OECD/DEPARTMENT OF EDUCATION AND SCIENCE, IRELAND

INTERNATIONAL COLLOQUIUM ON BUSINESS-EDUCATION PARTNERSHIPS: LEARNING FROM THE WORLD OF WORK
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ISSUES FOR DISCUSSION

Introduction

Human capital – the knowledge, skills and competences instilled in workers – has long been recognised as the engine of growth. The importance of human capital to enterprise performance and overall industrial productivity has been underlined by both the 2001 *OECD Growth Study* and the 2004 *OECD Growth Follow-Up Project*. Studies show that OECD countries can realise growth in GDP per capita by raising educational attainment and improving the average quality of their workforce. Other growth drivers – such as innovation and information technology – are not effective without a stock of trained personnel to realise their benefits. Also essential are the management and organisational structures in enterprises that enable productive use of knowledge workers.

Business and industry in OECD countries henceforth need an adequate supply of labour with the appropriate mix of skills. The private sector relies on the education system to provide it with workers whose skills meet changing demand trends and who have a general knowledge foundation, which allows them to move easily across jobs and sectors. However, many OECD countries are not giving sufficient attention to the quality and relevance of education nor to the imperative of attracting more students to technical careers. There is growing concern that one of the constraints on future growth in the OECD area will be a mismatch in the labour market and a lack of skilled workers.

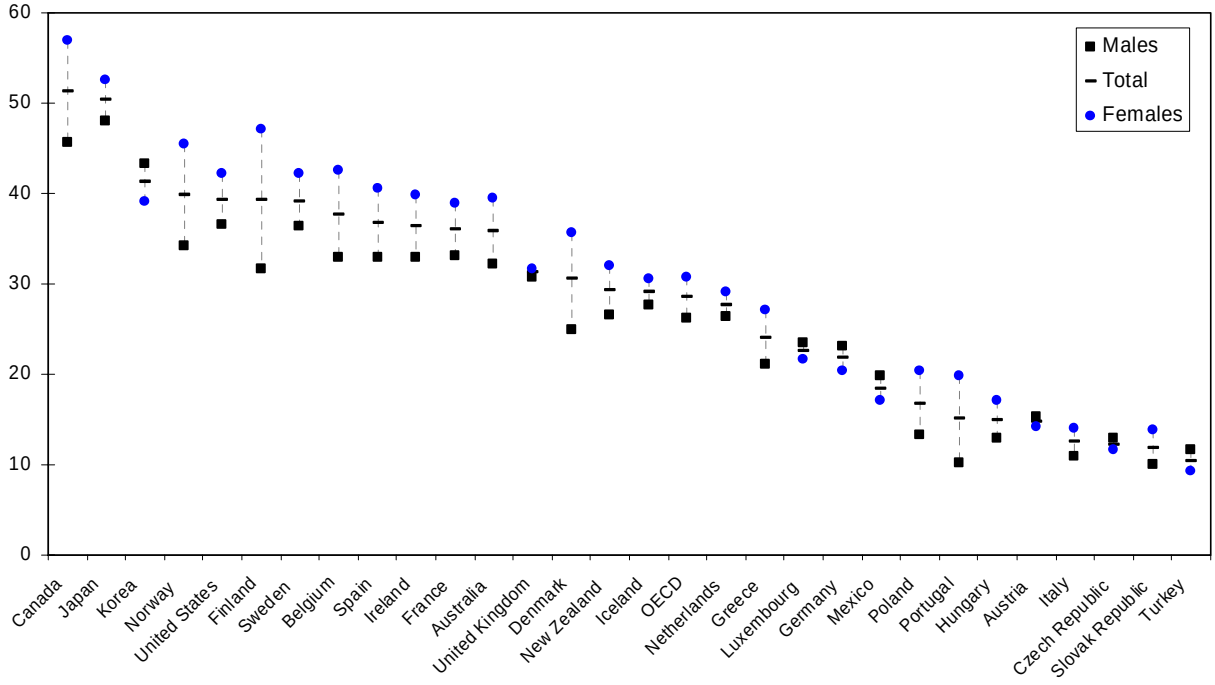
If in the short run, enterprises can somehow adjust to shortages of particular skill sets it is essential to know more about what the world of work needs from education and how this demand could be better reflected in education (**Section 1**). In the medium-term, on-the-job training is key to developing needed skills (**Section 2**). For the longer-term, industry and education institutions need to work in partnership to gear educational programmes and curricula more closely to business needs (**Section 3**).

Session 1: What the world of work needs from education

Although OECD countries differ in their levels of educational attainment (**Figure 1**), a major issue in all countries is the relevance of that education to business needs. Countries are confronting an increasing gap between industry demand for personnel and available skills, which has contributed to higher levels of international migration of workers. Some countries (*e.g.* the Nordics) continue to aim at raising overall educational attainment levels, despite risks that they may be overtraining their workforce without producing the right mix of abilities for industry. In most OECD countries, the rapidly ageing labour force will increase the risk that available skills will not match changes in the form or extent of demand in the labour market.

Figure 1**. Educational attainment in OECD countries, 2001**

(Percentage of the population of 25 to 34-year-olds with tertiary education)



Note: Tertiary education includes tertiary type-A education, which corresponds to tertiary academic education (university), and tertiary type-B education, which corresponds to tertiary vocational education (practical/technical/occupationally-specific programmes).

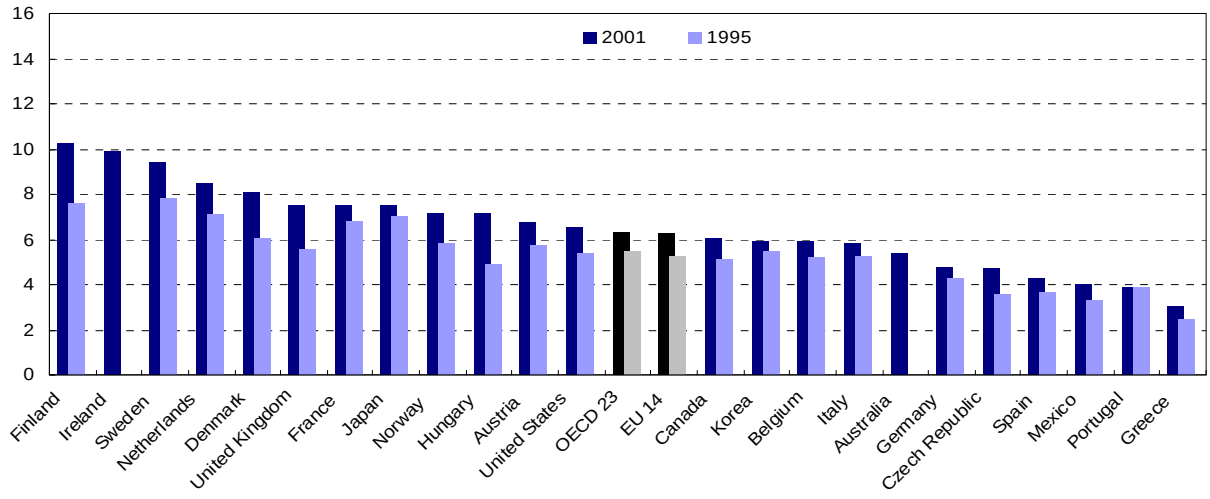
Source: OECD (2003), *Education at a Glance*.

Education is, of course, for life as well as work, but work is an important part of life. Educational systems need to achieve the difficult balance between equipping students with general knowledge and skills and providing them with more job-specific qualifications. Graduates should have a range of academic, management and teamwork competences which allow them to adapt to a rapidly-changing job market. On the other hand, students need to be trained for particular types of jobs, particularly the use of new processes and product technologies. Across the OECD, educational systems are becoming less vocationally specific and less oriented to training students for particular jobs in the private sector. Although the highly-educated generally have less difficulties in finding

jobs, in some countries the unemployment rate among those with tertiary education is high. There is growing evidence of persistent labour market mismatches in several countries.

For example the lack of skilled workers for the information technology sector is rising, which accounts for an increasing share of employment in OECD countries (**Figure 2**). More than 20 million people now work in ICT jobs in the OECD, and projections point to growing demand. In recent years, employment growth in this sector has averaged over 4% per year, most notably in Finland, Ireland and Sweden. Growth in ICT services (*e.g.* software, Internet, telecommunications) has been stronger than in ICT manufacturing (*e.g.* computers, semiconductors). Although telecommunications jobs now seem to be shrinking, the sector is expected to again become a net generator of jobs as new services are developed and broadband connections increase. Clearly educational systems need to be responsive to predictable changes in labour market demand. Conversely, it is not desirable for initial formal education – designed to equip students for their lifetimes – to seek to reflect short-term and unpredictable fluctuations in the demand for skills.

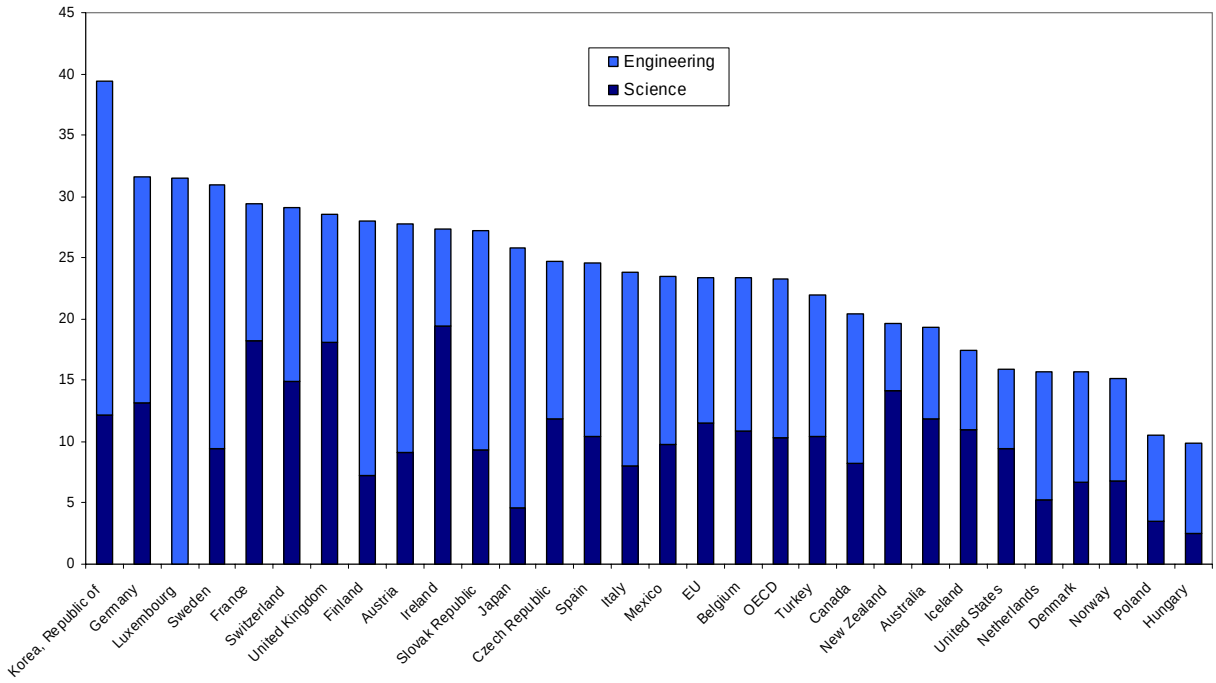
Figure 2**. Contribution of ICT sector to business employment, 1995 and 2001**



Source: OECD (2004), *Information Technology Outlook*.

Another issue is the declining interest of students in scientific and technical careers, as highlighted by the OECD Meeting of Science and Technology Ministers in January 2004. Most countries are reporting falling student enrolment in science and engineering and reduced numbers of PhD graduates in technical fields. Although in the OECD area more than one-fifth of tertiary graduates receive science and engineering degrees, the proportion varies widely (**Figure 3**). Ministers expressed concern about prospective imbalances due largely to brain drain, waning interest in science among youths as well as poor career opportunities and conditions for researchers. The paradox here is that it is unclear why the supposed shortage of technical skills is not reflected in higher salaries and better career opportunities for those with such skills, and consequently increased incentives to undertake relevant training.

Figure 3**. Science and engineering degrees as % of new degrees, 2001**



Source: OECD (2003), *Science, Technology and Industry Scoreboard*.

Questions to be addressed

- One general consequence of growing economic globalisation and the increasing use of ICTs is the fact that some competences are becoming obsolete very rapidly. The expansion of the knowledge economy leads to a relatively heavier emphasis on values and attitudes rather than formal knowledge and skills. *What are the recent changes in the demand for skills and competences and their causes (e.g. globalisation, knowledge economy, ICTs)? How does this relate to changing demand for qualifications?*

- Although most OECD countries undertake some type of workforce monitoring and forecasting, these efforts are often not adequately co-ordinated with the private sector nor are the results widely disseminated to students and workers who are contemplating study choices. Labour market monitoring efforts can be better targeted to areas where skill bottlenecks are suspected (*e.g.* information technology workers, researchers in science and engineering, health and social care) to increase transparency and build on wage signals. The OECD is looking at the possibility of launching an international assessment of adult competences. This would be intended to measure the level of generic and job-related skills, for both employed and non-employed adults. *What do we know about how well education produces what is required? How can potential skill imbalances in business/industry be identified? Do we get sufficient reliable market signals (shortage of specific skills or qualifications, unemployment rates, relative remunerations…).What sort of additional information/indicators would we need? In particular, to what extent would an international assessment of adult skills help*

guide education and training policies? What would be the relevance for labour market, education and on-the-job training policies of a new international assessment of the type of skills possessed by adults and those needed by the economy?

- Educational institutions should have the necessary autonomy and incentives to adapt curricula to changing skill demands. The divisions between academic and vocational tracks of education, which lower pressure on universities to provide job-relevant courses, should be addressed. In some OECD countries, more competition among educational institutions as well as greater private funding would heighten their market orientation. Initiatives in many OECD countries are needed to ensure an adequate supply of science and technology skills, including incentive programmes to attract students to science and technology studies starting at the earliest levels. Also important is improving the quality of scientific teaching, fostering greater mobility of researchers across the public/private sectors, and expanding the participation of women and other under-represented groups in technical careers. *How can tertiary education better be oriented to the needs of employers? Are our education systems doing enough to enhance entrepreneurship? Are human resources in science and technology a significant bottleneck?*

- One approach to minimising the mismatch between human capital supply and demand is to integrate education and work, either through individuals alternating between periods of work and education (through the use of internships, *e.g.*), or by using the workplace as a learning place (as in the case of some apprenticeship training). Alternance has been a mainstay of apprenticeship (vocational) training in the German-speaking countries and is cited as a key factor in the comparatively low youth unemployment rates of those countries (rates that are low compared to other countries, and rates that are much closer to overall rates than in other countries). However, less structured forms of alternance as it is practiced in other countries and at higher levels of education are of more questionable value. Moreover, it is not at all clear that apprenticeship training in the German-speaking countries will continue to attract young people as it has in the past, whether its model of alternance can be practiced effectively in emerging sectors where it has no tradition, or whether it is a model that can be replicated more generally at other levels and in other countries. *Do different forms of alternation between work and learning represent sound ways of organising education and training in the future, and are there other approaches to give young people better information about career opportunities and working life, and to give employers a better sense of the capacity and interests of young people leaving education today?*

Session II: Role of on-the-job training

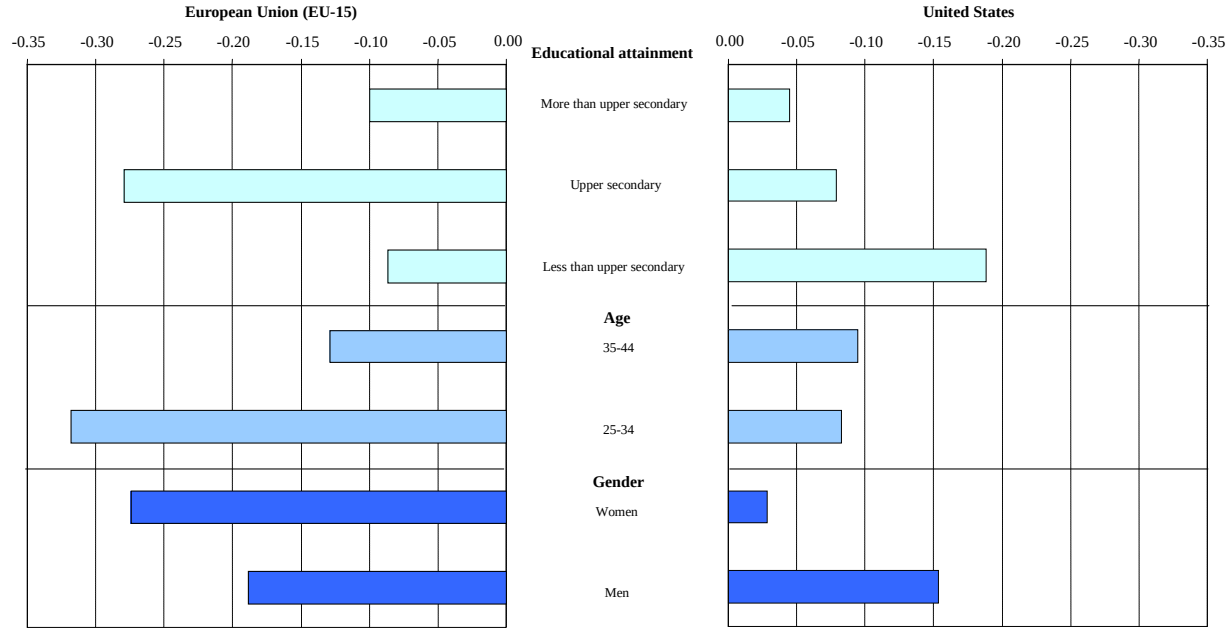
There is no denying the importance of on-the-job training (OJT). For one thing, there is a huge literature documenting the benefits it brings to individual workers and their firms. In addition, recent OECD evidence suggests that investment in OJT can have positive macroeconomic benefits. However, there are other reasons to invest in OJT. It is widely agreed that, in order to meet the challenges of population ageing, it is essential that older workers retire later. This requires a lifelong learning strategy which helps upgrade skills throughout workers' careers – thus reducing the risk that skills erode with age, as is often the case at present. New technology provides another motivation for

greater emphasis on OJT. Only if workers' skills are upgraded, will new technology be effectively used and its productivity potential realised.

Evidence suggests that OJT does indeed matter for labour market performance. Workers who receive training enjoy significantly better employment prospects than their un-trained counterparts (**Figure 4**). It also seems that better outcomes of trained workers are not at the cost of other workers within the same demographic group.

Figure 4. **Training reduces the probability of becoming unemployed**

Estimated reduction in the probability of being unemployed as a result of a 10% increase in time spent on training or education



Source: OECD *Employment Outlook, 2004*.

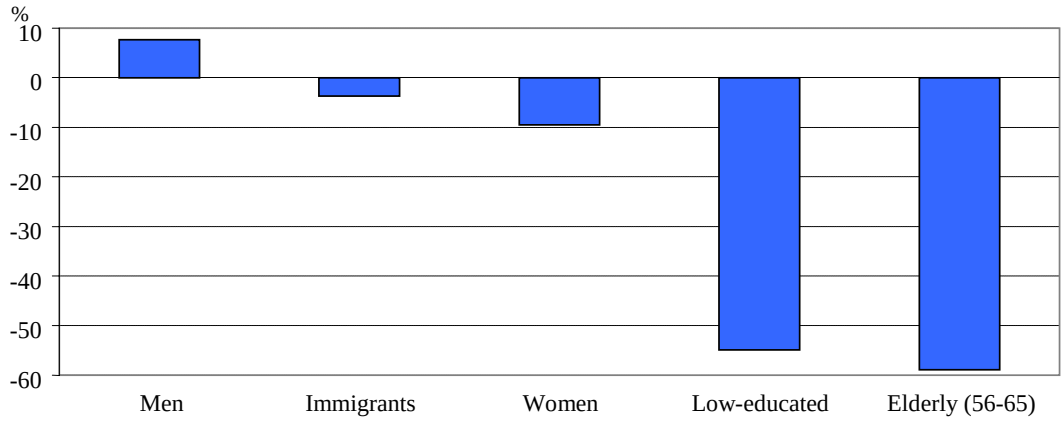
Though the benefits from training are significant – which in principle creates strong incentives for employers and workers to invest in training — there are reasons why policies should support on-the-job training. First and foremost, training outcomes are very unequal (**Figure 5**). Second, funding problems may lead to less investment in training than is socially desirable –though it should be stressed that evidence of the extent of under-investment in OJT is ambiguous. The worker tends to prefer training in generic or transferable skills that can be used in different firms rather than in firm-specific skills. But then the employer will be reluctant to fund such generic training, whose benefits can profit other employers –so-called "poaching" of trained employees. In principle, this poaching problem can be circumvented if the worker funds the costs of his or her generic training, but in practice, it is difficult to enforce such a condition nor is it always easy to distinguish between generic and firm-specific skills. On OECD average, firms pay for over 70% of all vocational training courses.

Questions to be addressed

- To improve training outcomes, governments and social partners could establish systems of *accreditation* and *recognition* that facilitate investment in adult skills. Recognition of prior learning is a prime example. This means that non-formal learning is either accredited as a formal qualification, or recognised for the purposes of acquiring a new formal qualification. While recognition of prior learning can prove a useful stepping stone into further learning, it is essential to ensure that certification systems are credible and transparent to employers, while also reflecting changing skill requirements. Otherwise, certified skills might lose value in the labour market. In addition, recognition of prior learning needs to be translated into higher earnings/better career prospects for the workers concerned. *How to create a system of recognition and accreditation of skills that can be used as "currency" in the labour market, while keeping track with changing skill requirements? In particular, what is the experience of social partners defining jointly education and training curricula leading to recognised qualifications?*

Figure 5**. Training inequalities are significant**

Average hours of education and training for selected groups as a percentage of the average for all groups



Notes: ● Persons aged 26 to 65, excluding those in full-time education or retired.
● Weighted average of Australia, Belgium (Flanders only), Canada, Czech Republic, Denmark, Finland, Hungary, Ireland, Italy, the Netherlands, New Zealand, Norway, Poland, Switzerland, the United Kingdom, and the United States.

Source: OECD

- Governments and social partners should also promote well-designed co-financing arrangements. Given the benefits for firms and workers generated by OJT, it would be a waste for the public purse to fund training activities that would have been undertaken, even in the absence of the public subsidy. As a general principle, public support is more efficient when it is matched with a contribution from the recipient individual or firm. In other words, there should be an element of co-financing by firms and even individual workers –who can engage in learning outside working hours. In view of existing training inequalities, a key issue is whether, in the case of disadvantaged groups, co-financing relies more on the public purse and/or firms than is the case for other groups. *What are the pros and cons of different co-financing schemes and how to target them to disadvantaged groups?*

- Another way to improve incentives for adults to engage in learning is to increase flexibility in learning opportunities by allowing adults to flexibly allocate time to work and learning activities. Providing training leave is one way to do this. However, the success of training leave relies on providing financial assistance (to compensate for foregone earnings) and the agreement of employers (guaranteeing reinstatement upon completion of the leave). Experience shows that both conditions have often not been met. *How to remove obstacles to take-up training leave?*
- An efficient organization of the market for adult learning is needed. Concern is sometimes expressed over the lack of information and guidance with respect to available training courses. In addition, the quality of certain learning activities leaves much to be desired, thereby leading to uncertainty about the returns to training. This is why it is so important to speed up efforts to ensure quality of training provision, which can be achieved by promoting competition among providers and creating quality certification standards. More generally, policy evaluations are scarce in this area and need to be developed. *Would greater competition among training providers help raise quality standards? When evaluating programmes, to what extent should considerations of equity and personal development (on top of economic efficiency) be included?*

Session III: Developing new links between the worlds of education and work

The quality of labour supply as proxied by level of formal educational attainment has risen sharply over the past few decades. In the past 30 years, the proportion of prime age adults (25-34) having completed upper secondary has increased by 50 percent and the proportion with tertiary qualifications has nearly doubled. This rise in educational attainment has been driven by economic factors, including relatively high and rising premia to higher levels of education, as well as more broadly rooted increases in social demand for education as young people and their families began to view education as a means to self-development and economic security. During this time, governments have actively accommodated the economic and socially driven increased demand for education. However, some observers have begun raising questions about the sustainability of such trends as completion of upper secondary education is becoming almost universal and as participation in tertiary education has become a mass phenomenon. More generally there have been concerns about diminishing returns to education as well as mismatches between the human capital that individuals are acquiring, and that which employers are seeking.

In addition, as a consequence of the spread of the knowledge economy, there is a relatively heavier emphasis on behavioural attributes and skills and the locus of learning is moving beyond the traditional boundaries of formal education that shows the role of non-formal learning inside enterprises.

Furthermore, the very forces that have magnified the importance of human capital – the capacity to innovate and extract value from innovation – have undermined the sustainability of the knowledge society by accelerating the pace at which critical forms of human capital become obsolete. Demographic forces in the form of declining numbers of young persons entering the labour market further intensify the pressure on society to update and upgrade human capital, not only through changes in the initial education and training system, but through lifelong learning for adults. Yet the institutional arrangements for addressing this dilemma are wanting in at least five important respects:

- They do a poor job of reaching individuals with low levels of initial education – early school leavers and those with low levels of educational achievement, increasing their risk of being trapped in a vicious cycle of poor qualifications, exclusion from learning opportunities, unemployment;
- They have not achieved the kind of efficiency gains that will ensure adequate incentives for investment in learning (education shows few signs of becoming a declining cost sector);
- They are not financed in a way that ensures the kind of symmetry between beneficiaries and financers of learning that exists for initial education and training;
- They do not provide the financial means for covering the direct and indirect costs of learning, particularly for the poorly qualified.
- They lead to some formal qualifications that do not guarantee the skills they are supposed to.

To meet the complex needs of society, business and individuals requires a much more productive engagement between the education sector and business and industry. New forms of partnerships between education and the world of work are necessary.

Questions to be addressed

- *What should the balance be between investment in initial education, on-the-job training and better utilisation of human capital? What should be the division of labour between education institutions and employers, and between the education sector and other parts of the public sector?*
- *What are the roles of information and communication technologies in fostering new partnerships (communities of learning and work), new institutional arrangements, more flexibility of learning in time and space?*
- *How can new forms of sustainable partnership between education and the world of work be created? What are the lessons from existing model? How does the market have an impact, and what are its advantages over formal consultative mechanisms? Given the many actors involved, how to ensure policy coherence?*

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