with a growing perception that the global market is within reach, is a further aspect that should be underlined. Changing perceptions in the business community of all countries are less visible than the activities of global firms, but may also have significant long-term repercussions.

This new outlook brings members of the world business community closer, encourages interaction and facilitates personal contacts. The appeal of electronic commerce is due not only to the various tools that have been developed to facilitate transactions but also to the possibility of exchanging “unstructured information” through electronic mail and the Internet. Business people are thus encouraged to ignore national or regional borders and engage in transnational exchanges and contacts that may lead to a sharing of ideas if not to the development of common strategies.

This development presents both opportunities and challenges. The opportunities include increased cross-fertilisation of activities and further expansion of trade. The challenges include the potential appeal of the global market at the expense of the domestic one: the benefits from industrial expansion, in terms of job creation and generation of revenues, might be diverted from the home country to more congenial economic and financial settings abroad. This might be of particular concern for developing countries. Efforts to promote and encourage endogenous industries might not bear the expected fruit if these industries are predominantly motivated by international considerations and opportunities. Yet, the global market orientation cannot be discouraged as it offers the promise of greater competitiveness.

Serious consideration needs to be given to these aspects, both to encourage firms to turn to the broader horizon and to provide at home the incentives that will encourage local investment, recruitment and training of staff, as well as diversification of activities.

Issues for Discussion:

What conditions should be met to foster appropriate private sector initiatives in the deployment of the GII? In particular, what changes might be required in the organisation and structures of the labour market, from the point of view of firms, in order to adjust to the new economic environment?

What lessons can be drawn from experiences in Business Process Re-engineering, regarding its impacts on competitiveness, employment and the emergence of new firms? What is the role of ICT tools in successful BPR processes?

What conditions should be met at domestic level to prevent re-location of firms abroad and provide an appropriate environment for new investment? In particular, should special measures be implemented to assist in the adaptation of SMEs?
3. MAJOR ISSUES FOR THE WORKFORCE

During the current transitional phase, one issue overshadows others. In many countries, unemployment has already risen and may continue to rise for many categories of workers and demographic groups, in particular the young and the middle-aged. Long-term unemployment of relatively high percentages of the labour force has become a serious concern for many governments, while remaining blue-collar, and increasingly white-collar, jobs continue to disappear. In other countries, it seems that unemployment could be circumscribed only through the creation of low-paid transitory jobs.

Part of the problem results from the fact that the new jobs that are created while the GII-GIS sets itself into place are much less visible than those that are destroyed by firms and organisations that seek major productivity gains through greater capital intensity and rising skills and competence. The new jobs are not yet created evenly throughout the business fabric and will not come to light in the aggregated data, that must account for a broad diversity of individual firms’ strategies, competitive situations and economic environments. There may also be “maturity” problems, i.e. it may be too early to bring to light job creation at the aggregate level. Furthermore, the new forms of high skill employment (teleworking, part-time, temporary, etc.) are not easily captured by traditional statistical tools, and will often take place in conjunction with the development of services that are not identified as such in the industrial classifications that are being used1. Yet it is generally expected that the deployment of the GII-GIS will generate a new virtuous circle at global level, characterised by expanding growth opportunities, business expansion, and expanding waves of job creation. In the meantime, ongoing changes in the work environment (for example, relocation of jobs, teleworking, new job hierarchies, indications of possible mismatches between the demand and supply of labour) have become the focus of increasing attention because they shed light on potential impacts that affect the workforce, and because they provide indications on the new patterns of job creation.

In the long term, job creation will depend on how economic actors introduce, apply, and exploit emerging opportunities, including those generated by the new ICT technology. The introduction of advanced communications systems can lead to a wide variety of business benefits, with accompanying changes in employment. The technology provides new foundations for relations between various organisations so that the new processes transcend the formal boundaries of the individual organisation. Cost savings are made owing to much reduced external transaction and co-ordination costs and to economies of scale and scope derived from the interworking of different organisations' advanced communications systems. It is these savings, coupled with the opening up of new business opportunities,

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1 A number of methodological difficulties arise when attempting to quantify the impact of ICT investment on employment. In particular, many non-ICT factors enter. There are, however, research results showing evidence of a positive correlation between ICT investment and employment performance. Analyses using OECD cross-country data suggest at least the coincidence of job creation, ICT investment and a tendency toward higher skills in the job mix (See OECD Workshops on the Economics of Information Societies, “Workshop No. 1”, Toronto, 28-29 June 1995). Data on nine Member countries for 1980-90 show a positive correlation between ICT capital intensity and the growth rate of employment. In broad economic terms, the United States is significantly higher in both variables than other countries. Other countries show little variation in ICT capital intensity. But when data are disaggregated into manufacturing and services, the latter shows a stronger correlation. The OECD economies show a strong trend towards services, the sector that absorbs the largest share of ICT investments and created the most employment throughout the period (OECD, Technology, Productivity and Job Creation, DSTI/IND/STP/ICCP(95)14/REV1). However, if the sectoral data is further disaggregated, the results are mixed. For example, within services, only trade and a basket of financial services and business services show a positive correlation. A number of empirical studies show that skill requirements are shifting, new professional skills are needed, different salary structures emerge, and new working styles based on ICT use, such as teleworking, draw increasing attention (OECD, Case Studies: Analytical Report, DSTI/ICCP(96)2). As they introduce ICT systems and skilled workers become a major component of their competitive advantage, firms tend to establish new employment practices.
that can create new products and markets. Then, because competitiveness does not necessarily require cutting staff costs, and because human capital is needed to develop and exploit new opportunities and markets, net job creation becomes possible.

At least four elements are important in determining whether or not organisations that implement advanced communications can also increase the quantity and quality of work. First, the advanced communications must offer potential business benefits in terms of higher labour productivity, greater efficiency, reduced co-ordination and transaction costs, flexibility, new and transformed inter-organisational business processes, and new types of activity, through process and product innovations and network benefits. Second, the organisation must adopt appropriate management strategies and organisational structures, plus strategies to develop human capital and promote an appropriate work force culture. Companies with a tradition of flexible adjustment to new technology are more likely to be able to exploit the performance-enhancing potential of advanced communications by becoming more competitive. Third, the economy must have growing sectoral demand and high income, where demand is generally price-sensitive. Fourth, the society must have appropriate legislation, rules, regulations, cultural norms, attitudes, etc. Mechanisms for assisting organisations, firms and individuals in the pursuit of these goals may be needed, from the provision of information services to the development of extension services directed at lagging industries and services.

The major concern is the difficulty of the transition and the need to develop measures and policies and to mobilise energies, in order to make it as painless, smooth and short as possible. The present challenge is to identify more precisely the sources of the present difficulties and create appropriate conditions to overcome them.

3.1 The relocation of jobs

The connection between jobs, specific locations, and established positions becomes more and more tenuous. Physical presence is often no longer necessary even to control machines. Many of the jobs that require processing data of any kind -- which means, in terms of the GIS, most jobs -- do not need to be filled on a full-time basis and can be located anywhere on the globe, regardless of where inputs and outputs are stored and used.

The availability of competent skills and of adequate public or private communication networks under favourable terms becomes the chief strategic consideration for locating jobs. Firms must invest in training to strengthen their competitive advantage in intangibles and will naturally prefer to focus on the young to maximise potential returns. Experience, which used to be a major asset in career planning, is correspondingly devalued.

These developments have a number of important consequences at national level. For example, governments will find it increasingly difficult to regulate conditions of work, and the relevant financial flows will become more and more difficult to define and trace. The increasing incidence of teleworking will also have consequences for life styles and the design and geographical location of homes.

3.2 The case of teleworking

The term teleworking covers a wide range of activities: it includes home teleworking, satellite centre working (where an office provides the means for a firm's employees to work at a distance from the firm), telecentre working (where an office is shared by several firms), distance group working, and teleservices provision as in telesecretariats, and telemaintenance.
At present, the main areas of potential application are in data and text processing; programming; writing, editing, translating and accounting; secretarial functions; marketing and training; and research and consultancy activities.

Teleworking offers *employers* lower overheads, particularly for office costs, access to new pools of skilled labour, and a more flexible work force. It offers *employees* greater flexibility for allocating their time and energy, lower housing and commuting costs, and a better quality of life. It offers society less congestion in major cities, less environmental damage, more flexible labour markets, and a better distribution of tax revenues to support public services and infrastructures.

However, labour unions are concerned by the fact that many lost jobs are being replaced by part-time or self-employed teleworkers, and they argue that teleworking should not become a means for firms to bypass good employment practice. In addition, teleworking and the rise of self-employed/part-time/contract working raises important questions for social welfare policies.

In the presence of educational and skills gaps, teleworking could well result in even more work flowing towards the better-educated and highly skilled and away from those who are not. The problem can be compounded by national welfare systems, which are largely founded on the premise that people work full-time or not at all. Individual companies and government policy makers need to prepare for the advent of teleworking. Individuals should be encouraged to retrain in teleworking in mind, and companies that are reducing their care work force should offer to prepare and equip redundant workers with at least some of the skills needed for telework outside the new core. For governments the key issues will be: i) how to adjust education and training programmes to a much more flexible and mobile work force; and ii) how to reframe the rules and conditions concerning social welfare payments. In general, the growth of teleworking would require significant changes in overall legislative and regulatory regimes relating to work conditions.

These developments may have a number of positive effects (such as the reduction of traffic congestion in urban areas), but also negative ones: communities will be disrupted and people may no longer feel they “belong” anywhere. At international level, these trends may generate a range of new concerns, in particular the potential for relocating work through teleworking in countries that offer better conditions for firms and adequately trained personnel.

### 3.3 New job hierarchies

To adjust to ICT-induced shifts in the relative importance and content of all functions, industrial groups and various types of organisations have been reassessing the relative importance of different jobs and experimenting with new forms of work organisation. They are adjusting salaries to reflect changes in responsibilities, with more adequate incentives and rewards for effectiveness and creativeness in applying the new instruments. They use innovative contractual arrangements to achieve greater flexibility in the relationships between employers and employees.

In the current move towards deregulation and privatisation, much attention has focused on private sector adjustments and the loss of entitlements for some of the work force, yet the same factors potentially affect the public sector, where agencies are confronted by the challenge of modernisation and thus of reorganisation.

Few would quarrel with the notion that some of the most important functions in public service are underpaid, insufficiently developed, and often have low status. Greater incentives may be required in many Member countries to encourage larger numbers of creative and highly skilled individuals to join
the ranks of schoolteachers, nurses or other paramedical professions, social workers, urban and rural planners, or community managers.

Current lacks in these respects are often due to the ways in which these activities are funded and structured, which often cannot be influenced by public demand. In many cases, they are still conducted without consideration of the possible need to diversify missions and modes of operation in the new techno-economic context. The functions, scope, and structures of these social professions, which represent an enormous potential for job creation and expansion of vital social services, need to be reassessed. Their social status also needs to be reconsidered, in light of their relevance to the quality of life and cohesion of communities and because their nature and importance should evolve as a result of the introduction of ICT tools.

3.4 Adjusting demand and supply of labour

It has become impossible to deny that the very nature of jobs is changing, owing to redeployment of offices and plants, outsourcing, creation of subsidiaries, evolving products for evolving market segments, work around the clock, new partnerships, use of electronic commerce, and creation of paperless environments, etc.

In the short run, mismatches may appear in the labour market. ICT investment is thought to enhance the labour demand in two ways. It creates jobs needed for proper handling of computers (computer engineers and software programmers). It also creates demand for high-skilled white-collar workers and low-skilled white-collar workers, as seen in changes in the job mix between the early 1980s and the early 1990s. Lower-skill jobs have already been affected in all countries, and there is mounting evidence of a potential excess of white-collar workers in private and public organisations. The new technologies require different skills. A study of the ranking of factors affecting hiring decisions in G-7 countries gave greatest importance to attitudes and communication skills, thereby underlining the value of relational abilities in today’s business environment.

In addition to the need to prepare staff for new tools, new tasks, and greater flexibility, various forms of training are needed to provide the profiles now required. It is difficult to evaluate the level of resources allocated to training in industry and services, particularly in the larger groups, owing to the profusion of local (i.e. not centrally controlled) initiatives. In some manufacturing and service firms, these may represent as much as 6 to 7 per cent of total sales. There is a great deal of interest in harnessing technologies such as multimedia or virtual reality for these training efforts, and new service providers have emerged in these areas. Many firms hesitate, however, to invest massively in such programmes, since advanced training enhances the potential mobility of staff. On the other hand, a number of training programmes that have been launched by governments are reported to have at best limited impact. It does seem, in this light, that closer co-operation between the private and public sectors in the design and implementation of training programmes might be more effective.

Issues for Discussion:

What is the view of labour unions on the pattern, modes of introduction and impacts of ICT in industry and services? What are the likely future impacts at domestic and global levels?

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2 Griliches, 1969.

How do the unions themselves prepare for these changes in organisational as well as policy terms?

What measures should be envisaged to anticipate some of these impacts and reduce their human and social costs?

What kind of training programs should be implemented? How should they be organised and how should responsibilities for them be distributed between public and private actors?

4. MAJOR ISSUES FOR GOVERNMENTS

Governments need to smooth the transition to the GIS and minimise the dangers involved while safeguarding the market-driven process that represents the major driving force of the GII-GIS. To this end, they must find effective ways to act as catalysts of change while adjusting their own operations to the opportunities and tools of the new socio-economic system. The major goals to be pursued include the promotion of a creative environment, adjusting to a new context, encouraging empowerment and growth, updating government modes of operation, enhancing the effectiveness of public services and their contribution to overall economic adaptation.

4.1 The promotion of a creative environment

With the realisation that societal and institutional adjustments now condition future gains in productivity and growth, the limitations of current economic policies have become increasingly apparent. Governments are called upon to set examples, provide incentives or to extend assistance to a diverse body of actors who are seeking to adjust to these changes. However, in the face of the many attendant uncertainties, they might be ill-advised, or indeed unable, to act directly on the normal play of market forces. Many of the issues concern the international as well as the national level.

In this uncertain context, governments need to encourage processes that will generate new wealth through the full range of potentially productive activities. They also need to create conditions that foster cooperation and synergies for channelling social forces towards self-improvement, adaptation, and the construction of a better future. One of their primary goals must be a creative and dynamic environment for entrepreneurship. Thus, the broad agenda for government action is to facilitate social adjustments, safeguard social cohesion, and operate more effectively.

As the development of the GII-GIS draws attention to inadequacies in national legal and regulatory policies, governments and concerned public and private actors will need to engage in joint exploration of the issues involved, often at international level, in order to find and implement solutions through consensus. A broad range of policy orientations and practices may require revision, owing to irreversible trends generated by the practical demands of producers and users.

For example, traditional government control and treatment of transactions is less effective in an information society which can conduct business globally -- from any location, via any location, and to any location --- in electronic form. Because networks are the basis of global markets, where any consumer can shop world-wide for the best information and the best price, they challenge countries’ traditional price-setting and fiscal mechanisms. These world-wide shopping opportunities extend to services such as travel, insurance or banking, thus establishing de facto liberalisation. Differences in national regulatory approaches become less tenable, in areas ranging from telecommunications to
environmental protection, because firms no longer need to be physically present in the markets they wish
to penetrate. Countries slow to provide their firms and citizens with adequate access to the networks, or
where regulations are considered to be more drastic than abroad, may suffer from the decline of
investments - and therefore of jobs - that will shift to other countries. To prevent potential friction, and to
safeguard progress achieved to-date in areas such as law enforcement, market competition or
environmental protection, new international understandings might be needed to provide suitable
regulatory frameworks at international level.

The deployment of the GII and the emergence of the GIS have in fact generated issues that can only be
addressed at international level: in addition to regulatory reform in the communications sector, one of the
areas of growing international concern is the perceived threat of excessive concentration in multimedia.
Recent mergers between multimedia and telecommunications firms are important early signals of what
can be expected in terms of multimedia distribution ventures in the near future. These new configurations
will thus pull together capabilities -- ranging from existing “information warehouses” to extensive optical
fibre networks -- that are vital for the development and delivery of an increasing variety of multimedia
services.

Current regulations limiting cross-media ownership will have to be revised in light of the convergence of
the telecommunications, computer, and media industries, as new possibilities are opened up for
production and distribution of multimedia content and liberalisation opens up the markets to new actors.
Such legislation will need to strike a balance between safeguarding competition and pluralism in the
media and recognising the industry’s need to mobilise effectively all the resources required in a fierce
global competition context.

4.2 Encouraging Empowerment and growth

Individual initiatives within communities, groups, and organisations are an essential part of the
innovative and creative changes needed in the transition to the GIS. Empowerment -- the redistribution
of decision-making power in society and the economy -- has thus become a crucial condition for future
growth, productivity gains, and job creation.

Governments can facilitate this adaptation process and encourage, throughout the transition, synergies
resulting from the complementary inputs of all actors in the economic and social spheres. New forces
will eventually emerge to clarify where and how policy debates will take place in the GIS. Much of the
effort must be made by the social groups concerned -- political parties, trade unions, corporate groupings,
non-government organisations, etc. -- to adapt to the new conditions. In the meantime, traditional
representative organisations in the private and public sectors, many of which provided the institutional
base for developing policies and establishing consensus on key issues, now seem to be challenged owing
to the emergence of new channels of communication.

In many cases, the search for consensus on government policies will need to be much broader than in the
past to identify and remove obstacles of a regulatory, systemic, legal, or technical nature that might affect
future growth prospects. Governments have in fact already begun to explore the need for adjustments to
the traditional legislative framework under which business operate nationally and internationally.
Emerging policy issues in this respect include defining the new legal system and regulatory framework
for international electronic contracts and exchanges of communication, as well as concerns such as
confidentiality. They also extend to the technical sphere, since interoperability of ICT standards is an
essential condition for the development and integration of network policy.
Electronic forms of communication evolve so quickly that taking stock of the relevance of existing legislation, practice, and government regulatory policies may not suffice. New mechanisms may have to be established for anticipating future problems. In other words, in many areas, it will be necessary to establish flexible regulatory processes rather than regulatory rules that might soon become irrelevant, if not detrimental. The participation in these processes of existing or future national or international groups and associations that make heavy use of the new communications channels should be encouraged.

4.3 Enhancing the effectiveness of public services

The governments of Member countries cannot ignore the rapid dissemination of ICT-based tools throughout society and their impact on information-processing activities and transactions. Many public agencies have already adopted new electronic formats and adjusted their internal operations and relations with their constituents. Many more, however, still lag behind developments in the society and the economy.

In addition to the fact that it would be difficult for public bodies to continue to deal with their constituencies using procedures far removed from practices that become commonplace in the business environment, computerisation of governments is necessary for two reasons. First, because computerisation provides a strategy to resolve the dilemma all cost-conscious governments face today when they need to reduce public expenditures while safeguarding high-quality standards in public services. Second, because computerisation of public services will reinforce the diffusion and adoption of ICT throughout the economy and society and thus help in achieving competitive gains at national level.

The quality of many public services has declined as governments, under increasing budgetary constraints, had to reduce expenditures. Information infrastructures and ICT-based services provide, as they do in the private sector, an opportunity to decrease the financial burden imposed on budgets by public services and activities. All sectors of responsibility of public agencies are concerned, including health-care services and education at all levels, defence, and a broad range of information services to enterprises and individuals. Government operations, to quote a simple example, involve each year in most countries billions of money transfers that could be achieved more effectively at lower cost by electronic means.

In addition, using information infrastructures to cut costs can help remove social and regional inequalities by improving access to information and services that traditionally are economically or geographically out of reach. These infrastructures can support existing institutional and organisational structures and encourage decentralisation, so that zones on the periphery or in rural areas benefit both from better contact with the centre and more autonomy. In this respect, universal service is essential for removing obstacles that might otherwise restrict such access.

ICT can thus help improve the quality of public services and reduce the costs associated with their management and delivery, improve links between citizens and administrations, thus leading to more participation and transparency, and help respond to individual needs. Special attention needs to be devoted to key sectors, such as education and health care, which, in view of their rising costs and the prospective benefits of ICT applications, are obvious candidates for major computerisation efforts. There are, however, organisational obstacles as well, such as inflexible work habits in both areas, scepticism, institutional obstacles, etc., which need to be overcome. Existing regulations can also act as a brake on diffusion.

These examples illustrate the importance of the computerisation of public services for the economic and social fabric. This process is likely to influence the adoption of the new technologies throughout society: the computerisation of government services (customs, fiscal operations, social security, land-use
management, city planning, etc.) will normally lead to the establishment of telecommunications networks with various public and private partners. The longer-term goal might be the establishment of a paperless environment. In some Member countries, this has been the trend in customs, for example, where large productivity gains have been achieved while coping efficiently with expanding trade activities. More generally, the computerisation of government services can provide the impetus for computerisation in private firms, for which adoption will be less costly and the perceived risks of adoption significantly lower. However, impacts on employment -- in terms of job creation and job losses, re-location, changing hierarchies, new salaries scales, etc. -- may prove to be at least as significant within the public service than in the private sector.

**Issues for Discussion:**

- What role, in which areas and how could governments best fill their functions as facilitators of change towards the GII-GIS? Are there areas where governments should extend more direct assistance to certain firms or groups for their transition and adaptation?

- How could governments achieve a smoother transition during the process of deregulation and computerisation of public services? What would be the most appropriate priorities for the computerisation of public services and activities? Should there be greater co-ordination with the private sector in this respect, and if so what would be the most appropriate procedures?

- What should be the main goals to be pursued in the reform of regulatory frameworks at national and international levels? How could consensus be sought on the major changes to be implemented?

**5. MAJOR ISSUES FOR HOUSEHOLDS**

The emergence of the GII-GIS entails a number of new problems for individuals and households. In order to be able to take full advantage of the new opportunities, broad access to the available networks is needed. The development of electronic commerce at global scale may require new forms of consumer protection. Finally, while the GIS generates opportunities to reinforce democratic processes, the dangers of exclusion are increased by the prospect of a widening gap between the information «haves» and «have nots».

### 5.1 Provision of access to the networks and universal service

The question of provision of access to the networks results from the fact that optimal quality of services in the new multimedia environment will require capacity to transfer rapidly large volumes of information of all kinds (text as well as picture, video and sound). The debate about the more appropriate technological solutions must take into account two factors: on the economic side, the costs of deploying the infrastructure and of its maintenance; from the social perspective, the new definitions of universal service that may be required.

These considerations underline the current debate about the definition of the “delivery point” where the optical fibre should terminate. The most frequently mentioned options include:
• "fibre to the curb" (FTTC) - the network stops outside the customer premises;
• "fibre to the home" (FTTH) - the network extends to individual homes;
• "fibre to the building" (FTTB) - the network extends to the building but not inside the building;
• "fibre to the office" (FTTO) - the network extends to individual offices.

The variety of solutions that can be considered is in fact broader than these general categories would imply since there is a great diversity of types of equipment and network operating approaches. This is obvious at the international level, where different countries have made different choices in laying down and operating their networks. But even at the national level there may be a great deal of heterogeneity in the balance between the old and the new or even within a single technological approach: the copper-based network in a given country may often be based, for example, on a patchwork of material and designs with diverse performance and capabilities when confronted with the requirements of the multimedia age for rapid transit of massive volumes of data. Different approaches to mobile telephony are also competing world-wide. The increasingly broad options available to users for their choice of Customer Premises Equipment and private networking technologies will also diminish the homogeneity of the physical global information infrastructure.

A growing demand for mass information transmission capabilities would of course increase the attractiveness of the new optical media for investors. In this respect, a much-debated policy issue relates to the role governments might play through a variety of measures ranging from re-formulation of procurement requirements to investments in the improved delivery of public services in order to promote demand for the new services. Another important factor is related to the regulatory environment and the extent to which new universal service definitions will constrain operators and service providers. In this respect, achieving consensus on the nature of the services in question is at least as important as overcoming some of the current technological challenges.

5.2 New Forms of Consumer Protection

The development of network-based transactions prompts many concerns for users. Preoccupations with privacy protection, security or the safety of payment systems, for example, will have to be taken into account to develop systems that will generate trust in the new electronic processes being offered to interact with other users, with public agencies or to shop for goods and services.

Globalisation is being encouraged by networks such as the Internet to an extent that may significantly lower the level of consumer protection accepted today in Member countries. Services offered on such networks do not necessarily provide explicit information with regard to their geographical origins and may not be subject to appropriate regulations intended to protect consumers. Acquiring an insurance policy on the Web, for example, may turn out to be risky. Litigation might also be difficult when a product is not delivered in time or fails to meet expected standards.

The protection of consumers involved in international transactions thus becomes a major issue, that may affect negatively the development of network usage for electronic commerce. The failure to provide adequate guarantees in this respect might distort competition because suspicious clients would tend to favour the better known and more prominent firms and brands. On the other hand, the rapid development of effective and transparent rules in this respect would facilitate access of new actors and SMEs to the broad range of market opportunities generated by the networks.
5.3 Fostering social cohesion and democracy

Problems such as joblessness, working patterns, inadequate public understanding of the GIS, lack of balance among communities, economic and social exclusion or failure to adapt law enforcement and democratic processes are evidence of adjustment lags that undermine the collective ability to address change creatively. Overcoming these social bottlenecks is certainly necessary on ethical grounds, but should also be acknowledged as a condition for establishing a virtuous circle of growth and job creation.

The GIS has enormous potential to provide opportunities for sharing the different perceptions, ethics, and understanding of many cultures. Digital networks can be regarded as new media for democratic (and cultural) expression. Media have long been recognised as powerful vehicles for political expression and are an important aspect of democratic life. "Traditional" media (the press, broadcasting, television) have opened up new channels for political debate and have even contributed to breaking down barriers to democracy. Digital networks and services, as a new medium allowing real-time interactive communication of sound, text, and images, must now be added to the equation.

ICT can help reinforce the representative political, modernise its processes and strengthen its roots in civil society by encouraging participation, pluralism, and more direct citizen involvement. Because ICT offers features such as real-time interactive communication, it can in effect empower citizens by opening up new avenues for direct or indirect participation in the political process through closer contact with their elected representatives at all administrative levels. ICT potentially gives citizens access to limitless sources of information world-wide and enables them to engage in individualised and customised information retrieval and communication. The decentralisation of information resources and even of political structures themselves brought about by the use of ICT can reinvigorate democratic life by encouraging the political activities of interest groups and associations. It can also enable a disillusioned electorate to play a more active role in the political process and in civil society.

Successful use of ICT in the democratic system will largely depend on the provision of fair, equal, and effective access to electronic media for all citizens and on the will of governments and administrations to adapt their work processes and internal structures so that they can provide services more responsively. Overcoming dangers of exclusion, and promoting better public understanding are necessary conditions for an improved democratic dialogue in the GIS.

5.4 Exclusion

The development of new forms of electronic communication between individuals and organisations at national and international level has given rise to concerns about the "exclusion" of various groups from the benefits of the information age, and the resulting threats for social cohesion.

This alleged exclusion would stem from the inability of some groups within society, or of some nations at international level, to attain adequate skills, computer-literacy and capacity to navigate the networks that may be needed for all transactions in the information society: shopping, dealing with government agencies, taking advantage of new leisure services, interacting with others, finding assistance, a job, a supplier, etc.

There is no question that some precautions and novel law enforcement perspectives are needed to protect more vulnerable social groups, such as the old, who may not be able to adjust easily to the new media; or the young, who may not be able to benefit in a timely fashion from the GIS-oriented training that will eventually become more widely available and who may be more vulnerable than others to the glitter of virtual reality and easy prey to unscrupulous offers. Also, rural locations and developing countries may
lack access to the networks and thus be isolated from the emerging economy and culture. Innovative approaches are thus needed to cope with such complex social issues. Social research and experimentation, comparison of experiences, and a common search for solutions can help Member countries meet these major challenges.4

5.5 Fostering public understanding of the GIS

The way information is acquired, used, and transmitted by individuals largely determines their perception of their place in society and the world, but most people have difficulty grasping the extent and nature of current changes in this area. In the absence of clear visions of the future, individuals may try to find meaning on their own or in like-minded groups. Thus, the emergence of the GIS has been marked by the growth of "mini-cultures" based on various perceptions and assessments of the degree of intractability of the problems at hand and of what the world to come holds in store. The Internet, for example, illustrates the emergence of sometimes dubious special interest groups which can now reach a global audience.5

More efforts are needed to improve public understanding of ICT and its implications, alleviate fears, and bring to light potential benefits. Individual initiatives (such as computer and Internet-oriented groups and services) have already tentatively explored some of the directions to be followed. The past experience of Member countries in raising the level of awareness of the public with respect to the implications of other technologies may prove helpful. More systematic efforts to foster open debates on ICT assessment, for example, would greatly facilitate public understanding and thus help achieve broader consensus on the goals to be defined and implemented.

Such efforts are in particular required to assess and debate the likely or merely feared impacts of technological development: the perception by some groups of possible dangers that may not be likely to materialise is potentially as detrimental for the emerging GIS as would be more soundly based fears.

Issues for Discussion:

- How should universal service be defined in the new technological, economic and social context of the GII-GIS?

- Is there a need for new consumer protection mechanisms, and if so how could they be defined and implemented?

- What actions should be considered by the various actors to promote social cohesion?

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5 Recently identified examples include sects, extreme political activists, advocates of terrorist actions, etc.
INTRODUCTION

The meeting brought together, for the first time at OECD, representatives of business management and labour unions to discuss the various policy dimensions of the emerging Global Information Infrastructure (GII) and Global Information Society (GIS). It was agreed that the discussion paper identified the major issues that now needed to be assessed against the background of current business and union preoccupations.

Fundamental changes resulting from the emergence of GII-GIS can be expected, perhaps feared in some cases, but need thorough discussion and exploration. Whole patterns of work organisation are now under question. At the same time, a process of individual empowerment is at work, accompanied of course by a number of risks and challenges. A clear distinction must be made from the outset, between the problems that will result from the establishment of GII-GIS as such, and those that reflect the difficulties of the transition to the GII-GIS.

It was agreed, however, that the debate could not be conclusive for lack of reliable and comprehensive data on the developments under way:

- Due to deficient statistics, the current organisational changes and overall employment picture are far from clear:
  - For example there are no adequate measures of job losses, and still less of the volume and nature of job creation in terms of skills and types of employment.
- There is also a lack of qualitative and quantitative analysis of current organisational change trends, as well as prospective assessment of future likely developments.
- There is a clear need for reinforcement and acceleration of the production and collection of appropriate GII-GIS related indicators.
- OECD has an important contribution to make in this area.

1. DRIVING FORCES

i) Is technology a driving force?

- On the Trade Union side, technology is not readily acknowledged as a driver of the current process of change. The GII is viewed as playing only a minor role in the process, which is thought to be driven by quality management, lean management and other approaches of this type.
• In general, it is thought that globalisation is used strategically by business to avoid national regulatory constraints and take advantage of lower labour costs.

• Business suggested a more future-oriented approach, taking account of the emerging trends: the GII is not yet fully deployed, with many technical issues still unresolved at international level, and as noted above, poorly reflected in available indicators.

• There is nevertheless an urgent need to pay greater attention to the emerging requirements of an effective open GII based on principles of easy interconnection at global scale.

**ii) Competition as the major driver**

• Competition has become, according to the business side, the major global driving force that will generate economic growth and employment opportunities. Yet much still remains to be achieved in this respect. Further progress would require appropriate development of the infrastructure, at three different levels:

  -- the basic technological infrastructure (now increasingly available, but far from completed and still requiring technological advances and standards development);

  -- a set of policies that will provide a framework for the use of networks (not yet available);

  -- a broadening range of applications (that can only develop to the extent required if the other two layers are available)

• In Europe, firms still find it difficult to attain appropriate levels of competitiveness because of high telecommunications tariffs. A number of OECD findings support the notion that the liberalisation of telecommunications markets will generate more rapid development of new job opportunities.

• Liberalisation cannot be accepted on the union side as a general principle for future reforms. Privatisation of telecommunications operation is opposed in many countries for fear of possible loss of jobs, loss of empowerment for the staff, and loss of quality of public services.

• Overall, union representatives are not convinced that job creation prospects will be enhanced by liberalisation. The question needs to be discussed in a broader context to address the whole range of policy issues relating to the social use of technology. A dialogue between all partners on the major social choices to be made is required in this respect.

• In the meantime, according to the labour representatives, there is certainly no clear evidence that the Internet or other networks have become an important driving force that would justify a drastic reappraisal of long-standing principles governing employment practice.

**iii) The importance of Electronic Commerce**

• Uncertainties about the economic importance of the GII could be illustrated, according to unions, by the lack of evidence of the practical importance of electronic commerce that is viewed to be a marginal activity.
• Business representatives argued, on the contrary, that electronic commerce has already become an important factor, in particular, if one takes into account transactions involving business-to-business as well as individuals transactions. The latter already involves very large amounts of funds.

• Significant competitive advantages, they added, already bring benefits to individuals and organisations that have the capability to select, organise and exploit data collected on the networks, or that have adjusted their activities to take advantage of the capabilities of available network for transactions with suppliers and clients.

iv) A new framework is needed

• Participants agreed that better conditions for an expansion of job creation opportunities would require adjustment of communications tariffs, an adjustment of the legal framework to address issues such as intellectual property rights, privacy protection, open competition, security (including security of payments on the networks), consumer protection, etc.

• New approaches also need to be developed jointly by business, labour, and governments to cope with the business and human dimensions of new forms of employment, and more generally the social use of the new technologies.

2. EMERGING CHALLENGES

i) Opportunities and Risks

• Participants agreed that more attention is needed to bring to light emerging opportunities arising from the GII-GIS that have often not been adequately brought to the fore in recent analyses.

• More realistic assessments are also needed, for example to illustrate the difficulty of smoothing the transition to GII-GIS.

ii) Implications of Organisational Change

• Participants did not expect governments to confront rapidly the new challenges and implement the major adjustments required. The absence of government delegates from the meeting was symptomatic of their lack of attention to some of the most important forces currently at work.

• Both business and labour need to press governments to become more active in the areas under discussion, to assist in identifying obstacles, in removing them and in taking appropriate action in their own spheres of responsibility to accompany changes taking place in the economy and society.

• All actors need to adjust to the new global business environment characterised by the disappearance of traditional hierarchies, new modes of allocation of responsibilities, and -- last but not least -- the decline in the bargaining authority of local managers. If this is indeed the case, the disappearance of negotiating partners at national level might be a source of difficulty for trade unions to take part effectively in traditional forms of social bargaining.

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- Governments will also be affected in their ability to influence events at domestic level.

- The role of OECD will be important, due to its channels to governments and its ability to work jointly with other partners.

### iii) The case of small and medium-size enterprises

- Unions see a special issue stemming from the way in which the GII-GIS fosters integration of activities: how will existing or newly created smaller firms cope with the changes? This might be difficult, in view of the lack of investment resources, lack of information and lack of the appropriate flexible skills.

- While expressing some scepticism about the existence of a specific problem for SMEs, it was agreed by business that technical assistance or extension services might be useful -- at least while access conditions and network tariffs remain too high.

### iv) Job destruction, job creation, jobs changes

- The present period, according to unions, is characterised by the large number of individuals that are not empowered, but disempowered by outsourcing; and the secondary role now played by traditional collective bargaining processes.

- Furthermore, there is a feeling that the more stable jobs will be the last to be created in the current period of change. In particular, it is felt by the unions that increased competition leads Business to adopt a financial logic that may drive the job-shedding process to excesses.

- Yet, the introduction of new technological approaches and structural adaptation in industry might be facilitated if deployed in a secure rather than a fearful climate. It is difficult to accept that the extension of casual work patterns has become a necessary condition for economic activity.

- Business, on the other hand, expects that the GII-GIS will provide for a growing diversity of job offerings. This requires a competitive market-driven environment and appropriate regulatory frameworks, as noted above.

- There is, in particular, a need to adapt institutions that are geared to protecting some types of employment and which exclude experimentation with others -- in particular when overall employment schemes have long prevailed at national level.

### v) Adjusting to Teleworking

- Teleworking is one area where the role of technology as a key driver could be acknowledged by all.

- Although still tentative and largely at an experimental stage, the future development of various types of teleworking was quite probable, according to the unions and would drastically affect relations between workers and employers. In this light, there was a clear need to adapt the regulatory frameworks that define the work environment.
• In this light, negotiated approaches, perhaps through processes still to be defined, need to be set in motion.

• Business stresses that teleworking is still barely emerging as a new practice and will undergo an evolving transitory phase during which a number of practical and technical problems need to be tackled in a flexible way.

• OECD might assist in exploring the various possibilities in this respect.

vi) The Challenge of reform in education and training

• Business is now compelled to adapt to the newly emerging environment and to the challenge of exploiting the new tools that have become available, in order to attain higher levels of productivity and competitiveness, while developing new processes and products.

• The competitive environment now ignores national borders, while broader access to information implies that enterprises must now do business with better informed suppliers and customers. In terms of employment, these changes will first lead to job reduction and eventually -- when the firms are successful in their efforts to adapt and generate new activities - new jobs.

• More flexible and higher skills are increasingly required, so that the challenge is to anticipate emerging developments to adapt the organisational and competence profiles accordingly. For example, virtual firms result from the pressure to become more competitive, less hierarchical, with more autonomous and inter-linked staff with greater concentration of power at the top.

• Recruitment patterns are thus evolving, with a need for people who are more management-oriented, have a general informed background, and are more interactive, extrovert, risk-taking, flexible. At present, people do not acquire this type of profile in the education system.

• According to unions, it has now become clear that the notion of employment tenure is being challenged. The new ICT tools clearly justify a certain degree of flexibility. The technology, however, is seen as being used to manage the workforce. Unions will need to adapt to deal with these issues at global level.

• In many national contexts, there is also a fear that GII-GIS would foster new forms of exclusion if adequate education and life-long learning policies are not rapidly implemented.

• There is agreement on the need to distinguish between different forms of empowerment, such as information and knowledge empowerment, social empowerment, etc., in order to define the broader policy concepts required to set new goals for education at all levels, including life-long learning.

• Some governments have in fact already recognised the problem and have set up joint education planning efforts with the economic and social partners.
3. **TOWARDS A NEW POLICY AGENDA**

i) *Overcoming the government lag*

- There is broad agreement that governments lag behind and need to adapt and restructure to catch up with new processes being implemented throughout society, in all dimensions of their activities, including organisation, management, empowerment at all levels and modes of interaction with individual and corporate actors.

- In particular, and since governments are important employers that have a large impact on the rules that define the working environment, they have a role to play in facilitating change in society and the economy, as well as in adjusting regulatory frameworks to keep pace with evolving requirements.

ii) *Major policy goals for the GII-GIS*

- In terms of policies, an overriding goal should be to facilitate the deployment of GII-GIS while taking steps to smooth the transition based on efforts to anticipate emerging problems and opportunities while conducting a continuous dialogue with social and economic partners to adjust specific policy targets in all areas.

- Government policies that might be pursued in this respect might, for example, include:
  
  -- appropriate technical settings for the endorsement of voluntary, industry-led standards that favour interconnection and interoperability;

  -- a competitive environment where past public monopolies would not be replaced by private ones, but where fair competition would be safeguarded;

  -- an international framework where harmonisation stems from economic analysis to promote useful alliances within an effective competitive setting.

- Governments would be wrong, according to the Business side, to attempt to promote actively the introduction of specific applications in the private sector nor to attempt to “manage” each step of the transition to information society.

- The task of governments should be to facilitate the emergence of the environment that will ensure that the opportunities resulting from the new technology will be realised and provide enhanced contributions to the economy and society.

iii) *The structural reform of public services*

- Governments should also, noted business side participants, demonstrate the usefulness of ICT applications in their own sphere.

- Public services and administration provide many opportunities for more effective management and major improvement of service delivery through the application of ICTs. This would have positive impacts on the private sector as well as generating many new activities.
Overall, trade union participants feel that the major tasks of governments in the new GII-GIS context are, as summarised in the discussion paper:

-- to promote a creative environment;
-- to encourage empowerment and growth;
-- to improve effectiveness in public services.

- On the union side, however, it is felt that the prospect of reduction of government costs through ICT applications has often been exaggerated, possibly reflecting excessive optimism in assessing the potential benefits of the GII-GIS.

- There is undeniably, however, a major challenge in the education and training area where the special role of governments should be to provide the present and future workforce with the skills that will be required, while preventing the development of new forms of illiteracy in the computer age.

- Participants on the business side pointed out that the labour market cannot and should not be managed. It should be the responsibility of each individual worker to upgrade his or her skills and thus avoid being excluded from the competition for jobs.

- Unions, however, did not agree: the labour market does not function like other markets. People do not adapt so easily or quickly, which may create disparities and social problems that should be everyone’s concern.

**iv) Seeking consensus on business strategies**

- Unions stress that they have long pressed at all levels for discussion of new products and services that could be developed to reinforce the employment base.

- They also believe companies that have the required know-how and resources should be more active in extending assistance for the setting up of new firms. A number of such schemes thus call for discussion and experimentation.

- Specific concerns emerging from GII-GIS development also call for negotiations at national, and possibly international, levels, for example to take into account the implications of teleworking or downsizing.

- The discussion has thus brought to light a dilemma between a technology (ICT) that requires a more flexible workforce, and the lack of security generated by the new forms of employment. Hence the need for negotiation to develop appropriate frameworks to cope with these different dimensions.

- All individuals and institutions will be forced to adjust and engage in the learning process required by the new GII-GIS context. But many -- in industry as well as in the workforce -- will require assistance to do so.
4. CONCLUSION

- It was thus agreed by all participants that OECD had an important contribution to make in:
  
  -- providing more reliable and comprehensive indicators to clarify emerging trends;

  -- provide analysis of the structural changes at work in all sectors and engage a discussion of the borderlines between sovereignties, responsibilities and liabilities of governments, enterprises and individuals;

  -- advise all public and private actors on the policy requirements stemming from the emergence of GII-GIS.

- In particular, it was recommended that the dialogue started between business and unions on the implications of GII-GIS should be resumed and perhaps even maintained on more continuous basis, with the additional participation of representatives of governments, consumers and citizens.
ANNEX - LIST OF PARTICIPANTS

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