



Business and Industry Advisory Committee to the **OECD**

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Innovation and Global Growth

A Discussion Paper

November 2000

EXECUTIVE SUMMARY

From Innovation to Growth

Both business and the OECD have an interest in understanding how innovation impacts economic prospects, and what other factors have to be in place for a sustained, economy-wide improvement in productivity and output. The real meaning of the term "new economy" is broader than the Internet technology itself, and has a scope that reaches everywhere in the "old economy" where new technology is applied.

The rate and remarkable persistence of downward price movement in ICT (information and communications technology) producing industries was one of the key factors which prepared the way for powerful Internet technologies which in turn enable efficiency gains. It is not possible to overemphasise the fact that this was achieved in an industry characterised by fierce competition and internationalisation of production, where attempts to pick winners have been distinctly unsuccessful.

While the widening availability of ICT equipment itself is merely a precursor of the new economy, an even more powerful factor is in the tremendous increase in the quality and range of business opportunities that now become possible and viable, given the ubiquity of the former. To be able to grow, the markets for new goods, services or ways of doing business have to be open to competition, which would benefit from global policy compatibility.

OECD studies in the first phase of the Growth Project have gone a remarkable way towards clarifying data and analytical issues which render it difficult to make a decisive statement on what is needed to turn ICT-led innovation to growth in productivity. But, inevitably, the available information is heavily focused on the experience of the United States, an economy where highly flexible labour markets and a regulatory framework strongly conducive to business creation can be taken for granted, relatively speaking.

The raison d'être of the Growth project is to elucidate what needs to be done to enable other countries to benefit from technological innovation to a similar extent. If so, there is a need to build the policy recommendations emanating from this project on a number of policy pillars: Innovation policies, labour and capital market policies and conditions, and the policies aimed at improving the quality of the regulatory framework - plus their interaction.

A rapid glance at the results of OECD's existing studies (captured in Tables 1 and 2 of this paper) lends considerable support to the hypothesis that it is indeed the juxtaposition of good

indicators on ICT-readiness, labour market adaptability and regulatory framework, that tends to be associated with either good or improving performance in the growth of productivity and output, and especially both. OECD could usefully develop this approach further.

Indeed, it is hard to imagine how heavy investment in ICT and even skills can lead to a widespread increase in productivity growth, in an economy where dismantling redundant economic activities is routinely subject to negotiation with interests vested in their protection. OECD should be careful to convey this message clearly and not inflate false expectations.

An area which is in urgent need of attention from high policy is the quality, coverage and international comparability of data on the inputs and outputs of new technologies and new business models, especially in the services sector.

Last but not least, innovation in new technologies from life sciences is likely to offer new opportunities for productivity and output growth in the rest of the economy and solutions to some of the seemingly intractable social policy challenges facing the OECD economies.

The simple logic stream - innovation raises productivity which raises living standards - should be the starting point for all policy deliberations.

From International Trade to Innovation

The key motivation behind the OECD "growth" project is to determine and purvey a policy formula that can enable a sustainable increase in the rate of productivity growth (as a result, non-inflationary output growth) which is broadly based in the economy (i.e., can show up in macro-economic statistics.)

It seems largely agreed that innovation driven by information and communications technology (ICT) enables significant productivity gains, so the discussion on widening its impact on economies relates closely to the discussion on broadening digital opportunities, creating wealth and raising the standard of living.

On the business side, there are ICT-based opportunities to insert competing business models in the existing market structure. Regulatory reform in favour of increased competition in markets therefore is a sine qua non of developing e-business and transforming the old into the new economy.

Widening the reach of international trade and investment among economies is the most effective, if not the only practical way of opening sectors to competition, and spreading this innovation-led economic evolution.

Manufacturing having been already subject to significant trade liberalisation, from the point of view of OECD economies, a strong push towards liberalisation of telecommunications and trade in services is an essential element of their policies to enhance innovation, market development and growth

Global commitment to these aspirations is best effected by a recommitment to the market-based economy, the world trading system, with its roster of previous agreements and on-going negotiations as well as the commencement of a new Round.

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PART I. From Innovation to Growth

Discussion on the emergence of a "new economy" can lead down various paths. At BIAC, we understand our subject of discussion to be focused around the following questions: How does the interaction between innovation, be it technological or managerial, and productivity vary across the OECD countries? How is this relationship affected by other variables such as the quality of the regulatory framework, cost of capital, educational attainment of the population, etc.? Has there been a fundamental change in the kind and strength of innovation affecting productivity growth significantly in some countries? To what extent does that account for better growth performance and to what extent are other factors responsible? What can other countries do in order to fully benefit from technological innovation?

Understanding the impact of innovation is the centre of focus for both business and the OECD.

At a more popular level, much of the "new economy" discussion confines itself to the impact of newly popularised Internet-based retailing on the economy. Important and fascinating as that discussion may be, it addresses only a limited facet of the ongoing technological and managerial transformations. While, new business models coupled with communications technology may be generating the largest improvements in productivity, at present these are mostly internal to companies or take place in business-to-business (B2B) segment of transactions, and are thus poorly measured. In this context, the OECD's endeavour to distil evidence for what may be new factors affecting economic growth and a new understanding of how some of the other factors operate is an extremely welcome ray of light illuminating a debate that otherwise risks capturing only one part of a larger picture.

The real meaning of the term "new economy" is broader than the Internet technology itself, and has a scope that reaches everywhere in the "old economy" where the new technology is applied. The rest of the economy will grow more or less well in terms of vigour or performance to the extent that market incentives permit and innovation emerges. The key development to be studied is the reorganisation of production and commercial activity which accompanies digitisation and the adoption of network technologies, especially business processes with attention to the raw speed with which change is occurring.

This velocity of innovation is enabled by technology, feeding on itself, permitting the management of the private enterprise model to alter its composition with remarkable speed. At the same time, that invention is opening new product and marketing possibilities for the customers of those goods and services, sometimes shifting demand so quickly that even the most sophisticated modellers cannot predict tomorrow. In the technology business, they have taken to thinking in "web years", that is, periods of three months.

The rate and remarkable persistence of downward price movement in ICT (information and communications technology) producing industries was one of the key factors which prepared the way for powerful Internet technologies which in turn enable efficiency gains. It is not possible to overemphasise the fact that this was achieved in an industry characterised by fierce competition and internationalisation of production, where attempts to pick winners have been distinctly unsuccessful.

While the widening availability of ICT equipment itself is merely a precursor of the new economy, an even more powerful factor is in the tremendous increases in the quality and range of business opportunities that now become possible and viable, given the ubiquity of the former. To be able to grow, the markets for new goods, services or ways of doing business have to be open to competition, which would benefit from global policy compatibility.

Phase One of the OECD "Growth Project"

According to OECD studies, there is evidence for a significant secular speedup of productivity growth in the United States around 1995, considered unusual in a country at the productivity frontier in many sectors. *Business economists reckon that US economic growth was fully 100 basis points higher in 1999 due to ICT spending per se (representing a growth rate of 4.2 percent, instead of 3.2).* However, when we turn to measuring the impact of ICT on the productivity in the rest of the economy, conceptual and empirical issues render conclusions difficult. In addition to the United States, only a small number of OECD countries have shown improved or continuing good performance in terms of productivity and/or GDP per capita growth.

Much of the available evidence regarding the linkage between ICT, innovation, productivity and growth is skilfully captured in the main analytical papers produced by the OECD in the first half of 2000.¹ The specific work on the impact of innovation and ICT on growth provides a good assessment of their contribution that is significant in some countries.

Given the limitations in the availability of data and its comparability, the OECD staff has done a job which is as good as it can possibly be on this subject at this time. Given the nature of some of the variables tracked, such as productivity or per capita real GDP, which behave in stochastic fashion (i.e., involving randomness), it will be some years before one can know whether there was a long term acceleration in the US productivity. The time period under study (1995-99) is just too short even if we had complete data for it. It is therefore incumbent on the OECD to lace enthusiasm with some caution, while continuing to promote policies which facilitate innovation and competition.

Despite the empirical and conceptual limitations in interpreting data, of what may only be the beginning of a return to a robust pace productivity growth (as in the period 1950-73), the OECD studies nevertheless chart very useful avenues for continuing and deeper analysis with a better coverage of countries. In the following section we take a more detailed look at the some of the tentative conclusion implied by the recent OECD and other analyses. The studies are referred to in the "Sources of Data in Table 1" at the end of the document.

Innovation is the enabler in the market and, at the OECD, there is opportunity for innovation in analytical tools.

OECD studies go a considerable way to clarify that, in the last decade, a significant portion of higher GDP growth experienced in some of the member countries is due to higher factor utilisation. This aspect should not be lost in the final political message. Ability to increase labour input clearly accounts for the major part of higher growth per person in a number of countries (such as Ireland, Korea, Netherlands), but it is also a significant contributor even in countries with accelerating multi- (or total-) factor productivity (MFP) growth.

OECD studies still identify a significant role for MFP growth in most of the (small number of) countries, which are reckoned as having increased their GDP per capita growth rate. In turn, innovation is correctly recognised as the primary vehicle for the growth of MFP. *But*, typically, innovation does not take the form of a frontal wave of improvement starting in and moving through simultaneously in all enterprises producing a given good or service. *Instead, technical innovation, usually accompanied by the appropriate managerial innovation and adaptation, tends to be nurtured in a small number of firms and once it bursts, or proves its success, tends to spread to the rest of the sector by emulation.*

To do that, leading firms must show initially a significant performance gain above their competitors and *at the expense of them*. It is at this stage of the innovation-productivity linkage that the fortunes of countries are likely to start diverging, given widely different approaches prevalent within the OECD area to the treatment of success and failure in business by public authorities. *Indeed, to the extent that government policy and practice has a strong bias towards automatic and open-ended assistance to unprofitable enterprises, this is bound to act as a brake on incentives both to emulate innovation and respond with a competing innovation.*²

Innovation replaces the obsolete with opportunities for faster growth.

Many executives in BIAC's membership have a strong impression that the diffusion of ICT has been one of the factors playing a major role in driving innovation and growth performance in recent years. The study by the Directorate for Science, Technology and Industry provides an eloquent treatment of the various channels through which ICT and digital networks impact upon R&D and business itself ultimately enabling higher productivity. But, it is crucial to recognise that the impact of ICT can fuel improvement in productivity in the economy as a whole only when that is juxtaposed with a business environment which privileges ability to adapt – including, *inter alia*, a business friendly regulatory framework and availability of low-cost capital and high-quality skills.

This is especially true in the case of the new or newly commercialised network technologies, the Internet in particular and new business models based upon them. At the initial stage, the most obvious and measurable impact of these tends to take the form of dramatic cost reductions in the business process.

By necessity, the "sector" which is subject to technology-driven innovation has to grow, albeit fast, from a small initial base. At that stage, therefore, economy-wide improvements in productivity are correlated with the ability of that economy first to permit the dissolution of some activities and second, ability of the rest of the economy to move resources thus "freed"

to other uses. To the extent that public policy is focused on the protection of existing activities, the process of new business and employment creation is likely to be hindered.

Let us clarify our argument at this stage. Business is all too aware of the acute shortages of labour experienced currently in the ICT producing industries *per se*. There is some evidence for net job creation by ICT-led business transformation in some places. The argument being made here is to focus attention on the appropriate policy environment for channelling and using *creative destruction*, rather than pretending it does not exist, for lack of political expediency in it.

It is also clear that, due to new technologies but also the new market environment (lower barriers to international movement of trade, capital and production processes and greater competition in most markets), the velocity of change with which innovation can spread in the economy is much higher today. That makes it even more important to get the public policy and attitude to support of nonviable economic activities right. In this light, many companies traditionally thought to be "old economy" are rapidly becoming "new economy" companies as they turn to e-commerce to advance their business models and gain competitive advantage. The object of policy discussion ought to be to identify the right combination of factors which make that transformation more or less difficult.

Innovation in fathoming the complex market dynamic is a key role for the OECD.

In comparison to twenty years ago, today's market dynamic occurs in a significantly different environment. The degree of openness to trade is much higher in most countries and so is the degree of globalisation of production processes. Most product markets are characterised by a higher degree of competition or, where this may be lacking, by intensifying political pressures to open them up to competition, which may have a similar effect on the longer-term expectations of managers. Regulatory reform is now widening the range of competitive pressures to sectors which hitherto enjoyed significant immunity from them.

Many sectors are experiencing a rapid transformation through mergers and acquisitions and other forms of link-ups between enterprises, often across national borders. Indeed, the overwhelming majority of foreign direct investment is now reckoned to be associated with mergers and acquisitions, a rapid rise in share in the past few years.³ Irrespective of whether each and every merger is a success, this suggests a need to reorganise industrial capacity, including services, at geographical scales independent from the nation-state.

In some countries factor markets (i.e., chiefly labour and capital markets) have been subject to a significant amount of reform and there is significant political pressure brought to bear on countries which lag behind in this respect. Intuitively all these factors are bound to have major effects on business climate and innovation climate. The very noticeable contribution of ICT and network technologies is being added to the equation as an additional - powerful and catalytic - factor.

However, there are important gaps between countries in terms of their status and pace of movement along the various dimensions in which the business environment is changing. It would be desirable to centre the analysis of a phenomenon so central to the economy as the evolution of innovation and productivity squarely within a framework which takes account of

each of these dimensions (innovation, flexibility, regulatory quality) and the interactions between them.

The OECD is well suited to conduct such an analysis, and indeed focus much of the follow up work of the "Growth project" in this fashion. *In particular, the Organisation is well positioned to draw upon the results of three of its well-known "horizontal" projects: the Jobs Strategy, Regulatory Reform, and Electronic Commerce. BIAC believes that there may be a high return to a project which synthesises the knowledge and understanding gained in these separate analyses in terms of how their combination and interaction affects the prospects for innovation and economic growth.* Indeed, the Growth Project Phase II should be primarily a beginning of this.

Getting the policy message right

A rapid glance at the results of OECD's existing studies captured in the Annexe of this paper on a Scoreboard of Indicators and illustrated in Tables 1 and 2. the evidence lends considerable support to the hypothesis that it is indeed the juxtaposition of good indicators on ICT-readiness, labour market adaptability and regulatory framework, that tends to be associated with either good or improving performance in the growth of productivity and output, and especially both. OECD could usefully develop this approach further.

Indeed, it is hard to imagine how heavy investment in ICT and even skills can lead to a widespread increase in productivity growth, in an economy where dismantling redundant economic activities is routinely subject to negotiation with interests vested in their protection. OECD should be careful to convey this message clearly and not inflate false expectations.

The examination of growth performance and market conditions reviewed in the Annexe is very sketchy and inconclusive from a scientific point of view. Its humble intention is to suggest an avenue for more robust and in-depth analysis of interaction between factor markets, product markets and technology-readiness on the one hand and innovation and productivity on the other.

In any case, OECD growth studies this year only lead one on to better analysis of ICT-led technical innovation and its relationship to productivity growth. The treatment of the ICT embodiment in productivity growth and MFP-R&D linkages requires considerable faith in econometrics to constitute conclusive evidence. *Under these circumstances, it would be wise to bring the Growth Study endeavour to a broader context and explore the hypothesis that, "yes technology-driven innovation does improve productivity and economic growth, but only when other conditions affecting the adaptability of the economy to change are also conducive."* Table 2 which is a summary of Table 1 generally supports this causality, with the exceptions already described.

If the line of reasoning of this discussion paper so far is generally accepted, then it should be clear that there are certain inherent risks in adopting the "new economy" as *a Deus ex machina*. Policy making communities of OECD countries are not immune from such temptations. Therefore, it is crucial for the OECD to clarify the inter-relationship between what may be "new" factors and the "old" knowledge and understanding that the organisation has been the purveyor of on fundamental aspects of economic prosperity such as labour market adaptability or regulatory reform.

In current debates regarding the old and new economy, we characterise the new as the old with a turbocharger, the turbo being not just a technological, static device but also the velocity of investment in innovation. Next step for the research community is to identify the necessary architecture of the test ring surrounding the turbocharger, so that the new machine does not run into a wall of social resistance or indifference.

Better data

Business recognises the value of data produced by national statistical organisations and international ones such as the OECD. Serious data, i.e. blessed by governments who use up-to-date, often expensive but thorough methodologies are valuable and merit the expenditure. This is fundamental. To be able to develop the technology dimension of this debate, serious and internationally comparable data on such new indicators as software, e-business, ICT services, biotechnology and science and technology in general are necessary for a wide range of countries. This data should also cover such aspects as buying habits, penetration of new technology, value of information, etc. Such data will enable productivity measures reflect reality better. *In particular, international harmonisation of ICT measures is essential to a good understanding of underlying trends. Internationally comparable data on services sector productivity is also a priority investment.*

As new and topical issues such as e-commerce, new economy or biotechnology arise in the policy agenda and benefit from concentrated attention of policy makers, the OECD should remain vigilant in terms of reminding them how crucially the correct understanding policy choices necessitates continuing investment in less glamorous work on statistical and other indicators. That is the bedrock of the OECD.

In summary, the OECD could usefully orient the Phase II. of the Growth Project on a cross-country analysis on the interaction between the innovation policy agenda and the existing knowledge and understanding gained in some of the valuable OECD studies conducted in the past, in particular, the Jobs Strategy and Regulatory Reform.

PART II. From International Trade to Innovation

Innovation and Digital Opportunities

In the preceding section of this paper we have argued that innovation stemming from technological and managerial advances can lead to productivity gains when the regulatory environment surrounding the labour, capital and product markets is conducive to competition and adaptation. New technology and new approaches require that society accepts and encourages new business and new markets that may necessitate that some old ways of doing business be modified or abandoned.

Technical and managerial innovation which allows the “commoditisation” or super-high availability of information is particularly capable of bringing massive productivity gains to existing production processes and segments of processes which otherwise could not remain competitive in the market. This is why, whereas many types of scientific and technological innovation are important, the current discussion on productivity is focused on the impact of information technology, and services associated with it, on innovation throughout the economy.

In order for innovation to actually generate productivity and income impacts at the economy-wide level, the necessary inputs and conditions must also be widely available. *A crucial policy challenge for the wave of innovation-led growth, at its current phase, can therefore be characterised as a problem of expansion and distribution of “digital” opportunities.* To the extent such opportunities can be spread in the economy and between countries, they can contribute to and encourage economic development. *Trade liberalisation is a key energiser of this global imperative.*

It should be noted that the trade that sustains this “new economy” dispersion around the globe is particularly noteworthy for its technology-based, positive impacts upon other national policy areas such as environment, education and labour.

Importantly, trade can assist the promotion of adjustment in industries and firms faced with the challenge of adapting new opportunities to facilitate continued growth. One of the implications of the new economy is that it strengthens the case for trade and investment liberalisation in traditional sectors (OECD). The benefits of technological change will only be fully realised if traditional sectors are able to operate more freely and flexibly by responding to and confronting new markets that are the result of innovation and digital opportunities.

On the other hand, to the extent new opportunities fail to spread quickly they can contribute to the formation of what one might call “traps” where the “have not” falls further behind the digitally innovative “have”. By virtue of not being able to keep up with the changing requirements for skill, knowledge and context, groups without access or the skills to utilise digital technologies may fall further behind those with access.

Currently, public policy discussions which are carried out under the catch word of "digital divide" seem overly focused on the divide, and do not stress sufficiently either the opportunity aspect or an understanding of when inadequate endowment turns into a *trap*. In order to reduce the risk that discussions on the "digital divide" become a self-fulfilling prophesy, discussion needs to focus on developing greater understanding of how to advance digital opportunities. *The world trading system offers the best path.*

Policy Link between innovation and the regulatory framework⁴

The following broad conditions must be in place for digital opportunities to spread quickly in the context of economic activity:

- inputs of information and communications technologies (including software) must be widely available in a market-based environment;
- regulatory environment has to be strongly in favour of competition and business creation;
- incentives have to be correct for skill acquisition and necessary changes in the organisation of the workforce;
- important changes are required in the attitudes and capability at all levels of society regarding the application and use of information technology in business and non-business contexts; and
- continuation of strengthening standards world-wide for intellectual property rights protection is needed.

While the availability of inputs may appear to be a crucial issue, it is in effect an aspect where there is a great deal of clarity as to what policies are most appropriate. Even in the absence of any charitable activities to make ICT tools available to disadvantaged segments of our societies (and such activities remain significant) the quality/price ratio of them has been dropping rapidly and is expected to continue to evolve in a positive manner unlike any other category of commodity in recent economic history.⁵ The real challenge for the policy community there is to encourage and utilise effectively what is a rapidly widening sphere of affordability.

The availability of new technology tools is merely a first, albeit essential, step. The digital opportunities that we are interested in spreading are embodied in new business⁶ opportunities. In particular, any serious impact on productivity from the adoption of new business models generally takes the form of opening to market forces aspects and portions of the production and supply chains.

While the impact of e-business is felt throughout economic sectors, and a great deal of attention has been given to the fortunes of e-commerce directed at the individual consumer, currently the most pervasive impact of e-business activity is registered in the commerce between business (B2B).⁷

While the part of manufacturing in B2B commerce is significant, a great deal of potential e-business activity is also likely to be found in the services sector, including finance,

telecommunications, logistics management, education, and energy which are creating the reality of a global infrastructure for the world economy. That is not only because of the fact that service industries constitute the bulk (ranging from half to three quarters) of the GDP in advanced economies, but also because these sectors have tended to be most shielded from competition so far. An increasing number of enterprises and sectors find themselves compelled to combine a manufacturing activity with services to the customer in the increasingly competitive environment. Technology-based innovation has the greatest possibility to be a mechanism for bringing within them higher private sector productivity as well as more efficiently and effectively delivered public service.

The implication of these trends is clear: *spreading the productivity impact of new technology and new operational models across the broad range of sectors in the economy in large measure requires enabling a widening selection of sectors to open to an increased degree of competition and market contestability.* It is difficult to see how one can promote e-commerce without promoting competition and regulatory reform in telecommunications, financial services, distribution, transportation, energy, health, education, entertainment, government procurement. This is where the link between productivity and competition needs to be further studied.⁸

International linkages as ultimate regulatory reform

It is not enough to review the regulatory structure of a market and remove barriers to market entry; there must also exist enterprises willing and able to enter the market. This is especially the case in sectors characterised by large fixed investments and well-established incumbent firms. Foreign competition has traditionally been one of the more powerful sources of competition for a market. The tendency that new techniques and new managerial innovations - basically new competency in any particular new venture - has a tendency to be nurtured and developed in specific locations in the world ("centres of excellence") implies that its spread in the world economy can only take place by an intensification of cross-border trade and investment linkages.⁹

It should be understood that, as the velocity of investment and change has increased in the private sector, the regulatory reform efforts of government have lagged behind. *This is especially true of those barriers that inhibit the establishment of a robust, global services infrastructure.*

There are two salient points about international trade in services. First they are characterised by a high degree of world wide segmentation and barriers to cross border trade. Secondly, despite determined efforts at the WTO, there is a perception that discussion on further commitments for trade liberalisation remains stalled. The implication of this is that, whereas many governments in the world today are publicly committed to prioritising such objectives as new technology, e-business, productivity and growth, there has been insufficient progress on one of the most crucial policy areas which impacts on these objectives.

The status of international commitments in the area of market access in online supply of services are summarised in two Charts attached to this paper. The information on the Charts is based on a study by the OECD Trade Directorate¹⁰. The data represent cross-border market access commitments by selected countries and by selected sectors which we feel are representative of ones that will become real users of electronic commerce. We plotted the

data using three types of shading - black for no commitments, grey for partial and white for full. There are a number of messages in these Charts:

First, *Figure 1* on Information Technology Services confirms that, with the exception of a few countries, the market is essentially open. This means that the "technology" of electronic business can be relatively easily provided across most borders. There are still issues surrounding definitions and where some services actually fit in within existing commitments, but these could be thought as issues within the realm of the solvable.

Figure 2 on E-commerce Trade Commitments depicting the cross-border commitments of selected sectors tells a very different story. First, the amount of black and grey on this chart relative to white confirms what has been said about services commitments in the Uruguay Round for some time - there were not many real commitments that were made. For the most part, there is no certainty about the ability to do, or to continue to do, electronic commerce across borders in many sectors.

Second, we believe the relative amount of grey on the right-hand side of *Figure 2* tells another story. Those sectors and sub-sectors were primarily negotiated as a part of the sectoral Financial Services Annex. This chart clearly shows that progress was made in those separate negotiations relative to the overall GATS themselves. Thus, there may be some merit in supporting a sectoral focus.

Third, looking at individual countries graphically confirms another phenomenon of the negotiations - some countries have fallen behind with few or essentially no commitments. A sustained commitment to market openness plays a critical role in increasing the size of markets available to innovators, including in small domestic markets. Likewise, securing broader and deeper cross border commitments will play a critical role in the diffusion of innovative technologies and business practices, particularly by providing investors with a more predictable environment within which to commit productive resources over the long term. (OECD)

The overall message, however, is that if there is going to be certainty (and investment) in global electronic commerce, there is a tremendous amount of work to be done in securing broader and deeper cross-border commitments.

A note on "digital" opportunities

As noted, the need to develop innovation opportunities brought by digital technologies, and avoid "digital divides" has appropriately captured significant attention from policy makers at the highest level. It may be beneficial to distinguish several dimensions in which digital opportunity and divide issues may influence relative economic performance:

- i) within countries, in particular for our attention, within OECD member countries;
- ii) among the developed market economies (DMEs) (more or less OECD countries); and
- iii) between the DMEs as a group and emerging market economies (EMEs) and developing countries as a group.

Currently business is engaged in substantive policy discussions in the BIAC-OECD context¹¹ and elsewhere on both the first and third dimensions, and the results of studies underway will be of significant value to both business and the governments. However, there may be some merit in highlighting the second dimension mentioned above. Even if this may be seen as a special case of inter-country comparisons, there are implications for the decision makers of OECD countries in a purely domestic policy context.

Until recently it could have been held with some confidence that, apart from a small number exceptions, most OECD countries were at a similar "stage of development" with structurally similar economies and broadly comparable human development indicators (such as literacy, skills etc.). The speed of change brought by technology-driven innovation can challenge this picture significantly. Early glimpses into "e-commerce readiness" and "ICT readiness" papers show a remarkable contrast with the picture drawn above.

There are wide differentials in the relative levels of OECD countries with respect to such indicators as to the penetration rates of new technology tools (computers, mobile communications devices, Internet pages, secure servers, etc.), prices of services associated with them (cost of access, interconnection) and new types business transacted on new media. Available data show that these differentials are at a scale which is not obviously justified by the differentials in current per capita income or education levels observed between the different high-income OECD economies, or their level of over-all technological development.

There is a potentially significant implication to be drawn. The differentials currently observed between OECD countries in terms of using the new digital opportunities may be reflecting not only differences in opportunity between "haves" and "have nots", but also between those who "want" and "do not want" to embrace change. In the current stage, when innovation opportunities evolve extremely rapidly, differentials in approach and attitude in a relatively small number of policy areas between otherwise similar economies may lead to important gaps between OECD countries in the foreseeable future with respect to productivity, per capita income and ultimately "development status".

This aspect of the digital divide problem should be of great concern to the OECD as an organisation which is founded on the notion of "structural similar economies led by like-minded governments." The OECD is particularly well placed to explore the observed differences arising between its members in the early adoption of innovative technologies and what may be equally large differences in the policy and practice with respect to regulation/self-regulation, education, labour market, openness to international trade and investment, and other policy areas that are directly related with the utilisation of new technologies and innovation.

From International Trade to Innovation

Multilateral trade policy has an important complimentary role in helping countries harness the growth and development potential of the new economy. For over 50 years the GATT/WTO system has made a major contribution to economic growth and improved living standards around the world. It is vital that this system remains strong and that it be adjusted and improved in the context of today's dynamic global marketplace.

Seeing launched a new WTO Round is a prime objective of BIAC. This includes advancement of the built-in WTO agenda on services. BIAC would also like to emphasise the importance of intellectual property rights protection and existing agreements and commitments made within the WTO.

The WTO negotiation mandated by the Uruguay Round, Services 2000, is a critical element in maintaining and expanding world prosperity. In general, the overarching objective of governments in the negotiations should be to both broaden and deepen the commitments made in the GATS. *Contestable markets in every sector and in every WTO member are the ultimate goals.*

International trade in services, particularly cross border trade, is conducted to a large and increasing extent through electronic means, and information technology has greatly facilitated cross-border provision of services. Accordingly, the provision of services via communications networks is covered by the GATS in the same way as all other means of delivery. Countries' sectoral commitments under the GATS apply to transactions whether the services are delivered over these communications networks or by more traditional delivery mechanisms.

There is considerable evidence from various sources including the OECD's own *Open Markets Matter* that the expansion in the availability of affordable tools for innovation are closely related to the competitive nature of markets in which they are transacted. In the first part of this paper we have noted that the markets for these products are also characterised by a high degree of internationalisation. That means that both a high share of final products sold cross border, and a high degree of intra-industry trade due to spread of production facilities and sources of supply.

In this respect, the post-Uruguay Round trade negotiations have achieved a significant level of commitments to liberalise ICT goods in major trading economies including the December 1996 Information Technology Agreement (ITA) which is currently being expanded as ITA II, the February 1997 Agreement on Basic Telecommunications (ABT) under the GATS, and the May 1998 Declaration on Global Electronic Commerce. The policy priority in this respect is to complete the implementation of existing commitments and ensure their extension to all countries.

Trade liberalisation through Services 2000 offers the main chance for a quantum leap in world prosperity. The information revolution or the "Third Wave" – has made innovation and efficiency in the production of services integral to economic growth. Services inputs are now a central factor in competitive success in manufacturing and agriculture. Telecommunications, transportation, finance, insurance, distribution, energy, and information services underpin all forms of international trade and all aspects of global economic activity.

Conclusions regarding multilateral and national trade policy

Policy makers need to be alert to the synergies at work in today's economy that can spark innovation. As they may not always be predictable, dialogue between private and public sector policy makers is crucial to continue building the understanding and co-operation that is essential to developing an environment where innovation can flourish and provide maximum benefits to productivity and world standards of living.

Innovation stemming from technological (such as ICT) and managerial advances will lead to productivity gains when the regulatory environment surrounding the labour, capital, and product markets is conducive to competition and adaptation. An essential component to the expansion and distribution of the income impacts of innovation is trade liberalisation. BIAC strongly encourages continued OECD work in areas which impact the potential for innovation to benefit economies.

In addition to the broad policy framework attuned to the new realities of the global marketplace, the following are important trade-related objectives in enabling innovation.

- An early focus and agreement on the agenda for a new WTO Round
- Substantial outreach to LDCs to encourage their full participation
- Reinforced and implemented commitments
- An acceleration of the Services 2000 effort
- The strengthening of intellectual property protection
- The elimination of tariff inhibitions to products essential for ICT
- The permanence of tariff-free cyberspace
- Serious attention to trade facilitation and full implementation of the Valuation Agreement
- Elimination of non-tariff barriers
- Implementation of international standards and simplified conformance testing
- Expeditious accession

Policy makers should also continue to think globally with regard to issues such as transparency, and technological neutrality, and keep in mind that strengthening the rules-based trading system is complementary to the development of ICT potential.. At the same time, policy makers must remain alert to the potential development of impediments that could result from short-sighted or overly restrictive policies relating to technology, innovation and e-commerce. *Strengthening the rules based global trading system is necessary to maximise opportunities for innovation, and the enhance the ability for all to reap its benefits.*

**Figure 1. WTO Information Technology
Trade Commitments**

	Software Implementation	Data Processing	Data Base	Management consulting	Value-Added Telecom
Argentina					
Australia			■		
Austria					
Brazil	■	■	■	■	▨
Canada				▨	
Chile	■	■	■	■	▨
Czech Republic					
Egypt	■	■	■	■	■
European Communities					
Finland					
Hong Kong		▨	▨	■	■
Hungary					▨
Iceland		▨	▨		
India	■	■	■	■	
Indonesia	■	■	■	■	
Japan					
Korea					
Malaysia		■			
Mexico	■	■	■	■	▨
Morocco	■	■	■	■	
New Zealand				■	
Norway					
Philippines	■	■	■	■	▨
Poland					▨
Singapore					▨
Slovak Republic				■	
South Africa					▨
Sweden					
Switzerland					
Thailand	■	■	■	■	▨
Turkey			■		▨
USA					

Full Market Access
 Partial Market Access
 No Market Access

Figure 2. WTO Electronic Commerce Trade Commitments

	Medical and Dental	Real Estate	Advertising	Motion Picture Projection	Sound Recording	Higher Education	Adult Education	Other Education	Travel Agencies	Life, Accident, Health Insurance	Non-Life Insurance	Lending	Financial Leasing	Securities Trading	Settlement and Clearing	Retail
Argentina	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Australia	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Austria	■	■	■	■	■	■	■	■	■	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	■
Brazil	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Canada	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Chile	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Czech Republic	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Egypt	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
European Communities	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Finland	■	■	■	■	■	■	■	■	■	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	■
Hong Kong	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Hungary	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Iceland	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
India	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Indonesia	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Japan	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Korea	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Malaysia	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Mexico	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Morocco	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
New Zealand	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Norway	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Philippines	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Poland	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Singapore	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Slovak Republic	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
South Africa	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Sweden	■	■	■	■	■	■	■	■	■	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	■
Switzerland	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Thailand	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Turkey	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
USA	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Full Market Access
 Partial Market Access
 No Market Access
n.a. Data not available

ANNEXE: A SCOREBOARD OF INDICATORS

Table 1. synthesises information from a number of different OECD studies to lay out a suggested path towards a "scoreboard" on readiness for growth in the new economic environment. As such, it provides a very rudimentary panorama. Ideally, one would prefer to have a composite indicator for labour market "adaptability" and another for "ICT/e-business readiness." A final dimension looks at the correlation between productivity improvements at the country level with measures on the quality of the regulatory framework, based on valuable work done at the Public Management Unit (PUMA) and elsewhere in the OECD as part of the Regulatory Reform project as well as efforts at the World Bank in synthesising information from a wide variety of public and private sources. Performance in terms of GDP per capita or MFP growth would then be compared with respect to these three "dimensions" to reveal inter-relationships of causality between the former and the latter.

We separate several groups of countries with respect to GDP per capita growth performance, comparing 1980s and 1990s. The first group from the top (Korea, Turkey, United States, Denmark, Luxembourg and Spain) includes countries which have maintained a relatively high growth rate from the 1980s to 1990s. The next group (Australia, Norway and the Netherlands) has increased their growth rate from lower levels to an above average rate in the 1990s.

The subsequent groups contain, respectively, high performers who have lost some ground in the 1990s, and the rest. In some segments of the Table "better" performance is highlighted in bold. Across the two decades under consideration only two countries in the entire OECD area have experienced both a speedup of MFP growth rate, and increased labour utilisation and labour productivity, *Australia* and *the United States*. These countries are experiencing consequently the highest speedup of GDP growth in mature OECD economies of any appreciable size.

Both MFP growth and labour utilisation have increased in Denmark and Norway. Netherlands has significantly improved GDP growth performance despite a fall in MFP growth, thanks to an increase in both labour utilisation and productivity. In Ireland, the star performer of the OECD in terms of increasing growth, the large increase in GDP per capita growth rate is mostly explained by an increase in labour utilisation, MFP growth was maintained unchanged at a high rate.

Lack of MFP data for Korea and Turkey make further analysis difficult, although both countries have relatively high per capita GDP growth, Korea slowing down from an even higher level. Perhaps Portugal could even be included in a special category of declining but still high GDP per capita growth with improving MFP growth.

Attempting to compare these observations with a measure of labour market adaptability, we then look at the structural unemployment rate and its change (columns (7) and (8) respectively) in the 1990s, as estimated by the OECD Secretariat.¹² Column (9) provides, for information, the absolute number of country-specific recommendations made by the OECD Jobs Strategy and not yet sufficiently acted upon according to the assessment of the OECD Secretariat as of 1999.¹³ Each recommendation made for a given country does not point to a

similar amount of labour market inflexibility, but in general, a large number of recommendations imply that a country's labour market conditions leave much to be desired.

As a third dimension the ICT is glimpsed, quite superficially, by measures of Internet penetration rates (column (12)) and the average price of 20 hours Internet access as a ratio of monthly GDP per capita at purchasing power parities (PPPs). There is at present, unfortunately, no comprehensive set of indicators for assessing general e-commerce- or information-society-readiness. Work is underway in both the private sector and public agencies in harnessing comparable data on e-business "readiness" of countries. OECD's efforts to provide internationally comparable information on e-commerce and ICT in general are welcome.

In the meantime we have chosen to look at one facet of this dimension which may be more crucial than others. Internet is certainly the most popularised aspect of new information technology. *As ICT hardware and software prices are experiencing rapid decline, it is increasingly the cost of access to services which is likely to be the key determinant of uptake in this technology - making the need for effective liberalisation of basic and value-added telecommunications services even more important.* Even if the measure used here is quite simplistic - business usage of Internet, intranets, extranets, virtual private networks (VPNs) and related applications, which are more important for innovation and growth will not depend on the same price structure - we nevertheless postulate that a higher price at the individual consumer market indicates higher inhibitors in the way of e-business for final products.

By and large, all countries which are associated in some way with good or improving performance in GDP per capita growth are the ones which have relatively lower NAIRU¹⁴ (less than 8 percent, which is roughly the simple OECD average) and have lowered it in the 1990s. Some countries combine acceleration in MFP with a reduction in NAIRU. Those could be declared the stars of the new economy. All three countries, which have reversed their growth fortunes (Australia, Norway, the Netherlands), have also improved their labour market conditions appreciably. All countries with continuing high growth performance (for which there is NAIRU data) have also lowered their structural unemployment rate. Although in Spain the NAIRU still remains very high, and Spain is the only country in this group with a deteriorating MFP growth.

Turning to the Internet market readiness, there does not seem to be a clear correlation between cost of access and any growth indicator, though it is interesting to note that all three countries which have reversed their growth performance in the 1990s (Australia, Norway, the Netherlands) have relatively low Internet access costs. This is by no means shown as a proof of causality from Internet costs to growth. But there may be an element of policy symmetry in the sense that governments and countries which have been wise enough to implement appropriate policies for economic growth and labour market adaptability have probably also been good at creating the right conditions for a dynamic Internet market.

Nordic countries are associated with higher ICT penetration rates and greater presumed readiness for an e-business driven economy, which is illustrated by lower access costs in the Table 1. But, only Denmark and oil-rich Norway among them have been able to achieve a high or improved performance in terms of GDP per capita growth. Whereas both Finland and Sweden have experienced an accelerating MFP in the 1990s, this was coupled with a major reduction in labour utilisation manifest in a sharp rise in structural unemployment. However,

empirical problems associated with trend adjustment after the early '90s recession may be greatest for Finland and Sweden and there may be serious risks in evaluating new-economy hypothesis using data for these countries in the 1990s. In other words, the jury may still be out regarding the impact of ICT on the economic performance of the Nordic area. Regarding the high-performing Denmark, let us note in passing that, although the country may share much of the welfare state tradition of the Nordic area, it is distinguished by one of the most flexible labour markets when it comes to job protection.

The Table is not free of paradoxes either. Canada is characterised by improving MFP and a labour market which has at least not worsened. Indeed, Canada also has relatively good indicators in Internet access and pricing. Nevertheless, Canada does not seem to be able to break through a modest GDP per capita performance in the last generation. Given the highly pro-active posture of Canada in world-wide e-commerce policy dialogue it will be interesting to see further understanding on the impact of ICT on productivity and growth in that country. Canada's case also implies a deeper look into some of the other factors which are associated in recent studies with the success of a "new economy", namely a relatively younger and faster growing labour force and an open immigration policy. At least in theory, Canada has a greater ability to utilise a "US-style" policy and approach to innovation and growth. A similar story could be told about New Zealand and partly the United Kingdom.

Adding the regulatory reform dimension in columns (15) through (18)¹⁵, our tentative conclusions are mostly strengthened, along with the emerging tentative puzzles in the linkage with economic growth. While, this sketch does not pretend to represent a rigorous analysis, there is some evidence to suggest that the high-performing economies identified above also by and large tend to be the ones where regulatory environment is reckoned to be most efficient and least obstructive from a business point of view. The exceptions in this category are Turkey (whose relatively high growth performance seems to require a different set of explanations than the high-income OECD economies, having to do with rapid "catching up" with little innovation), Spain (whose growth performance has actually not improved, but simply avoided a worsening), and the "oil-rich" Norway. However, the rapid glance at the regulatory framework confirms earlier assertions concerning the "core group" of high-performers (for which there is good data for all dimensions), i.e., Ireland, United States, Denmark, Australia and Netherlands: that the high productivity and GDP per capita growth in these countries is closely correlated with a juxtaposition of a good regulatory framework in both the labour and product markets as well as favourable indicators on Internet access (except for Ireland).

Two countries continue to present a puzzle. While the modesty of economic growth in the United Kingdom in the last two decades is odd according to our argument, given that the country is characterised by relatively favourable indicators in both the product and labour markets (and is home to one of the worlds most developed capital markets), and combines them with a huge set of advantages in network-based business models (competitive and low cost communications infrastructure, mastery of the world's commercial language) the actual rates of growth of GDP of around 2 percent per annum are not out of line with the long-term average performance of that oldest industrial economy since the XIXth century. Whereas the actually worsening performance of New Zealand with very favourable labour market characteristics, regulatory conditions and relatively good ICT readiness clearly begs for an explanation.

SOURCES OF DATA IN TABLE 1.

By Column:

(1) - (3): ECO/WP1(2000)6/ANN1, Economic Growth in the OECD Area: Recent Trends at the Aggregate and Sectorial Level, 2000, Table 1 and ANN4, Table A4.5.

(4) - (6): Knowledge, Technology and Economic Growth: recent Evidence from OECD Countries, Andrea Bassanini, Stefano Scarpetta, Ignazio Visco, May 2000, mimeo, Table 4.

(7) - (8): ECO/WP1(2000)2/ANN1, The Concept, Policy Use and Measurement of Structural Unemployment, 2000, Table 1.

(9): The index measures the strictness of Employment Protection Legislation (EPL), with a higher figure representing greater difficulty of hiring and firing. Source: OECD, *Implementing the OECD Jobs Strategy. Assessing Performance and Policy*, Paris, 1999. Table B.5., pp. 182-183.

(10) - (11): Giuseppe Nicoletti, Stefano Scarpetta and Olivier Boylaud, "Summary Indicators of product Market Regulation with an Extension to Employment protection Legislation, OECD Economics Department Working Paper No. 226, February 2000, Table A3.11., p. 84.

(12) and (14): DSTI/ICCP/TISP(2000)1, Local Access Pricing and E-Commerce, 2000, background data of Figure 5 kindly provided by the OECD Secretariat.

(13): Column (12) recalculated as a percentage of monthly GDP/capita at PPPs from OECD in Figures, 1999, p. 79.

(15) – (16): Daniel Kaufmann, Aart Kraay and Pablo Zoido-Lobaton, "Aggregating Governance Indicators", The World Bank, May 1999, data on "Regulatory Framework" available online: URL:http://www.worldbank.org/wbi/governance/gov_data.htm

(Note that this index is composed by aggregating data from a wide variety of public and private sources, which are described in a companion paper by the same authors titled "Governance Matters", October 1999, available through the same web site.)

(17)-(18): Nicoletti, et. al., op. cit., Table A3.7 "Synopsis of summary indicators of product market regulation (point estimates). P. 80.

Note: Data on Germany in columns (1) through (9) covers the territory of the former Western Germany. GDP data covers the "Mainland" only.

Table 1. A New Economy? A Scoreboard

Column number:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	GROWTH			LABOUR MARKET			ICT			REGULATORY FRAMEWORK								
	Trend Growth of GDP/capita			Hours adjusted MFP growth % p.a.			Structural U		Jobs Strategy recommendations still to implement	Index of EPL	Change	Internet avg price for 20 h in US\$ at PPPs		Internet	World Bank data		OECD data	
	1980-90	1990-98	Change	1980-90	1990-98	Change fin 90-98	1999:1	Change in 90-98		1998	1990-98	1995-2000	As a % of 98 GDP/month	No. of Hosts Sept 1999	Score	Rank	Score	Rank
															Best = 100		Best = lowest	
Ireland	3,0	5,6	2,6	3,9	3,9	0,0	7,4	-7,5	14	1,0	0,0	38,31	4,7	14,09	96	3	0,0	2
Turkey	2,0	2,3	0,3						11	3,6		60,21	10,8	1,21	49	24	2,9	25
United States	2,0	2,2	0,2	1,0	1,4	0,4	5,4	-0,4	7	0,2	0,0	33,56	1,3	160,13	94	6	1,0	4
Denmark	2,0	2,1	0,1	1,0	1,8	0,8	7,7	-1,4	13	1,5	-0,9	60,92	2,8	59,94	87	7	1,4	6
Luxembourg	4,0	4,0	0,0						10			87,08	3,0	40,00	78	9		
Spain	2,3	2,2	-0,1	2,2	0,6	-1,6	16,5	-1,0	31	3,2	-0,5	86,11	6,2	9,64	72	16	1,6	13
Australia	1,8	2,4	0,8	0,9	2,1	1,2	7,6	-0,5	7	1,1	0,0	38,63	2,0	55,44	80	8	0,9	3
Norway	1,4	2,2	0,8	1,1	2,1	1,0	4,1	-0,4	21	2,9	-0,2	48,96	2,1	87,97	77	10	2,2	21
Netherlands	1,8	2,1	0,5	2,2	1,7	-0,5	4,5	-2,2	20	2,4	-0,7	51,46	2,7	51,95	95	4	1,4	7
Portugal	2,9	2,5	-0,4	1,9	2,2	0,3	5,0	-0,7	22	3,7	-0,5	72,32	5,7	6,60	74	13	1,7	15
United Kingdom	2,2	1,8	-0,4		1,3		7,2	-1,5	5	0,5	0,0	54,96	3,1	35,28	100	1	0,5	1
Austria	2,1	1,7	-0,4	1,2	1,1	-0,1	5,6	0,5	30	2,4	0,0	81,62	4,1	28,04	75	11	1,4	8
Finland	2,2	1,3	-0,9	2,4	3,2	0,8	10,8	5,6	25	2,1	-0,1	31,48	1,7	122,81	95	5	1,7	16
Italy	2,3	1,3	-1,0	1,5	1,2	-0,3	10,1	1,4	19	3,3	-0,9	52,52	2,9	9,31	49	25	2,3	23
Japan	3,3	1,8	-1,7	2,0	1,6	-0,4	3,7	3,2	13	2,6	0,0	63,34	3,2	18,76	32	28	1,5	11
Korea	7,2	5,3	-1,9						12			51,46	4,6	6,85	18	29	2,4	24
Mexico	0,1	0,8	0,7						20	2,0		68,14	10,2	2,06	60	22	1,9	18
Greece	1,3	1,3	0,0	0,6	0,3	-0,3	9,7	1,7	18	3,5	-0,1	59,83	5,0	6,56	50	23	2,2	22
Belgium	1,9	1,7	-0,2	1,4	1,0	-0,4	8,6	0,3	19	2,1	-0,9	82,00	4,1	29,79	66	19	1,9	19
Canada	1,5	1,2	-0,3	0,5	1,1	0,6	8,1	-0,6	13	0,6	0,0	29,25	1,4	76,01	72	15	1,5	12
New Zealand	1,2	0,8	-0,4	0,7	1,1	0,4	5,8	-1,0	9	1,0	0,0	42,78	2,9	63,05	100	2	1,3	5
France	1,8	1,2	-0,4	2,1	1,1	-1,0	10,4	1,6	28	3,1	0,4	57,72	3,1	13,22	59	20	2,1	20
Sweden	1,5	0,9	-0,6	0,8	1,3	0,5	6,4	4,2	23	2,4	-1,0	39,26	2,2	69,13	71	18	1,4	9
Iceland	1,7	0,8	-0,9						14			34,52	1,6	96,58	51	21		
Germany	1,8	0,8	-1,0	1,6	1,4	-0,2	8,1	0,7	35	2,8	-0,8	69,96	3,7	20,39	74	12	1,4	10
Switzerland	1,8	0,1	-1,5		0,2		2,6	2,0	15	1,3	0,0	74,53	3,4	42,89	73	14	1,8	17
OECD 26 simple avg	2,2	1,9	-0,2	1,5	1,5	0,1	7,4	0,1		2,1	-0,3		3,8					
Czech Republic									17	1,7		88,17	8,1	10,55	47	26	2,9	26
Hungary									15	1,4		94,23	10,7	11,49	71	17	1,6	14
Poland									27	1,9		68,65	10,3	4,01	47	27	3,3	27
OECD 29 average												49,65		52,18	69			

Table2. A New Economy? Summary					
Legend:	Bold and Underlined: Good (above average and/or significantly improving) conditions in all dimensions				
	Bold: Good conditions in two out of three dimensions (ICT, labour market, regulatory framework)				
	<u>Undefined:</u> Good conditions in some dimensions, without an improvement in productivity or GDP growth				
	<i>Growth</i>	<i>Productivity</i>	<i>Labour Market</i>	<i>ICT</i>	<i>Regulatory Framework</i>
Ireland	<u>Good</u>	<u>Good</u>	<u>Good</u>		<u>Good</u>
Turkey	Good				
United States	<u>Good</u>	<u>Good</u>	<u>Good</u>	<u>Good</u>	<u>Good</u>
Denmark	<u>Good</u>	<u>Good</u>	<u>Good</u>	<u>Good</u>	<u>Good</u>
Luxembourg	Good			Good	Good
Spain	Good?				
Australia	<u>Good</u>	<u>Good</u>	<u>Good</u>	<u>Good</u>	<u>Good</u>
Norway (GDP: Mainland)	<u>Good</u>	<u>Good</u>	<u>Good?</u>	<u>Good</u>	
Netherlands	<u>Good</u>		<u>Good</u>	<u>Good</u>	<u>Good</u>
Portugal		Good	Good?		
<u>United Kingdom</u>				Good	Good
Austria					
<u>Finland</u>		<u>Good</u>		<u>Good</u>	<u>Good</u>
Italy				Good	
Japan				Good	
Korea					
Mexico					
Greece					
Belgium					
Canada				Good	
<u>New Zealand</u>			<u>Good</u>	<u>Good</u>	<u>Good</u>
France				Good	
Sweden				Good	
Iceland				Good	
Germany (Column 1-12: FRG)				Good	
Switzerland				Good	
OECD 26 simple average					
Czech Republic					
Hungary					
Poland					
OECD 29 average					

NOTES

¹ "A New Economy?: The Changing Role of Innovation and Information Technology in Growth" (DSTI/ICCP/IND/STP(2000)/FINAL) and "Economic Growth in the OECD Area: Recent Trends at the Aggregate and Sectoral Level" (ECO/WP1(2000)6), and a number of supporting analyses such as "The Contribution of ICT to Output Growth" (DSTI/EAS/IND/SWP(99)4).

² These considerations may appear besides the point to many readers from a vantage point of the largely free market economy of the United States (where, incidentally, the impact of the Internet is so far most advanced and arguably best measured and analysed.) They can, however, be extremely relevant in the context of other OECD economies where labour and product markets are heavily regulated and state support to ailing sectors and companies is routinely expected and sometimes obtained. Indeed, the principal motivation in OECD's focus on the growth-innovation linkage appears to be a desire to understand the necessary conditions for the replication of the US experience elsewhere.

³ Source: UNCTAD *World Investment Report 1999*, pp. xxi-xxii.

⁴ The discussion on digital opportunities and divides concerns the use of digital technologies not only in economic activity, but also broader educational and social contexts. This paper has no pretension to cover all of these but focuses on the former aspects.

⁵ Questions may be raised on the existence of truly competitive markets in some segments of ICT product markets, such as operating system software. Even there, the broader economic analysis ought to maintain a measure of "in comparison to what?" (which other sector of investment goods?). To put it differently, even in segments where monopolistic practices may exist, the degree of market contestability may still be above what is the case in most other investment good markets (such as transportation, education, etc.) This is however not a reason not to tackle the genuine competition policy issues, but simply a call for a sense of proportion. (???)

⁶ Refer to footnote no. 1. What is stated in the context of business uses is equally applicable to non-business uses of digital networks and work models.

⁷ Some commentators tend to see a problem in the mere fact that B2B e-commerce far outweighs (by a factor of 5 to 6) B2C and may be growing faster in the current juncture. While the relative growth rates of the two segments may change in the fast-evolving nature world of e-business, the mere fact of B2B being several times B2C would be broadly in line with what one would expect in a modern economy with high degree of specialisation at the firm level, and where final value added is only a fraction of total transactions. OECD would enlighten the e-commerce discussion by communicating this point in some visible fashion.

⁸ Including, as noted in the first part of this paper, an urgent attention to the development of reliable and internationally comparable **data** on the services, in particular on productivity.

⁹ The virtues of "linkage intensive growth" have been elucidated numerous times, including by the OECD (*Open Markets Matter*, 1999). It is in a way sad that in the last year of the twentieth century their relevance may have to be argued anew in the highest policy circles.

¹⁰ Electronic Commerce. Market Access Issues -- Existing Commitments for Online Supply of Services, July 1999 [TD/TC/WP(99)37].

¹¹ Current OECD and BIAC projects include the following:

- JOINT BIAC/TUAC Management and Labour Experts Meeting: Human Resources in the New Economy: Challenges and Opportunities for Education and Training, Paris, 22 November 2000
- OECD Workshop on Digital Divide, Paris, 7 December 2000
- Business-Government Forum on E-Commerce, Dubai, 15 January 2001
- OECD Emerging Market Economy Forum, Dubai, 16-17 January 2001

¹² Source: "The Concept, Policy Use and Measurement of Structural Unemployment" (ECO/WP1(2000)2/ANN1/CORR1) Table 1. Structural unemployment rate refers to the "Non-accelerating inflation rate of unemployment" (NAIRU).

¹³ OECD, *Implementing the OECD Jobs Strategy. Assessing Performance and Policy*, Paris, 1999. Table B.5., pp. 182-183.

¹⁴ The "non-accelerating inflation rate of unemployment", which is a measure of the rate unemployment under which the additional demand on labour resulting from economic growth leads to accelerating increases in wages and therefore the economy-wide price level.

¹⁵ The last four columns of Table 1. Provide summary information on the status of regulatory reform in product markets. The index on column (15), which is taken from a Policy Research Working Paper done at the World Bank (under the responsibility of its authors only), represents a synthesis using data on the regulatory framework from a variety of sources, (as described in the paper itself; see Sources of Data below). While there may obviously be some problems with the comparability of source data, the authors go some way in developing a methodology which relies on findings which are corroborated by a number of different sources. The original World Bank index is given as a "normally-distributed" variable ranging from 2.5 to -2.5. For convenience, here it has been converted to an index based on 100 for the highest performing economy in this dimension. Column (17) shows a summary indicator of product market regulation prepared by the OECD, with a sectorial focus in telecommunications, road freight, railways, passenger air travel, retail distribution and public procurement. Columns (16) and (18) depict the ranking of countries for the indicators in columns (15) and (17) respectively.