PRIVATE SECTOR DEVELOPMENT Policy Handbook



Enhancing Skills through Public-Private Partnerships in Kazakhstan's Information Technology Sector







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Key Contact: Mr. Antonio Somma Head of Programme OECD Eurasia Competitiveness Programme

PRIVATE SECTOR DEVELOPMENT POLICY HANDBOOK

Enhancing Skills through Public-Private Partnerships in Kazakhstan's Information Technology Sector

- KAZAKHSTAN SECTOR COMPETITIVENESS STRATEGY PHASE II -

JANUARY 2013

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FOREWORD

The OECD Eurasia Competitiveness Programme has been supporting the Government of Kazakhstan to diversify its economy through its Sector Competitiveness Strategy project since 2009. This handbook is the final deliverable of the second phase of the project and includes recommendations for a more effective approach towards skills development through public-private partnerships in Kazakhstan. The recommendations, including the creation of a business linkage programme, developed initially for the Information Technology (IT) sector could potentially be successfully applied to other sectors of Kazakhstan's economy.

Since the inception of this project, the OECD has involved the Government of Kazakhstan, international and local private sector companies, business associations, international organisations and civil society organisations, to identify the main policy barriers, prioritise the most relevant policy options, and design recommendations and an implementation plan.

The project is conducted in collaboration with the Government of Kazakhstan, including the ministry of Industry and New Technologies, and is co-financed by the European Union.

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Representatives from the Prime Minister's office, the Deputy Prime Minister's office, several ministries, government agencies, private sector associations and private sector companies in Kazakhstan contributed to this report. These include:

- His Excellency Asset Issekeshev, Deputy Prime Minister and Minister of Industry and New Technologies; Saken Sarsenov, Vice-Minister of Transport and Communications; Asylkhan Serikov, former Chairman of the Committee of Investments; Erlan Khairov, Acting Head of the Committee of Investments.
- Representative of the National Analytical Centre: Aida Urazaliyeva.
- Representatives of the Ministry of Transport and Communications participating in the Working Group on Human Capital for IT: Serik Avganbayev, Deputy Director, Department of State policy in IT; Aida Kudaibergen, Head Expert, Department of State policy in IT; Sergazy Omash, former Head of Office, Department of State policy in IT; Zhannat Saduakassova, Deputy Director, Department of State policy in IT; Aida Shalabayeva, Chief Expert, Department of State policy in IT; Kuralai Yeleussizova, Director, Department of State policy in IT; Zhanat Zhakhmetova, Head Expert, Department of State policy in IT.

- Representatives of the public sector participating in the • Working Group on Human Capital for IT: Daulet Bakbergen, Vice-Chair of the Committee on Industry, Ministry of Industry and New Technologies; Malika of non-Financial Bilyasheva, Head Support, Entrepreneurship Development Committee, Ministry of Economic Development and Trade; Saule Dyussupova, Division, Head of Information Analytical Center: Sarybekov, Vice-Minister, Makhmetgali Ministry of Education and Science; Nurlan Shokbarbayev, Head of the Division, Investment Policy Ministry of Economic Development and Trade; Kanagat Baketay, former Manager, National ICT Holding Zerde; Nurlan Izmailov, CEO, National ICT Holding Zerde; Bikesh Kurmangaliyeva, Vice-Chairman, National ICT Holding Zerde; Ashkat Orazbek, Vice-Chairman, National ICT Holding Zerde; Yerbol Ospanov, former Managing Director, National ICT Holding Zerde; Laura Taganova, Senior Manager, National ICT Holding Zerde; Aibek Akhanov, Linkage Programme Manager, Damu; Aibek Baisakalov, Director of Department, Holding Kasipkor; Saltanat Igenbekova, Director of Training and Support Department, Damu; Inayat Isayeva, Executive Director, Kazakh Centre for Geo-information Systems; Ayana Manasova, Official Representative, Holding Kasipkor; Marat Shashkenov, Head of Competitiveness Research Division, Economic Research Institute; Alexey Tsekhovoy, General Director, International Academy on Informatisation.
- Representatives of the private sector and international organisations participating in the Working Group on Human Capital for IT: Aibol Kuandykov, General Director, ICT Fund; Nurlan Issin, Chairman, Kazakhstan IT Association; Askar Kussainov, Chairman, Kazakhstan IT Managers Society; Shavkat Sabirov, President, Internet Association of Kazakhstan; Talgat Balmagambetov, General Director, ALSI; Bolat Basheyev, CEO, Arta Software; Alexander Evsyukov, Chairman of the Board, NAT Kazakhstan; Evgeniy Maximov, CEO, BIMASH; Lyudmila Nasenkova, Director, Lincompany; Leonid Shishkin, General Director, Dynamic Technologies; Sergey Shvalov,

President, Logykom; Yevgeniy Stechshenko, CEO, Style.kz; Yerkan Suleimenov, Consultant, BIMASH; Leonid Vinyar, Vice-Director, Plusmicro; Sergey Volkov, Representative, Dynamic Technologies; Anuar Zhussupov, General Director, iTeco; Talgat Akhmetov, Marketing Representative, IBM; Dana Altybaeva, Head of Public Sector, Microsoft; Michael Burkhardt, Vice-President, IBM; Guenter Dahm, former Country Manager, Microsoft; Adam Dossymov, Country Head, IBM; Ekaterina Kurassova-Kim, Country Manager, Fujitsu; Nicholas Malone, Managing Director, SAP: Yekaterina Menovchshikova, former Program Co-ordinator, IBM; Martin Quirke, Country Manager, Microsoft; Ivan Ryzhkov, General Representative in Astana, SAP; Benjamin Chapman, former Country Manager, USAID: Lora Kudaibergenova, Project Management Specialist, USAID; Andrey Yemelin, Program Coordinator, IESC; Gaukhar Yessentayeva, Chief of Party, IESC.

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The policy handbook was written under the guidance of Anthony O'Sullivan, Head of the Private Sector Development Division and Antonio Somma, Head of the Eurasia Competitiveness Programme. The principal author of the handbook is Clément Brenot. The handbook was reviewed by Anthony O'Sullivan, Antonio Somma, Jean-Francois Lengellé, Annamaria de Crescenzio; Kathrin Hoeckel, Visiting Fellow in Education Policy, Harvard Graduate School of Education; Marco Marchese, Administrator, OECD Centre for Entrepreneurship, SMEs and Local Development.

The project was managed by Antonio Somma and Jean-Francois Lengellé. Local support in Kazakhstan was provided by Dinara Iskakova, Local Consultant and Adviser to the Deputy Prime Minister.

The final handbook was edited and prepared for publication by Vanessa Vallee, Georgia Hewitt, and Michael Sykes.

Project implementation was assisted by Anna Chahtahtinsky, Jolanta Chmielik, Elisabetta Da Prati, Orla Halliday, Renata Helliot-Tavares, and Lynn Whitney.

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Acronyms and abbreviations

| CAGR | Compound Annual Growth Rate | |
|-------|---|--|
| CET | Continuing Education and Training | |
| EU | European Union | |
| FDI | Foreign Direct Investment | |
| IADB | Inter-American Development Bank | |
| ICT | Information and Communication Technologies | |
| IT | Information Technology | |
| MFP | Multi-factor productivity | |
| NQF | National Qualifications Framework | |
| OECD | Organisation for Economic Co-operation and Development | |
| PIACC | Programme for the International Assessment of Adult Competencies | |
| PPP | Public-Private Partnerships | |
| SCS | Sector Competitiveness Strategy | |
| SME | Small and Medium Enterprise | |
| SSC | Sector Skills Council | |
| USAID | United States Agency for International Development | |
| VET | Vocational Education and Training | |

Executive summary

This publication aims to present solutions for the development of human capital through partnerships between the public and private sectors in Kazakhstan. As an illustration of this approach, it recommends setting up a business linkage programme for skills development in the Information Technology (IT) sector.

ICT is a key economic sector where skills development plays an important role

The Information and Communication Technologies (ICT) sector, understood as the production of hardware, software, communication equipment and the provision of corresponding services, is a large sector in OECD economies, accounting for about 8.6% of business value added (OECD, 2012a).¹ It is also a sector the development of which benefits the rest of the economy, through improved competitiveness and faster productivity increases.

The Kazakhstani ICT sector stands at about 6% of the value added in the business sector and is overwhelmingly dominated by telecommunications, which represents 83% of the total (Masimov, 2010), compared to only 57% in OECD economies (OECD, 2010a). The Government of Kazakhstan has pledged to put in place measures to foster ICT development, including a special focus on information technology. The government has set high objectives for the development of the sector, aiming at an average growth of 18% per year over the 2010-14 period (Masimov, 2010).

¹

Business value added essentially refers to the part of Gross Domestic Product produced by businesses, as opposed to households and government.

Developing ICT in Kazakhstan would require further development of skills, notably by upgrading the country's secondary vocational education and its tertiary education, building on reforms already carried out since independence.

Public-private partnerships play a fundamental role in skills development

Beyond government-led initiatives, public-private partnerships (PPPs) also have a fundamental role to play. PPPs include various types of initiatives where the public and private sectors take complementary roles. Public-private consultations are tools to improve the design and implementation of public policies in education, by giving consultative and in some instances decisionmaking powers to the private sector. Internships, vocational education and training (VET) and apprenticeships are other areas where the private sector can add specific value by providing workplace training to students. The private sector can also provide continuing education and training (CET) to its workforce. Finally, the private sector can participate in special, tailored programmes benefitting from government support.

The creation of a linkage programme is an example of PPP. In a linkage programme, skills development can enable increased interaction between local SMEs and international companies. In turn, having clear business objectives from participating companies helps target the most relevant areas for skills development.

Global linkage programmes include a wide range of initiatives. Some focus on business development while others focus on skills development. Some are initiated as poverty-alleviation initiatives whereas some of them are used as a tool to increase competitiveness on global markets. Many are implemented in developing economies like Kenya or Vietnam, whereas others are implemented in middle income economies like Costa Rica and in developed economies, including OECD countries such as Ireland or the Czech Republic.

Linkage programmes in Costa Rica, Ireland and the Czech Republic provide several lessons. All three countries focused strongly on one or several industries, including high-tech manufacturing or car parts production. All three programmes evolved over time, for example the Irish programme that ended as an SME support programme in the 1990s. Even more importantly, all three programmes relied on experienced, skilled teams.

A proposal to create a business linkage programme

This handbook recommends the establishment of a business linkage programme for skills development in Kazakhstan's IT sector. The proposed programme would aim to develop business linkages between local IT companies and international IT firms, through skills development activities and through peer learning, matchmaking and promotional activities, that would help participating companies exchange experiences and information.

Based on the literature, international case studies and the specificities of the Kazakhstani IT sector, a tailored proposal was designed. The proposed programme includes the six following modules:

- 1. **Create a database of local IT companies** to centralise the information on capabilities available in the country. This is a key matchmaking tool, as well as the starting point for all other programme activities.
- 2. **Select and assess companies** to enable the provision of the most relevant development activities to each local company. This is an essential item to ensure that skills development translates into improved company capabilities.
- 3. **Provide local IT training** to increase the technical level of local IT specialists. Training leading to proprietary or open source certifications will be delivered based on the company's business objectives.
- 4. **Provide local business and management training** to enhance "soft" skills and business processes. The focus will be on the most immediately needed skills for business development.

- 5. **Organise corporate secondments abroad** to expose top management and technical leaders to global business practice. These should be thought of as the second level of skills development for the most promising technical or managerial leaders.
- 6. **Carry out networking, promotion and communication activities** to publicise the results achieved and promote the sector. Participating companies will be encouraged to network and will be supported in their promotional efforts. The programme itself will also be advertised.

Moving forward with an evaluation and complementary initiatives

It is recommended that a 12-month pilot programme is launched. It will be critical to identify appropriate personnel profiles for the programme team, to engage the private sector partners and to maintain the momentum of implementation.

The proposed pilot programme will be evaluated after 12 months of operation. This exercise should include a review of each module's costs and benefits and a proposal for a revised programme.

To move further in the development of skills in the IT industry, complementary initiatives would be appropriate, with special attention to other entrepreneurship and SME development activities, such as incubator and accelerator programmes. Such programmes would help ensure that sufficient high-quality SMEs in the ICT sector are created and helped to grow.

Introduction

Kazakhstan This handbook is part of the Sector Competitiveness (SCS) project, which aims at supporting the Government of Kazakhstan to diversify its economy and improve competitiveness in different sectors of its economy. The project identified three sectors to support economic diversification, with a focus on priority policy areas: access to finance in agribusiness, skills development in the case of information technology, and investment promotion and policy in the case of food processing and food retail. The project has completed two phases over four years: Phase 1 (2009-10) analysed and identified three priority (2011-12)Phase 2 defined sector policy sectors. recommendations and implementation plans.

The current handbook is the final deliverable of the work on Human Capital for Information Technology. It suggests the implementation of policies to enhance skills in the IT sector, starting with the establishment of a business linkage programme linking skills development with the development of business between local and international companies. It builds on the work during Phase 1 of the project, the identification of the sectors with the greatest economic potential in Kazakhstan and the main existing barriers to their development. The findings of Phase 1 are summarised in the *Kazakhstan Sector Competitiveness Strategy* report.

This handbook is structured as follows: a first introductory chapter outlines the main facts regarding IT and skills, focusing on the situation in Kazakhstan. Chapter 2, which constitutes Part I, summarises global good practices in skills development through public-private partnerships before zooming in on international experience with linkage programmes. Part II describes the development of IT in Kazakhstan through a business linkage programme. Chapter 3 describes the chosen approach and the components of a proposed programme for IT in Kazakhstan. Chapter 4 describes the way forward, suggesting a comprehensive approach linking skills and entrepreneurship development.

Chapter 1

Background on ICT and skills in Kazakhstan

This chapter presents an overview of key facts on the ICT sector and on skills development, both globally and in Kazakhstan. It first discusses the definition of the ICT sector, before detailing the economic benefits of the development of ICT. The current situation in Kazakhstan as well as the targets set by government are then briefly presented. Finally, the role of skills development in this plan is discussed.

Information and Communication Technologies represents a diverse economic sector

Information and Communication Technologies (ICT) is a broad, diverse sector. The 2010 OECD Information Technology Outlook (OECD, 2010a) defined ICT activities as: "process, deliver, and display information electronically. [...] The ICT industries are those that produce the equipment, software and services that enable those activities [...]: i) communication equipment and systems; ii) electronics; iii) specialist semiconductors; iv) IT equipment and systems; v) IT services; vi) software; vii) Internet; and viii) telecommunication services. Broadcast and cable media and content are excluded".

In this publication, to reflect the approach used throughout the project, these activities were grouped into four categories:

- Hardware manufacturing, including: communication equipment and systems, electronics, specialist semiconductors, and IT equipment and systems;
- Software development, including software and Internet;
- IT services, including business-to-business IT consulting;
- Communications, including telecommunication services.

Developing ICT benefits the whole economy

The development of ICT benefits the economy directly and also indirectly through productivity growth, foreign direct investment attraction and innovation spillovers to other sectors.

Developing the ICT sector directly helps create value added and skilled jobs. In 2009, the ICT share of the total value added in the business sector of OECD countries stood at 8.6% (OECD, 2012a). This share is growing, as the sector exhibited an aboveaverage compound annual growth rate (CAGR) of 0.7% over the 1995-2009 period. In terms of employment, the ICT sector made up 6% of business jobs in the OECD in 2009, employing more than 15 million people. These figures make ICT a prominent sector in OECD economies.

The development of ICT also affects the economy in an indirect way, through three main channels (OECD, 2004):

- Increasing labour productivity through capital deepening, like other types of capital investment;
- Increasing multi-factor productivity (MFP) in the ICT sector;²
- Increasing multi-factor productivity in other sectors of the economy through increased usage of ICT. This is sometimes described as a "spill-over effect". Alternatively, ICT is characterised as an "enabling sector". In spite of measurement difficulties, Bosworth and Triplett (2003) argue that this effect could, for instance, be identified in the American retail sector in the 1990s.

There is growing evidence in the literature of a link between ICT diffusion and MFP growth in the economy. This has been documented at the firm level, and increasingly at the aggregate level. The OECD (2004) presented a summary of these findings, focusing mainly on studies in the United States, Australia and Finland.

² Note: Multi-factor productivity refers to a change in output per several types of inputs. (OECD, n.d.). An increase in MFP refers to a phenomenon where a higher level of output is achieved while the quantity and quality of inputs remain fixed. It usually suggests the presence of permanent structural improvements (Lee and Guo, 2004).

The availability of ICT goods and services is also closely monitored by foreign investors when making investment decisions. The World Economic Forum's Global Competitiveness Report (2011) listed ICT as a key competitiveness factor in several sectors. It explicitly cited the quality of ICT as a competitiveness factor as part of its "Technological Readiness" pillar. It also indirectly cites ICT through at least four other ICT-enabled items, namely: telecommunication infrastructures, internet access in schools, availability of latest technologies, and production process sophistication.

Finally, many ICT technologies or devices are now at the centre of innovation in other sectors. This means that producing high value-added goods or services in other industries necessitates access to a high-performing ICT industry. Examples are numerous and range from transport to energy distribution or healthcare.

The Government of Kazakhstan has set high objectives for the development of ICT

ICT is currently relatively underdeveloped in Kazakhstan.3 To remedy this situation, the government has set high targets for the sector. In 2006, the ICT sector made up 6.3% of the total business value added in Kazakhstan (UNCTADStat). Kazakhstan ranked lower than most OECD economies and also lower than most Eastern European and CIS countries (Table 1.).

3

An overview of business services, including part of the ICT industry, can be found in OECD (2011a), Competitiveness and Private Sector Development: Kazakhstan 2010: Sector Competitiveness Strategy, OECD, Paris.

| Country I | CT producing sector as % of total business value added | Last available year |
|----------------------|---|---------------------|
| Hungary 9 | .9% | 2008 |
| Estonia 9 | .8% | 2004 |
| Romania 9 | .8% | 2005 |
| Lithuania 9 | .4% | 2004 |
| Latvia 9 | .0% | 2005 |
| Czech Republic 9 | .0% | 2008 |
| Slovakia 7 | .5% | 2008 |
| Kazakhstan 6 | .3% | 2006 |
| Poland 5 | .7% | 2008 |
| Russian Federation 4 | .9% | 2008 |
| Azerbaijan 2 | .4% | 2006 |

Table 1. Share of the ICT producing sector in total business value added by country

Source: UNCTADStat, "ICT producing sector core indicators",

http://unctadstat.unctad.org/TableViewer/tableView.aspx?ReportId=1634, accessed on 9 May 2012.

The structure of the ICT market in Kazakhstan also differs significantly from the global average (Figure 1.1).



Figure 1.1 Split of ICT spending in the world and in Kazakhstan (2009)

Source: OECD (2010a), OECD Information Technology *Outlook*, OECD, Paris, Masimov, K. (2010), Decree 983 of September 29, 2010 - *On the approval of the Programme for Development of Information and Communication Technologies in the Republic of Kazakhstan 2010 – 2014*, Government of Kazakhstan, Astana.

The split of ICT spending in Kazakhstan illustrates the level of development of the ICT industry in the country:

- Dynamic development of mobile telecommunications, which may reflect technology leapfrogging. In Kazakhstan, mobile penetration stands at 95%, whereas landline penetration is only 25% (Masimov, 2010);
- Underdevelopment of computer services, which is common in emerging economies, as strong services may reflect an advanced stage of development of the ICT industry;
- Catch-up in IT equipment;
- Massive under-spending in software, reflecting the early stage of development of the ICT market and the extent of software piracy.

As a result, demand for ICT goods and services is mostly fulfilled by imports. Regarding IT equipment, the government's 2010-2014 ICT Programme indicates that the share of local content amounted to 3% of the value of goods sold in Kazakhstan in 2010. For IT services, often considered more local, the share of local content only reaches 30% (Masimov, 2010).

To develop the ICT sector, the government has set ambitious, quantified goals. As reflected in Figure 1.2, by 2014, the ICT Programme requires the industry to reach KZT 172 billion in turnover and 3.8% of GDP, which implies a CAGR of 18% over 4 years. The share of local content is expected to increase to 10% in IT hardware and to 80% in IT services. Virtually all indicators are required to improve significantly, as shown in the same figure.

Figure 1.2 The ICT sector in Kazakhstan in 2009 and in 2014

| | Kazakhstan 2009 | Kazakhstan 2014 |
|--|--|--------------------------------|
| Government of Kazakhstan | | |
| ICT plan (selected goals) | | |
| ICT sector - size | KZT 90 Bn | KZT 172 Bn |
| ICT sector share of GDP | 3.3% | 3.8% |
| IT market - local content | 7% | 32% |
| IT Services - local content | 30% | 80% |
| IT Equipments - local content | 3% | 10% |
| Packaged SW – local content | 2% | 15% |
| Industry structure | Only 2% export, Public Sector demand | "Competitive, export-oriented" |
| OECD country capability survey, IT sector | | |
| Supply & demand in IT industry | High number of IT related unfilled positions |] |
| Quality of trainings on offer | Poor quality according to >50% respondents | |
| Skill gaps >20% of firms | System admin, network engineers | Aim to meet market demand |
| Skill gaps >30% of firms | Application developers, DB developers | |
| Skill gaps >40% of firms | Managers and project managers | J |

Many ICT indicators are required to increase between 2009 and 2014

Source: Masimov, K. (2010), Decree 983 of September 29, 2010 - On the Approval of the Programme for Development of Information and Communication Technologies in the Republic of Kazakhstan 2010–2014, Government of Kazakhstan, Astana; OECD (2011b), 'Country capability survey", internal working document, OECD, Paris.

Reaching these targets will require a number of policy changes, including developing infrastructures and improving the business environment, but will also require decisive action on skills development.

To develop ICT in Kazakhstan, developing skills is one of the key levers

Developing ICT in Kazakhstan will require the development of ICT skills, which are currently underdeveloped. To do so, the government will need to improve further the initial education and vocational education and training systems, but also to leverage private sector resources.

The development of a healthy ICT sector relies on the availability of the necessary skills for ICT users (professionals of sectors other than ICT and the general public) as well as for ICT producers (ICT specialists). This is recognised by governments in OECD countries, as in 2012 the development of ICT skills was ranked the second most important policy area for the development of ICT, right after broadband availability (OECD, 2012a). For instance, the European Union (EU) decided on a number of actions on skills development as part of its Digital Agenda for Europe, including skills development in the general public and increased standardisation of ICT specialist skills.

ICT skills are still relatively underdeveloped in Kazakhstan. In the Country Capability Survey carried out in the first phase of the project (OECD, 2011a), IT firms reported a number of gaps between the skills they expect from their employees and the skills they find on the job market (Figure 1.3).



Figure 1.3 Skills gaps reported by IT employers in Kazakhstan (2011)

Source: Adapted from OECD (2011a), Competitiveness and Private Sector Development: Kazakhstan 2010: Sector Competitiveness Strategy, OECD, Paris.

A lack of employees' skills is reported in areas related to the formal qualification of IT specialists as well as in areas that can be described as applied or "soft" skills. Regarding formal qualification, 40% of IT employers surveyed reported a lack of formal qualifications and 33% noted gaps in product knowledge. Concerning "soft" skills, communication (100%), problem solving (47%) and understanding customer needs (45%) were the improvement areas most cited by employers.

To solve these skills issues on its own, the government could leverage the public secondary and tertiary education systems and improve further the quality of initial ICT education. Much progress has already been made in increasing the quality of higher education (OECD and IBRD/World Bank, 2007), but generalising the results achieved in elite institutions to all ICT graduates in the country is still on the agenda.

Developing vocational education and training (VET), as detailed below, is also a key lever. VET has historically been a weak point in most post-socialist economies and action is currently being taken by the government to reform the VET system. State Holding Kasipkor was created in June 2011, with a double mandate: creating four new "VET colleges" and reforming the existing network of VET institutions.

In such initiatives, government plays a leading role in the design, implementation and funding of policy changes. Other complementary approaches are possible, leveraging resources available in the private sector.

PART I

Public-private partnerships for skills development

Chapter 2

Good practices in skills development through public-private partnerships

This chapter gives a short summary of good practices in skills development through public-private partnerships, with a focus on linkage programmes. PPPs for skills development are first defined and an overview of the main forms they can take is then presented. More details are then given on linkage programmes specifically, including a discussion of their definition, the rationale behind such programmes, three international case studies and key considerations drawn from the international experience.

The public and private sectors can collaborate to develop skills

This publication adopts a broad definition of PPPs for skills development as: any type of institutionalised collaboration between the public and the private sectors that aims to develop the skills of students, of the workforce or of the general public.

This publication does not focus on the operation of educational institutions by the private sector, where the private sector acts as a competitor to the public sector, but rather on partnerships where the public and private sectors play different, complementary roles.

Public-private partnerships for skills development take different forms

The private sector can derive several benefits from participating in public-private partnerships for skills development (OECD, 2005). They contribute to output, directly when schemes include workplace training at below market costs, and indirectly through productivity gains. It improves the level of mutual information on the job market, making recruiting more efficient and workforce qualification closer to real labour market needs.

The private sector can play a role in several areas to foster skills development:

- Participate in public-private consultations to help define current skills needs, increase matching with skills supply, forecast future skills needs and revise skills production accordingly;
- Provide workplace training by participating in vocational education and training through internship or apprenticeship schemes;
- Deliver continuing education and training of the workforce, which can be through purely private initiatives or can leverage public institutions and schemes;
- Set up special, sectoral programmes involving enterprises, government and educational institutions to address specific situations.

These roles are complementary and should be part of a comprehensive skills strategy, as advocated by the OECD (2012b).

The private sector plays a major role in consultations on skills needs and the planning of vocational education

Skills available in the workforce and skills demanded by employers do not exactly match and this skills gap comes at a cost for the economy. This cost varies depending on the efficiency of the education and training systems but seems significant even in developed economies. It was estimated at about 7% of GDP in European countries in 1999 (Lucifora and Origo, 2002).

Public-private consultations on skills needs may help solve part of the mismatch issue by confronting government initiatives with feedback from enterprises and by putting enterprises in charge of some of the skills policies they benefit from. In particular, these initiatives can (OECD, 2012b; UKCES, 2011):

- Convey private sector views to government officials in charge of skills-related policies;
- Help quantify the current labour market situation and forecast the future situation;
- Participate in reforming education curricula to better match skills needs;
- Participate in the setup or the maintenance of National Qualification Frameworks (NQFs);
- Disseminate awareness about skills issues in the private sector and popularise skills development schemes, including internship and apprenticeship schemes.

These different roles may be played formally and informally by individual companies but may also be devoted to special structures led by the private sector (Box 1.).

Box 1. Sector Skills Councils, tools for public-private consultations in the United Kingdom

Sector Skills Councils (SSC) are employer-led skills organisations active at the sector level, with a national scope. They are represented, promoted and supported by the Alliance of Sectors Skills Councils. The UK Commission for Employment and Skills (UKCES) is responsible for licensing the SSCs and linking SSCs and government actions on skills development.

The SSCs' mandate is fourfold: "1. Make and win the economic argument for greater investment in skills; 2. Enhance the value and accessibility of vocational training, especially apprenticeships; 3. Galvanise industries and sectors to improve the skills and productivity of their workforces; 4. Work with sectors to ensure the creation of more and better jobs and maximise opportunities for unemployed people" (UKCES ,2011).

Between April 2010 and March 2011, SSCs have implemented a series of actions, including participating in the reform of 374 apprenticeship frameworks, drafting 23 sector skills assessments and updating 902 suites of modernised National Occupation Standards (UKCES, 2011).

The evaluation of a subset of SSC activities by research firm Baker Tilly (2010) over the previous period showed that the social benefits of SSC-run programmes represented about 20 times their funding. However, due to subsequent budget adjustments, government grants were discontinued and SSCs moved towards projectbased, investment funding (UKCES, 2011).

Source: Baker Tilly (2010), Alliance of Sector Skills Councils – Evaluating Economic Impact, Baker Tilly, London. Available at http://www.sscalliance.org/Publications/PublicationArchive/UKPublications.aspx; UKCES (2011), *UK Sector Skills Councils Annual Performance Report, April 2010 – March 2011*, available on the UKCES website at http://www.ukces.org.uk/ourwork/sector-skills-councils.

The private sector can provide workplace training through internship or apprenticeship schemes

An efficient way for students to gain skills is workplace training. Preliminary results from the OECD's Programme for the International Assessment of Adult Competencies (PIAAC) confirmed that both work and studying may have a positive effect on the acquisition of skills (OECD, 2012b).

Workplace training may be organised as internships or as apprenticeships. In internships, students go to work in enterprises in their expected career field with no or only nominal compensation for a period ranging from a few weeks to several months. The internship does not lead to any specific qualification.
Apprenticeships are more structured schemes, where students work part time in a company while receiving classroom or vocational education in a vocational institution. This usually lasts for several years and leads to a qualification in line with skills acquired both in the classroom and in the workplace.

Cooperative education programmes are another way for enterprises to provide workplace training fitting in with students' curricula. Usually aimed at undergraduate university students, they are a framework for alternating study and work terms throughout their degree (Marchese and Potter, 2010). In this regard, they could be regarded as an alternative, more academic, higher education variation of apprenticeships.

As described above, companies provide workplace experience. Firms also participate in the governance of VET schemes and provide feedback on the classroom or vocational education part of the student's training.

Governments also play an important role. The quality of workplace learning is a key element in ensuring that workplace training yields real skills to the intern or the apprentice (OECD, 2010c). Governments can also implement measures to encourage participation in such schemes, including financial incentives (Box 2.).

Box 2. Government measures to encourage apprenticeship schemes in Australia

In the light of successes achieved in dual system⁴ countries and as a reaction to the global economic downturn, Australia reviewed its approach to apprenticeships in 2009. It introduced two main measures: the *Securing Australian Apprenticeships Initiative and the Apprentice Kickstart* package. These two initiatives were described by the OECD (2010b).

The Securing Australian Apprenticeships Initiative offered financial support to companies that employed apprentices in skill-shortage trades or that gave the opportunity to students who had dropped out of the scheme to complete their training. Completion of apprenticeships was rewarded with AUD 1 000, while recommencement of trade earned the company AUD 2 800. This measure was temporary and took place for two years, 2009 and 2010.

The Apprentice Kickstart package entailed two complementary measures. The Apprenticeship Kickstart Bonus offered AUD 3 350 to companies employing an Australian apprentice under the age of 19. This bonus applied in addition to other measures, including the Securing Australian Apprenticeships Initiative, and only for apprenticeships started in a three-month period between December 2009 and February 2010. The second measure, the Apprentice Kickstart Increased Pre-Apprenticeship Training Opportunities measure, provided funding for states developing innovative projects to encourage pre-apprenticeship training, and encouraged them to do so, with partnering with the private sector.

Apprenticeship data showed that these measures, in particular the *Securing Australian Apprenticeships Initiative*, produced visible effects. Apprenticeship completions in skill-shortage trades increased between April and July 2009 and the recommencement of out-of-trade apprentices peaked in June-July that year.

Source: OECD (2010b), Off to a Good Start? Jobs for Youth, OECD, Paris.

The private sector can provide continuing education and training

Continuing education and training refers to "all kinds of general and job-related education and training that is organised, financed or sponsored by authorities, provided by employers or self-financed" (OECD, 2002). In practice, it entails many different activities and includes, for instance, on-the-job training delivered by a company to its employees as well as re-training programmes for the unemployed, often provided or funded by the government. In this respect, depending on the scheme, CET can be regarded as a public programme, a purely private initiative or a PPP.

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In a dual system, on-the-job or in-company training alternates with part-time vocational school training.

The private sector primarily intervenes in CET to train current employees, some arguing it does so with a bias towards highskilled workers (Arulampalam, Booth and Bryan, 2004). A recent study highlighted that in 16 OECD countries employers paid for two-thirds of all on-the-job training costs (Bassanini *et al.*, 2005). Reasons commonly cited to explain private funding of training include employee retention and expected gains in employees' productivity.

There are several tools available to governments to manage the provision and quality CET provided by employers. Most are non-financial and include, *inter alia*, presenting the business case for training to SMEs, ensuring the relevance and quality of training (Box 3.), fostering the ongoing education of trainers or encouraging pooling of resources between enterprises (Stone, 2012).

The provision of on-the-job training by employers is also sensitive to fiscal conditions (OECD, 2012b). In most OECD countries, the amounts invested by the employer in on-the-job training are fully deductible from income tax. Some countries including Austria, Belgium, Canada, Chile, Italy, Japan, the Netherlands and Spain provide tax incentives going beyond tax deductibility of training costs.

Box 3. Improving quality of training through a quality seal in Upper Austria

Quality of training matters to trainees, financing companies, and whenever direct or indirect support is provided, to governments. In the 1990s, the Land (state) of Upper Austria introduced quality seals for adult learning, in collaboration with the Adult Education Forum, a non-profit organisation representing local training providers.

The forum determined criteria to evaluate training programmes, including topics, instructors, curriculum, facilities and student feedback. Training courses were then audited according to these criteria. Successful training schemes were awarded the seal, which could then be used as a criterion by employers in choosing which training schemes to finance.

Fifteen members and 260 affiliates had their training programmes audited. In practice, the success rate was almost 100%, which shows that the criteria effectively acted as local standards. Application for the seal was then extended to programmes run by non-members of the forum. The quality seal was then used by regional governments when they created a learning voucher (*Bildungskonto*) and decided that only approved training would be eligible for voucher usage.

Source : OECD (2005), *Promoting Adult Learning*, OECD, Paris; Institut für Berufs- und Erwachsenenbildungsforschung website, www.ibe.co.at/ebqs.html, accessed 10 November 2012.

The private sector could participate in some sector-specific programmes linking skills development to firms' strategic objectives

As described above, private firms engage in various types of skills development initiatives. Some of these activities are carried out within traditional public-private skills consultation structures and through the general VET system. These are usually not linked to specific business strategy objectives for the participating firms. Some others are independently undertaken by firms, without resorting to government programmes or public educational institutions, and may respond to firm-specific strategic objectives.

To complement these two approaches, firms also engage in specific, tailored public-private partnerships that specifically link skills development with strategic business objectives, partnering with government programmes or with public or private education institutions. These can be implemented at the firm or sector level. Engaging in special partnerships may be required for a number of reasons, including specific industry or local needs and the availability of structured, firm-specific programmes for skills development.

Specific industry and local needs may play a role in the setup of such programmes. In 1993-1994, Italian footwear firms from the Riviera del Brenta industrial district initiated a programme to reposition from middle-range to high-end women's footwear products (Froy, Giguère and Meghnagi, 2012). The programme relied on business initiatives as well as skills development, with three components: improved global marketing, involvement of workers unions and codification of traditional skills into standardised training. The codification of skills was done by a specially created institution, the Politecnico Calzaturiero, jointly owned by local public and private entities.

Some firms have developed their own programmes linking skills development with specific strategic objectives. In Armenia, Microsoft, the United States Agency for International Development (USAID) and the Enterprise Incubation Foundation created the Microsoft Innovation Center, aiming to increase skills in local partner companies and stimulate innovation.⁵ The centre provides training, coaching, thematic workshops, networking programmes and dedicated facilities for innovative ICT projects.

Firms' strategic objectives may include the creation of closer relationships with business or academic partners, which may lead to the creation of linkage programmes, which are detailed below.

Linkage programmes have the potential to foster skills development

Linkages refer to relationships created by companies with other entities, such as other private companies and academic institutions. Linkage programmes typically try to foster business between local companies and international companies, most of the time by encouraging local companies to supply international companies. Such schemes, which have some advantages and present some risks, have been used in many countries. They have shown some success for high-tech industries in the Czech

5 http://www.micarmenia.am/.

Republic, Costa Rica and Ireland, which gives indications as to how best to design a linkage programme for Kazakhstan.

Linkages and linkage programmes: definitions

Business linkages may be defined as relationships of any kind, where at least one of the entities involved is a private company. The relationship between a large international company and a local SME is usually characterised as a forward (distribution), backward (sourcing) or horizontal (co-operation) linkage. The summary of diverse relationships which may be called linkages by UNCTAD (2001) is presented in Table 2. It focuses on the type of the relationship and its durability:

Table 2. Backward linkages and other relationships between foreign affiliates and local enterprises and organisations

| | Relationship | Relationship of | | |
|---------------------------------|--|---|---|---|
| Form | Backward (sourcing) | Forward (distribution) | Horizontal | foreign affiliate to |
| | | (distribution) | production) | institution |
| 'Pure' market transaction | - 'Off-the-shelf' purchases | - 'Off-the-shelf' sales | production | |
| Short-term linkage | - Once-for-all or intermittent purchases (on contract) | - Once-for-all or intermittent sales (on contract) | | |
| Longer-term linkage | Longer-term (contractual) arrangement for the procurement of inputs for further processing Subcontracting of the production of final or intermediate products | Longer-term (contractual) relationship with local distribution and end-customer Outsourcing from domestic firms to foreign affiliates | - Joint projects with competing domestic firms | - R&D contracts with local institutions such as universities and research centres - Training programmes for firms by universities - Traineeships for students in firms |
| Equity relationship | Joint venture with supplier Establishment of new supplier- affiliate (by existing foreign affiliate) | Joint venture with distributor or end- customer Establishment of new distribution affiliate (by existing foreign affiliate) | Horizontal joint venture Establishment of new affiliate (by existing foreign affiliate) for the production of same goods and services as it produces | - Joint public- private R&D centres/ training centres/ universities |
| 'Spillover' | Demonstration effects in unrelated firms Spillover on processes (incl. technology) Spillover on product design Spillover on formal and on tacit skills (shop floor and managerial) Effects due to mobility of trained human resources Enterprise spin-offs Competition effects | | | |

Source: UNCTAD (2001), World Investment Report 2001 – Promoting Linkages, United Nations, New York and Geneva.

A linkage programme can be defined as a structured framework to promote or sustain such linkages. This entails many different types of initiative. Different means can be used to promote linkages, including financial or tax incentives, training, coaching, consulting, promotional events and others.

The majority of linkage programmes aim at stimulating backward linkages specifically, where a local firm acts as a supplier to a foreign-owned firm through a long-term business agreement. Backward linkages are a good way for firms to acquire knowledge and know-how in economies where few local companies operate at global standards: "backward linkages from foreign affiliates to domestic firms are important channels through which intangible and tangible assets can be passed on from the former to the latter. They can contribute to the upgrading of domestic enterprises and embed foreign affiliates more firmly in host economies" (UNCTAD, 2001).

The positive effects of backward linkages are numerous. They include a rise in domestic suppliers' output and employment, as well as the transfer of knowledge and skills between the linked firms. Dense networks of linkages increase production efficiency, productivity growth, technical and management capabilities, and market diversification. For the host economy, linkages can stimulate economic activity and contribute to a vibrant enterprise sector (UNCTAD, 2001).

Although private local and foreign companies can be successful in setting up linkages, government-led programmes may be needed to help create or sustain them. This is because a series of market failures can hinder the linkage formation process at several stages. The two main failures such a programme can address are:

- Informational failure, where foreign companies do not have appropriate information on the capabilities of local companies or the state of the local market to spontaneously create business linkages with local firms;
- Educational institutions failure and skills mismatch, where the skills needed by the foreign company cannot be found in the potential partner companies identified.

Some programmes aim at addressing both the information gap and the capability gap, whereas some focus on one or the other. As such, only some linkage programmes can be classified as skills development initiatives.

Linkage programmes have specificities compared to other public-private partnerships

Linkage programmes are one form of the special public-private partnerships mentioned above and present a number of specific advantages and potential risks. Their main advantages are due to their special focus on linking skills development with business development:

- High level of commitment of private sector players, which can be a source of valuable information for programme design and also of complementary financing;
- Ability to tailor activities to international and local companies' needs;
- Special focus on SME development;
- Immediate relevance of skills development activities for business development.

Linkage programmes also present some risks:

- They may present some complexity in their goals and design, as they aim at solving informational and skills issues at the same time in a tailored way;
- The double role assigned to the programme team, as intermediary and as expert, as well as the required sectorspecific knowledge make these programmes particularly sensitive to the capabilities of the programme team.

The Czech, Costa Rican and Irish experiences show that there are different paths to success

International experience was collected in three phases. In the first phase, academic and business literature was compiled. In a second phase, 49 worldwide business linkage programme experiences were inventoried. In a third phase, the most relevant experiences were selected and interviews were carried out with responsible national agencies and the supporting international organisations.

To select the most relevant programmes, two criteria were used: specialisation in high technology industries and business focus. Firstly, past programmes with a focus on high tech industries were investigated. These were mostly located in high or middle income countries. Secondly, programmes aimed at advanced mid-sized businesses were selected over initiatives focusing on household-based micro businesses.

Based on these criteria, three specific case studies were analysed:

- A programme in the Czech Republic led by CzechInvest, the national investment and business development agency;
- A programme in Costa Rica led by Costa Rica Provee, a specially created autonomous agency;
- A programme in Ireland led by Enterprise Ireland, the government organisation responsible for the development of Irish companies in world markets.

An approach based on capabilities development and matchmaking between companies in the Czech Republic

In 1999 the Czech Republic decided to set up a programme in order to increase the local content of products manufactured by foreign companies in the country as well as to attract new investments. Three industries were successively targeted: electronics (2001-02), automotive components (2003-04), and precision engineering (2005-06). Each session was a structured, 18-month programme. The programme was co-financed by the EU as an SME development programme.

The approach was based on management skills development and matchmaking. Management skills evaluation and development can be considered the starting point of the programme. First, a selection of companies was made, taking into account both business metrics and management's motivation to participate. Then a detailed assessment of business strengths and weaknesses of these selected companies was carried out, focusing on management and business processes on the basis of an adaptation of the EFQM methodology, ⁶ a European management excellence framework. A six-month improvement programme was then agreed upon between the assessment experts and the company, followed by a second assessment. A roadmap for further improvement was then delivered.

In parallel, matchmaking events were organised. International companies were invited to explain their needs and the criteria they used to choose partners. "Meet the buyers" events were organised to facilitate business contacts. A database of suppliers was also put together as it was considered a powerful tool to attract international companies not yet active in the country.

The programme involved a team of twelve people, including eight people in charge of the programme and four people specialised in the assessment of companies. Some of them were external consultants.

The results were deemed satisfactory by both the government and the involved businesses. Around 40 SMEs were selected for each round of the programme, for a total of 138 companies over the three rounds. In the last round (2005-06), a quantitative assessment found that 11 of the 48 participating companies signed new contracts as a direct consequence of the programme, for a total of EUR 4 m and 67 jobs. The programme also resulted in 12 acquisitions of local companies by international companies.

A programme focused on business development only in Costa Rica

Costa Rica's CR Provee started in 2001 as a programme to build backward linkages, i.e. to help sign contracts between international companies and local suppliers. The programme first focused on high-tech industries, such as electronics and medical equipment. It then diversified to include other sectors such as textiles, agribusiness and services. The programme is structured as an ongoing effort rather than as a time-constrained initiative. It was set up with the support of the Inter-American Development

⁶ http://www.efqm.org/en/.

Bank and was handed over to Costa Rican agency Procomer after five years of operation.

This programme was specific with its exclusive focus on final purchase orders to measure the effective linkage. Compared to most other programmes which link the creation of business linkages to the development of skills or capabilities, it is a very business-oriented programme. No financial or capability development support is offered by CR Provee. The programme relies on the general VET framework in place in the country.

CR Provee liaises with the Chamber of Industry and other organisations to inventory all companies involved in a field. The agency then arranges visits by its staff to the listed companies to conduct evaluations. Results of the evaluation are compiled in a database. The same industry specialist also visits international companies in Costa Rica and abroad to discuss their needs and understand their business processes. Based on these visits, CR Provee's specialist submits a shortlist of local companies that would be valuable business partners for the international company. It then follows up on both sides until a contract is signed, which can take up to a year.

The programme currently involves nine people, all of which have specialised technical profiles, most with years of work experience with international companies.

Impressive results were attained. The database of companies lists 600 companies with multi-dimensional ratings. 455 SMEs have signed contracts based on this programme since 2001. In 2009 alone, 240 contracts were signed for a total amount of USD 8.3 m.

A long-lasting, evolving programme in Ireland

Enterprise Ireland, which has changed names several times, has been active in connecting international and local businesses since the 1970s. Its role evolved significantly over time. It started as a pure broker, merely facilitating contacts between international and local companies. In 1984 it was decided that creating further business linkages would require some upgrading of the local companies' capabilities. Training and coaching then became a key component of the programme. In the 1990s, it was decided to target more aggressively companies abroad with specific promotional efforts.

Not all industries were targeted. The programme focused on industries where Ireland was already present, starting with computer and telecoms assembly, and more recently moving to medical devices.

The support process started with contacting local SMEs to gauge their interest in Enterprise Ireland's activities. Interested companies were investigated further and compiled in a database. Based on their needs, training and coaching was provided by Enterprise Ireland's specialists. When ready, a shortlist of companies was actively promoted to international companies. These international companies were visited to understand their needs and match them with the most adapted local partners.

As a result, more than 2 000 companies were added to the database. Hundreds of companies have been promoted. The programme was terminated in the 2000s as the focus moved to SME development in general to align with EU priorities.

Key considerations and suggested general approach to a business linkage programme

As a general principle a successful programme should adapt to both country and industry conditions and be able to evolve over time to react to changes in these conditions:

- The programme should be tailored to country specificities. Successful programmes have been pragmatic, starting from country specificities to build on strengths and address weaknesses. In the Czech Republic, the programme leveraged outsourcing by West European industrial companies. In Costa Rica, the programme relied on the local VET framework for skills development and focused exclusively on match-making activities.
- The programme should be adapted to industry **specificities**. This includes the recruitment of programme staff with sector-specific experience and the adaptation of skills development and promotional activities to the

industry. For programmes focusing on ICT, the existence of a large number of product-specific certifications structured and made available by large international IT companies are a factor to consider (Box 4.).

• The programme should be able to evolve. Some adjustments to the design of the programme may be needed to adapt to the evolving environment. In some cases, these adjustments can be radical. In Costa Rica the programme evolved from being an international programme set up with the Inter-American Development Bank (IADB) to a purely Costa Rican programme, while retaining its main features. In the Czech Republic, the programme activities and the methodology evolved with each new session. In Ireland, the change was more radical, as the programme focus went from investment promotion to skills development and eventually to an SME development programme.

Box 4. The role of certifications in skills development in ICT

Setting up a business linkage programme in ICT entails a few specificities, especially in software and IT services. In most of hardware and communications, backward (sourcing) and forward (distribution) linkages are essentially similar to linkages created in high-tech manufacturing in general. In information technology, and for software and services especially, the existence of certifications changes the landscape.

In IT, much of the collaboration between international companies and their partners is indeed structured by a system of certifications issued by international companies. Accreditations at the company level exist, as well as individual certifications. Certifications may be needed to install a solution, which can comprise software and hardware, such as servers. Other certifications may be required to customize or work around these solutions. Certifications are also needed for the maintenance or the training of IT specialists and IT users.

The existence of certifications is an opportunity for a business linkage programme:

- Their existence signals interest from international companies in developing a network of local partners in the countries where they operate;
- They formalise part of the skills needed by SMEs to work with international companies, which makes the assessment of training needs and the delivery of training more convenient;
- They provide a first measure of the concrete impact of the programme.

Source: interviews carried out with international IT companies present in Kazakhstan, Microsoft Certification and exams, http://www.microsoft.com/learning/en/us/certification-overview.aspx.

There are also operational learning points:

- Focusing on short-term results creates long-term momentum. Programme managers reported that focusing on international companies already present in the country typically brings more short-term results than focusing on prospective investors abroad. To develop skills, it was recommended to target areas where strong, addressable needs could be identified to unlock a precise business situation, rather than focusing on more fundamental, longterm activities;
- Assembling a dedicated and senior team is key. Successful programmes studied relied on an independent team with an entrepreneurial spirit. International organisations such as the IADB or specialised business

consultants have supported all three programmes and brought valuable expertise. However, all three programmes exhibited strong ownership from a local team. Team composition also reflected private sector experience, sectorspecific knowledge and a certain level of seniority;

• Setting up a database of local companies provides a strong basis for the programme. This tool was used in all three successful programmes, as it is both a promotional tool and a starting point for other activities of the programme. In the Czech Republic and Ireland, local companies were inventoried. In Costa Rica, data on both local companies and prospective foreign investors was compiled.

These general and operational points informed this publication's general approach to creating business linkage programmes:

- Business linkage programmes should focus on the most relevant industry, based on the country's economic structure, its development priorities, international business trends and financial resources available. A business linkage programme cannot and should not be substituted for other skills development or investment promotion initiatives. It should rather complement and leverage other more basic, wide-ranging programmes. For that reason, industries where the economy demonstrates potential and whose global markets are attractive should be placed at the top of the list.
- Narrower or wider industry focus will mainly derive from business relevance and financial means committed to the programme. Adjacent industries which have much in common in terms of skills needs or business needs, or which have similar international business partners, may be addressed by the same programme. Conversely, industries or industry segments appearing similar but displaying different features after analysis would require different programmes or adaptations.

- Focusing on business development (including • matchmaking activities) or on skills development will depend on local industry conditions. Business development may generally be more adapted where industry capabilities are already substantial, *i.e.* to address an informational gap between local entrepreneurs and international firms. Skills development activities may be required where industry capabilities need to be upgraded, *i.e.* where there is a skills gap between what exists and what is necessary for the industry to be successful. In cases where both factors need to be addressed, strong interactions are recommended between the two types of activity.
- To increase programme relevance, it is recommended to carry out a thorough evaluation of local companies and local workforce needs. This can be done at the industry level or with more accuracy at the company level. Such evaluation activities can be used as a starting point for skills development or business development activities.

PART II

Setting up a Business Linkage Programme in Kazakhstan's IT Sector

Chapter 3

A business linkage programme proposal for Kazakhstan

This chapter offers a description of the main features of the proposed programme. An approach based on joint skills and business development is first presented. The six modules of the programme are then described. An indicative timeline is presented. The role of local and international private stakeholders is then detailed. An indicative team composition and an indicative budget are then sketched out.

Acting on business linkages and skills development at the same time

The proposed programme will focus on IT companies only and will act both by fostering skills development and by encouraging local companies to connect with international firms.

Scope

It is recommended to focus on IT companies only, excluding communications companies and other business services companies. Keeping the industry scope of the programme narrow will help bring the most relevant solutions to the participating companies. Some needs of participating companies, in particular in terms of technology, are industry-specific. Furthermore, keeping a narrow focus will help avoid spreading the resources of the programme too thinly across various sub-sectors.

The Programme will encompass:

- Hardware manufacturers, including manufacturers of computers, related devices, network and other equipment;
- Software developers;

- Hardware and software distributors, including wholesalers and retailers, bricks and mortar and online distributors;
- Installation, maintenance, training and support companies, mainly business to business;
- IT consulting and system integrators;
- IT outsourcing companies.

Targeting services only while excluding hardware could be an even more focused alternative. However, the evolution of technology (*e.g.* cloud computing) and of business practices (e.g. bundling⁷) argues for keeping both service-based and hardware-based activities within the scope of the programme.

This publication suggests not including companies from the telecom sector in the pilot phase of the programme. This sector, although often classified as part of the broader ICT sector, is characterised by specific technologies, business models, industry structure and training needs. International companies to partner with would be different. Skills gap differences would also mean designing a different training plan.

It is also suggested not to include other business services companies, such as accounting or non-IT consulting companies. As described below, a significant part of the training provided as part of the BLP programme will have a technical content and be based on IT technologies. Expanding the programme to non-IT services would reduce focus and require very different training plans. However, business services in general play an important support role for other businesses in Kazakhstan. Therefore, expanding the programme to non-IT business services could be envisioned in a second phase if the programme is successful with IT companies.

⁷

The commonly accepted definition of "bundling" is the sale of two or more items in one package. An example of a bundled product is a computer sold together with a monitor, mouse and keyboard (OECD, 2011c). Increasingly, bundling refers to the sale of a package containing both hardware and software.

Approach

It is recommended to focus the programme on both skills development and promotion/matchmaking. Skills development is needed, as many international companies are already active in Kazakhstan and still report a lack of capable partners that prevents them from developing their activities. In addition, reaching the local content objectives set by the government's 2010-14 ICT Programme will require developing a high valueadded local industry, which in turn will require skills development.

Promotion and matchmaking tools and activities are needed as well. Knowledge of Kazakhstan is not yet widespread among investors and potential clients of IT goods or services companies. Promotion and matchmaking events would provide visibility to the local companies with required skills and capabilities.

Acting on both skills development and matchmaking in parallel reduces two common risks. The first risk is that a programme might focus on skills development only, with no emphasis on business linkages. This would make the allocation of resources of the programme less efficient, potentially generating higher costs and/or slower business results. The second risk would be to focus exclusively on promotion and matchmaking events, leaving structural skills gaps that could prevent the conversion of increased awareness into more business.

The proposed programme entails six modules

The suggested programme structure is modular. This will enable successful modules to expand and less successful activities to shrink or evolve. They include:

- A database of local IT companies;
- A company selection and company assessment activity;
- Local IT training;
- Local business and management training;

- Internships abroad;
- Promotion and communication.

Each module plays a specific role (Figure 3.1):

- The database of local IT companies contains information on local IT companies and serves as the basis for all other activities;
- A company selection process takes place to make sure that the most appropriate companies participate in the programme;
- Technical and business training is delivered based on the results of the assessment to improve skills in local companies;
- Short and long internships act as advanced training while also developing links with international companies;
- The new skills and capabilities developed are fed back into the IT companies database;
- Companies supported are encouraged to network and are promoted, while the programme is advertised to ensure that skills development translates into more business.



How modules interact

Source: OECD Private Sector Development.

Database of local IT companies

The purpose of the database of local IT companies is to make accessible in an easy-to-search way the capabilities available in the IT industry in Kazakhstan, in order to bridge an informational gap between international companies or investors and local IT companies. It will also serve as the basis for the selection of companies for other programme activities (see below).

In practice, the database will enable current and prospective business partners of Kazakhstani IT firms to search for local partners. They will be able to do so based on activity, company capabilities, products and also according to geographical location. The information contained in the database will be provided by the companies themselves and complemented by the results of other modules described below.

The database will need ongoing content management and technical maintenance. On content, company details will be updated on a regular basis, through contacts with the company and through assessments carried out as part of the programme. New companies will be added and companies going out of business will be deleted. Carrying out such work in a rigorous way is important, as the pace of evolution of the IT industry could quickly make database information obsolete.

Technical maintenance should also be carried out carefully. The database structure should evolve along the way to include new fields of information and to accommodate evolving programme needs.

Company selection

It is fundamental to ensure that the most relevant activities are carried out with the most relevant companies. An adapted company selection process should be carried out to select the most relevant companies and an in-depth assessment should take place to tailor activities to each company.

It is advisable that international firms and investors participate in the selection of the participating local companies. This is to maximise the probability that skills development activities lead to new business with participating international companies at the end of the programme.

International companies participating in the programme will be asked to suggest local companies to go through the assessment module, based on their business needs. For the pilot year, each international company will be asked to recommend four companies. In case the maximum number of participating local companies is not attained, the programme manager, Holding Zerde and the Ministry of Transport and Communications will have the option of suggesting additional second-round candidate companies to go through the assessment module. For the pilot year, it is recommended that the maximum number of participating Kazakhstani IT companies be set at 20.

Applications to the programme will be reviewed and validated by a selection board, possibly made up of:

- International companies participating in the programme;
- The Ministry of Transport and Communications;
- The business linkage programme manager.

Some key criteria that may govern the selection process, applicable to all candidates:

- High level of business performance;
- Existing links with international companies, or operations at a standard allowing the company to do so;
- Significant part of the company's activities carried out with private sector clients or private sector partners;
- Visible management willingness to improve skills and to link with international companies;
- Minimum size of five employees;
- Minimum of two years in business.

Once the design of the selection process and criteria are agreed upon, it will be up to the programme manager to carry out the company selection in collaboration with the participants cited above. However, the role of international companies should be discussed and formalised. An increase in the number of participating international companies beyond the current working group members should be considered.

Company assessment

Companies selected will then go through the assessment process in order to define the specific skills development and promotional activities to be carried out by or with them.

Companies will be assessed on a technical basis, *i.e.* in terms of products or services offered and corresponding skills, as well as on a more standardised business basis, regarding business and management skills and business processes.

The exact assessment process will be determined by the programme team. It is recommended to carry out technical and management assessments together, if compatible with the chosen methodologies.

The assessment of business capabilities, following the experience of CzechInvest in the Czech Republic, could be based on an adapted version of the EFQM methodology (Box 5.). It could also be based on other methodologies if deemed more appropriate by the programme team.

Box 5. EFQM and the EFQM methodology

EFQM is a global non-profit foundation based in Brussels, Belgium. Its members are leading European industrial firms, including Bosch, Volkswagen and Nokia.

The foundation developed the EFQM Excellence model, which aims at measuring and developing the performance of organisations. This model assesses an organisation according to nine dimensions:

- 1. Leadership
- 2. Strategy
- 3. People
- 4. Partnerships & Resources
- 5. Processes, Products and Services
- 6. Customer Results
- 7. People Results
- 8. Society Results
- 9. Key Results

There are several options for implementing the EFQM Excellence Model, as the foundation offers a number of diagnosis tools and improvement modules. The path towards improvement usually starts by carrying out a self-assessment, where the company discovers the EFQM model and its terminology. The next step could be an independent assessment by EFQM assessors. Independent assessment leads to improvement programmes and can ultimately result in official accreditations at different levels.

The foundation also acts as a network of firms dedicated to operational excellence. Hence, the implementation of the model also involves some benchmarking with EFQM members, either in an informal or more structured manner.

Source : EFQM website, http://www.efqm.org/en/, accessed 14 May 2012.

The result of the assessment process will be a short, company-specific report, which could include:

- Business objective: what products or services the company wishes to deliver – based on discussions with company management;
- Corresponding needs: technical skills, management and business skills and key required business processes;
- Existing situation: what capabilities the company has and what is actually delivered;
- Technical skills available;
- Management and business skills available;
- Current business processes;
- Prioritised list of key gaps between target situation and current situation;
- Development plan, including training suggestions (per staff member and/or function), internship recommendations (per staff member) and other measures.

Based on this assessment, the company will go through the training and internship modules (see below). Because training activities will be as certification-based as possible, it is most likely that a second round of assessment after skills development activities are carried out will not be needed. Success will be directly assessed by the programme team based on implementation of the development plan. Second round assessment may become necessary if a different assessment or training protocol is chosen.

In addition to being the starting point for other programme activities, this assessment round will be similar to some extent to the company visits or quality audits international companies carry out when considering working with a supplier or business partner. This will help the company focus on the key decision points an international company will look at. To finalise the design of the company assessment process, the most important step is to select the methodology and who will carry it out. It is recommended that specialised consultants with international experience are hired. Ideally, the specialised team should be complemented by one of the programme business analysts. This is to foster competence building for the programme team itself and also to facilitate follow-up with the assessed companies.

Local IT training

The OECD Country Capability Survey carried out in 2009-2010 (OECD, 2011b) has shown technical skills and product knowledge as being key areas for improvement for Kazakhstani IT companies.

Company assessment will unveil a variety of needs, some technical, some not. Non-technical skills development and business process improvement can be fostered by other current or future government-led initiatives, including general programmes directed at SMEs. In contrast, IT skills development is a specificity of the programme.

As a result of the company assessment, training will be recommended in a specific skills area. For instance, an IT specialist of the participating company could be advised to undertake additional training in database administration. Then, the choice of the specific solution the specialist should be trained in will be chosen by the participating company based on a list of training courses on offer put together by the programme team.

IT training will be provided in Kazakhstan. Preference will be given to training fully available online, but some training attended in person should also be made available to employees of participating companies at least in the Astana and the Almaty regions. Once training is chosen, it will be scheduled and carried out directly with the specific vendor or a vendor-certified training provider. Co-ordination, troubleshooting and follow-up will be carried out by the programme team. The programme team will be more directly involved in the event that some open source solutions are chosen. The definitive training offering by skills area will be defined by the programme manager, based on the following guidelines. Training on offer should:

- Address skills gaps identified for the Kazakhstani IT market (Box 6.);
- Be directly relevant to the development of business with international companies;
- Lead to objectively measurable results, such as internationally recognised certifications or accreditations. This will provide a useful metric to monitor the programme;
- Preferably delivered online, alternatively using facilities provided by working group members or government entities;
- Preferably available in Russian;
- Be based on the latest technologies and international standards;
- Be based on open source technologies and open standards. Special attention should be paid by the programme manager to the inclusion of open source solutions in the training offering, as by definition no vendor will actively advocate these solutions;
- Alternatively, be based on proprietary technologies if the technology owner (or the training provider) joins the programme, trains the trainers and/or shares the cost.

Box 6. OECD country capability survey results Six skills areas were identified: IT project manager Application developer Database developer System administrator Network engineer Technical support engineer Source : OECD (2011b), 'Country capability survey'', internal working document, OECD, Paris.

After training, the trained individual will be asked by the programme team to provide proof of his certification.

Skills areas to focus on have already been identified (see Box 6.). For each of these areas, a preliminary list of existing certifications has been compiled. In total, more than 900 certifications were inventoried. The availability of each training course online and in the Russian language was researched and included in an inventory table.

Practical details will need to be examined, including: training requirements (time, physical presence), online portal used to access the training, schedule, cost. This will involve sustained discussions with vendors that will be led by the programme manager. The final selection of training courses on offer will be made by the programme manager, based on the criteria listed above and on these practicalities. It is recommended to target a total of 3 to 10 training courses per skills area in the final, approved list.

Local business and management training

Local business and management training, targeted and complementary to other more general existing initiatives, will be provided.

Results of the OECD Country Capability survey carried out in 2009-10 as well as interviews of foreign and local companies have shown that Kazakhstani IT companies still lack some of the

management and business skills needed to operate in the global IT industry.

Some of these skills are general management and business skills that can be developed through other governmental initiatives. These will not be included in the programme, as this would be redundant.

Some other areas were identified as particularly relevant for an IT-focused business linkage programme:

- Sales and marketing, including customer relations management (individual skill);
- Quality management and business processes (individual skill and resulting company capability);
- Business English (individual skill).

Business and management training will be provided in a training. Based similar way local IT on training to recommendations formulated in the company assessment, the participating company will be asked to pick a specific training course from a pre-approved list assembled by the programme team. Training will preferably be delivered online, although some of the training is expected to take place in person in Astana and Almaty. Training will be arranged directly with the training provider, using their tools and methodology. Co-ordination, troubleshooting and follow-up will be carried out by the programme team.

International certifications available in general management, quality management, sales and marketing, and business English have been inventoried by the OECD team. Whereas more than 900 technical certifications were found, only 80 certifications for business and management training were found, including 37 in business English.

Virtually none of the training courses inventoried is available in Russian, which has two implications. First, internationallyrecognised business training will only be taken by Englishspeaking staff. This needs to be taken into account from the company assessment phase on. Second, alternatives in Russian could be used if needed. In that case, training quality will need to be carefully assessed on a case by case basis.

The programme team will determine a shortlist of preapproved training courses for each skills area, based on the following key criteria:

- Be directly relevant to the development of business with international companies;
- Lead to objectively measurable results, such as internationally recognised certifications or accreditations. This criterion could be relaxed for areas where no Russian versions of internationally recognised training exist;
- Be available in Kazakhstan, preferably online, alternatively in person in Astana and Almaty;
- Be reasonably priced and possible to complete in the course of a 12-month programme.

After training, the trained individual will be asked by the programme team to provide proof of his certification.

The programme team will take a leading role in defining the shortlist of training on offer. It is recommended to target a list of:

- Two to five training courses for sales and marketing;
- Two to five courses for quality management;
- Two to five English language training courses.

On top of programme activities, the programme should take advantage of other existing government initiatives to provide additional training options to participating companies. The programme team will negotiate access with other government entities providing business and management training. When such an agreement is reached, these courses should be added to the list of options offered.

Based on learning points from the pilot year of the programme, coaching and consulting options could be added in the full rollout year.

Internships abroad

Internships abroad for the staff of Kazakhstani companies will be offered.

Internships abroad for employees of Kazakhstani IT companies will play two important roles in the programme. They will provide additional training, in a more advanced and applied form. They will also play a role in promoting the Kazakhstani IT sector internationally, helping build sustained business linkages with international companies.

Two internship schemes are planned:

- Short internships, aimed at top management, which could be described as study trips with a specific focus on IT;
- Long internships, sending IT specialists to work in a partner international company for several months, which will be more technical.

Short internships

Short internships will be aimed at the top management of local IT companies. They will be sent abroad for between 10 days and four weeks. The destination country will be defined by the programme team after discussion with participating international companies and other potential partners. The purpose of this scheme is to expose the top management of companies to business practice in the IT firms of the most advanced economies in the world.

Similar initiatives have already taken place. As part of *Business Roadmap 2020*, two programmes managed by the Committee for Enterprise Development of the Ministry of Economic Development and Trade have organised similar study trips in the United States and in Germany. It is recommended to build on these experiences as much as possible.

The key difference between existing programmes and the short internship scheme of the business linkage programme is industry focus. It is crucial for the short internship to stay focused exclusively on the IT industry. This will ensure that internships not only represent additional general business and management training, but also increase the sector-specific competencies of participants.

Setting up such a scheme will require in-depth discussions with participating international companies and strong coordination with partners. Setting up internship schemes will consume significant co-ordination effort on the part of the programme team. Hence, mutualising some work or merging this scheme altogether with existing initiatives will ensure the best cost efficiency.

Long internships

Long internships are aimed at high-level or promising IT specialists, whether they are part of the local company's management or not. In this second scheme, participants will be sent abroad to work for a partner company for a period of between three and six months. The destination will be determined in discussions with the partner international company. The purpose of this scheme is to develop the technical skills of selected employees, while nurturing business relations between the local company and the host company.

In this scheme, the participating employee will work in a temporary position at the partner international company. The focus is not on observation or experience sharing. On the contrary, the participant should be integrated in a team, work on a project, be assigned tasks and objectives and deliver on them.

This is a new type of scheme for the IT sector, but it has been put in practice in Kazakhstan for other sectors. France and Kazakhstan signed a partnership agreement in 2009 including the purchase by Kazakhstan of several satellites built by EADS subsidiary Astrium. As part of this deal, 40 Kazakhstani engineers were sent to France and Great Britain to work in Astrium's facilities and receive training on satellite maintenance, for a total period of two years. Shorter internships were organised for 20 more engineers. This scheme should remain flexible. Setting it up requires considerable involvement from participating international companies, both financially and in terms of co-ordination effort. Strong efforts should be made by the Programme team to adapt the scheme to international companies' requirements. In particular, merging it when relevant with similar companyspecific programmes should be encouraged, as a way to facilitate international companies' involvement and to reduce the organizational burden on the programme team.

Two complementary approaches

The two approaches are complementary. Short internships will probably prove easier to set up, while longer internships could yield the best results in terms of long-term partnerships between local and international companies. Setting up the two schemes in parallel will help the programme strike a balance between realism and ambition.

Possible alternatives

Based on demand from international firms, these internship schemes could be turned into a staff exchange scheme or a foreign skilled labour attraction scheme. In an exchange scheme, employees of a participating international company would work at a Kazakhstani partner, while the employee of the Kazakhstani company would work at the international firm, simultaneously or sequentially. In a programme aimed at the attraction of foreign skilled labour, local companies would be encouraged to host foreign skilled workers to share their knowledge and experience with the local workforce.

However, employment of foreign labour is strictly regulated in Kazakhstan. Setting up such alternative schemes would therefore require the creation of special legal exceptions, which is likely to prove difficult for the programme team.

Networking, promotion and communication

Promoting the IT industry of Kazakhstan in general goes well beyond the scope of the business linkage programme. Based on interviews with government executives, this task was assumed to be part of the prerogatives of the Ministry of Transport and Communications and of National ICT Holding Zerde.

However, some promotion and communication efforts will be needed as part of the programme. This promotion and communication effort should have four objectives:

- Helping local and international participating companies network;
- Promoting the programme to local companies;
- Promoting the programme to international companies;
- Promoting companies that have taken part in the programme to international companies and investors.

The Programme's annual event will achieve most of these objectives. This event will be both a graduation event for companies that have participated in the programme in the past year and a promotional event for companies considering joining the programme in the following year. It will be a half-day event. Participating local companies and their employees will graduate from the programme and speak about their experience. Participating international companies will speak about their experience with the programme and their needs.

More informal networking events will also be organised for participating companies to exchange information on a regular basis.

The programme will also co-ordinate with other promotional efforts for the Kazakhstani IT sector, especially abroad. In particular, in addition to ambitious government-led IT projects, private-sector players working for private-sector clients should be given some visibility in IT fairs or conferences abroad.
Each module will be rolled out within a specific timeline

The programme suggested is a 12-month, structured pilot scheme.

Linkage programmes can either be organised as an ongoing process, where each company undertakes activities at a different time, or as a series of "classes", where a batch of companies goes through the sequence of activities at the same time.

The local situation and government objectives in Kazakhstan are closer to those of the Czech Republic, which organised its programme in "classes", than those of Costa Rica, which pursued an ongoing effort (see above). It is advisable to put in place a system of 12-month "classes", for a number of reasons.

Focus: as activities are organised in a sequential way, programme staff, programme sponsors and participating international companies have the opportunity to focus on one step at a time.

Momentum: as a number of companies go through the same process at the same time, they are able to share their experience, thus adding further value to the programme.

Monitoring: at the end of each "class", time can be planned for participants' feedback, assessment of the programme and evolutions before the next "class" enters the programme.

However, there should be maximum flexibility within that 12month period. This is especially important for the pilot year, as it is likely that at least some companies will join the programme along the way.

Figure 3.2 indicates how a 12-month sequential programme could be structured.



Figure 3.2 Indicative timeline of a business linkage programme

Source: OECD Private Sector Development.

Based on the results of the pilot phase, a full rollout will begin immediately afterwards.

Private sector stakeholders will play a key role

Local IT companies

A number of local IT companies participate in working group meetings. Associations representing local businesses are also included, such as the Association of Kazakhstani IT companies, the Internet Association of Kazakhstan and NAT Kazakhstan.

The input of local companies was instrumental in putting together this proposal. The programme team should ensure their sustained, deep involvement in the setup of the programme.

Participating local companies have much to gain from the programme:

- A detailed assessment of their strengths and weaknesses;
- Better staff through the skills development modules;

- Exposure to global business practice;
- Deeper partnerships with international companies;
- New partnerships with international companies;
- More visibility with international companies and private investors.

As with any investment, participating in the programme requires time and resources:

- Committing senior management time to monitor participation;
- Freeing up employees when necessary for training or internships;
- Co-financing the initiatives, including assessment, training and internships.

Once the programme starts or shortly before, a specific effort will be needed to recruit local companies. This effort will involve international companies participating in the programme, but the programme team will also be involved in publicising the programme (see above).

International IT firms

A recruitment effort has been carried out and led to the participation of four major international players in working group sessions. Work needs to be carried out to transform interest into direct involvement in the programme when it goes live.

Recruiting additional international companies to participate in the sector would also be useful. Key factors for the selection of international companies could be:

- Existing activities in Kazakhstan and interest in developing business in Kazakhstan and Central Asia;
- Business model based on value-added relationships with local companies;

• Dedication to the training of business partners and experience in ecosystem development.

An in-depth analysis of their priorities as buyers/business partners should be carried out. In fact, the most decisive way international companies can contribute may be helping local companies and government understand their needs and decision processes.

International companies have much to gain in the programme:

- The build-up of a competent local ecosystem;
- More competent, long-term business partners;
- Increased local visibility for the company and its solutions;
- A forum for discussion with local policymakers.

Companies interested in the programme should be ready to commit time and resources to:

- Identifying several local partners to participate in the programme;
- Devoting senior management time to meetings, including quarterly co-ordination meetings and company selection meetings;
- Participating in the annual event;
- Co-financing the initiatives, including participation in kind in training and exchange modules, as well as a minority cash participation in other activities.

A dedicated team is needed

The quality of the team is a key success factor of the programme. As described in Chapter 2, the programme team will need to collectively possess a wide array of skills and experiences, including entrepreneurial spirit, private sector experience, sectorspecific knowledge and a certain level of seniority. The team budgeted in this proposal is made up of four professionals, as outlined in Figure 3.3.



Figure 3.3 Programme organisation chart

Source: OECD Private Sector Development.

The Programme Manager will manage the programme team, make decisions and report on successes and failures. Given the responsibilities such a position entails, the programme manager will need to be a seasoned professional with significant management experience. An administrative assistant will be needed to take care of administrative tasks. Two analysts will assist the programme manager in rolling out the six modules.

Other analysts or specialised assessment consultants will be needed. Exact needs will be determined after the final sizing of each module.

Once the programme is approved and the suggested budget is unlocked, appropriate governance needs to be set up to allow proper supervision by the Ministry of Transport and Communications.

The Programme budget will include public and private financing

The project's total cost is estimated between USD 600 000 and USD 1.2 m. A number of non-binding co-financing hypotheses were made. After co-financing by participating companies, the programme budget would amount to between USD 400 000 and USD 800 000. The cost estimates for the different modules are described in Figure 3.4.

Figure 3.4 Indicative programme budget

| MODULES | ASSUMPTIONS | BOTTOM ESTIMATE (kUSD) | TOP ESTIMATE (kUSD) | % FINANCED BY BLP BUDGET | FINANCED BY BLP BUDGET (kUSD) |
|--------------------------|--|------------------------------|---------------------------|--------------------------------|-------------------------------------|
| SECTOR DATABASE | IT specialist (commitment ~20%) Programme analyst (~20%), IT Hosting (outsourced ~ \$2K) | 12 | 20 | 100% | 12>20 |
| ASSESSMENT | External consultant (~60days) Programme analyst (~20%) | 50 | 105 | 90% | 45>90 |
| TECHNICAL TRAINING | Certification (~100trainees) Program analyst (~20%) | 200 | 310 | 24% | 50>75 |
| BUSINESS TRAINING | Certification (~40trainees) Program analyst (~20%) | 85 | 125 | 90% | 75>115 |
| EXCHANGE AND | Internship (~4 interns) Senior management short exchange (~20managers) Program analyst (~20%) | 170 | 310 | 63% | 105>195 |
| PROMOTION & MARKETING | Annual event (1 per year) Program analyst (~20%) | 40 | 80 | 83% | 35>65 |
| OVERALL COORDINATION | Program manager (~100%) Program assistant (~100%) Office space, equipment, telecom, office supplies, mail, travel, misc. Expenses (between \$40k and \$100k) | 110 | 220 | 100% | 110>220 |
| TOTAL | | 670 | 1,170 | 67% | 430>780 |

A budget built bottom-up

Source: OECD Private Sector Development.

Database and company selection costs

The database cost will be borne entirely by the programme budget. It is mainly made up of salaries for a programme analyst and an IT specialist. Both are part-time roles. The total cost of the database is estimated between USD 12 000 and USD 20 000 per year. Company selection will not result in any particular cost beyond the co-ordination cost, in the form of work time from the programme analysts and from the programme manager.

Company assessment costs

The assessment entails substantial costs, estimated between USD 50 000 and USD 105 000 for 20 companies assessed. This comprises both external consultant fees and the time of one of the programme analysts. Under the current indicative co-financing hypothesis, 90% of this funding will come from the programme budget, while the assessed company will be asked to co-finance the remaining 10%. This represents a co-financing of between USD 250 and USD 500 per company.

IT technical training cost

The cost of the IT training module is estimated at between USD 200 000 and USD 310 000. Under the current indicative cofinancing hypothesis, training should be co-financed by participating international companies at the level of 75% through discounts on the list price of the training provided. 90% of the remainder will be borne by the programme budget and the rest by the local company. This translates into a cost of USD 50 to EUR 75 per certification left to the participating company. The remaining cost to the programme is estimated between USD 50 000 and USD 75 000.

This cost estimate could vary based on the cost of certifications chosen and the actual level of co-financing by vendors. If many open source certifications are chosen, it could be revised upward, as by definition there will be no co-financing in the form of a rebate by the vendor.

Business training cost

The cost of the business and management training module is estimated between USD 85 000 and USD 125 000. This is based on two trainees per participating company, for 20 companies. As for other activities directly benefitting local companies, they will be asked to co-finance 10% of the certification cost. This represents a cost of USD 200 to USD 300 per trainee left to the participating company. The resulting cost to the programme will be USD 75 000 to USD 115 000.

Short and long internship costs

The forecast cost of the short internship scheme is between USD 100 000 and USD 180 000. This assumes one two-week exchange for each of the 20 participating Kazakhstani companies. Taking as a first hypothesis a co-financing of 20% by the international company, 90% of the remaining amount (that is between USD 70 000 and USD 130 000) will be borne by the programme budget. Participating local companies will be asked to contribute between USD 400 and USD 720 each.

The forecast budget for the long internship scheme is between USD 65 000 and USD 130 000. This is based on an assumption of four six-month internships for the pilot year. The initial cofinancing hypotheses is that half of the cost will be borne by the host international company, leaving a burden on the programme budget estimated between USD 35 000 and USD 65 000.

The total budget for the internship module amounts to between USD 170 000 and USD 310 000. The share to be financed by the programme budget is estimated between USD 105 000 and USD 195 000.

Cost estimates for this module should be considered with care. The higher amount of co-financing from international companies assumed for this module makes the estimate of the remainder to be paid by the programme budget more volatile.

Marketing and promotion costs

The first estimate of the cost of the promotion and marketing module stands between USD 40 000 and USD 80 000. Assuming a co-financing of 20% of the annual event from international companies, the cost to the programme budget will be between USD 35 000 and USD 65 000.

Caveats and limitations of budgeting

Budget figures given in this programme proposal are based on two sets of assumptions:

- Assumptions regarding the local cost of items;
- Assumptions on co-financing by local and international companies. Figures given on co-financing are based on similar international experiences and informal consultations and do not mean any firm commitment has been made by local or international companies.

This estimate will need to be refined in collaboration with Holding Zerde and the appropriate ministries on the base of finer item cost estimates. It will also necessitate in-depth discussions with international IT firms interested in the programme.

Depending on the availability of funds, the scale of each module can be adjusted before pilot launch. Based on the findings of the pilot year, activities and budget will then be reviewed before full roll-out.

Chapter 4

The way forward

This chapter describes selected short, medium and long-term key success factors for the proposed business linkage programme. It first argues that in the short term, putting together the right team, ensuring deep private sector involvement and maintaining the necessary momentum will be key. It then argues that in the medium term, lessons should be carefully drawn from the pilot programme to best replicate the approach on a larger scale. Finally, the long-term necessity of a healthy flow of company creation to help sustain the programme is noted.

Team profiles, private sector engagement and momentum are immediate key success factors

Three key success factors for the successful implementation of the 12-month pilot programme can be identified: team profiles, participation of the private sector and momentum.

The quality of the implementation team is a key success factor. The four members of the team described above will need to be chosen carefully, the most important profile being the programme manager. A balance needs to be achieved between speed of recruitment and fit with the ideal profile.

Successfully engaging private stakeholders will prove key as well. Private companies will play an instrumental role in refining programme design, rolling out the six modules and co-financing several of them.

Maintaining momentum will be necessary to roll out the programme within the set timeline. This will mean conducting intense consultations to decide on concrete programme details, while starting implementation as soon as possible.

In the medium term, the Programme should be able to evolve

A review will be carried out at the end of the 12-month pilot. Each module will be reassessed and the value added by a sixmodule comprehensive programme reassessed. This will be done in consultation with all stakeholders involved: participating local companies, international companies and government bodies.

Possible refinements will be formulated and implemented, using evidence from the first year of operations to improve the programme.

In the long run, developing the "entrepreneurship pipeline" will be necessary

Fostering the development of skills in Kazakhstani IT SMEs necessitates the presence of a healthy number of such companies. To sustain this effort over the long run, making sure IT companies are created and are given the opportunity to grow will be essential.

Encouraging company creation is part of a broader SME development strategy but some initiatives can be taken on technology-intensive IT companies. Incubator programmes, providing the right environment to company founders, could be modernised. Accelerator programmes, providing the best connections and expertise for companies to grow and develop, could be started.

Bibliography

- Arulampalam, W., L.A. Booth, and M. A. Bryan (2004) Training in Europe, *Journal of the European Economic Association* 2(2-3), 346-60.
- Baker Tilly (2010), Alliance of Sector Skills Councils Evaluating Economic Impact, Baker Tilly, London. Available at <u>http://www.sscalliance.org/Publications/PublicationArchive/</u> <u>UKPublications.aspx</u>.
- Bassanini, A., L.A. Booth, G. Brunello, M. de Paola and E. Leuven (2005) : Workplace Training in Europe, *IZA Discussion Papers*, No. 1640.
- Bosworth, B.P and J.E. Triplett (2003), "Services Productivity in the United States: Griliches' Services Volume Revisited", paper prepared for CRIW Conference in Memory of Zvi Griliches, Brookings Institution, Washington, DC, September.
- Froy, F., S. Giguère and M. Meghnagi (2012), "Skills for Competitiveness: A Synthesis Report", OECD Local Economic and Employment Development (LEED) Working Papers, 2012/09, OECD, Paris.
- Institut für Berufs- und Erwachsenenbildungsforschung website, www.ibe.co.at/ebqs.html, accessed 10 November 2012.
- Lee, S.T. and X. J. Guo (2004), Information and Communications Technology (ICT) and spillover: a panel analysis, <u>http://repec.org/esFEAM04/up.27583.1080732562.pdf</u>, accessed 14 December 2012.
- Lucifora, C. and F. Origo (2002), *The Economic Cost of the Skill Gap in Europe*, Istituto per la Ricerca Sociale, Milan.

- Marchese, M. & J. Potter (2010), "Entrepreneurship, SMEs and Local Developmentin Andalusia, Spain", *LEED Working Paper Series*, LEED programme, OECD, Paris.
- Masimov, K. (2010), Decree 983 of September 29, 2010 On the approval of the Programme for Development of Information and Communication Technologies in the Republic of Kazakhstan 2010 – 2014, Government of Kazakhstan, Astana.
- OECD (2002), Education at a Glance, OECD, Paris.
- OECD (2004), The Economic Impact of ICT, OECD, Paris.
- OECD (2005), Promoting Adult Learning, OECD, Paris.
- OECD and IBRD/World Bank (2007), *Review of National Policies* for Education: Higher Education in Kazakhstan, OECD, Paris.
- OECD (2010a), OECD Information Technology Outlook, OECD, Paris.
- OECD (2010b), Off to a Good Start? Jobs for Youth, OECD, Paris.
- OECD (2010c), Learning for Jobs, OECD, Paris.
- OECD (2011a), Competitiveness and Private Sector Development: Kazakhstan 2010: Sector Competitiveness Strategy, OECD, Paris.
- OECD (2011b), 'Country capability survey", internal working document, OECD, Paris.
- OECD (2011c), Broadband bundling: trends and policy implications, OECD, Paris.
- OECD (2012a), OECD Internet Economy Outlook 2012, OECD, Paris.
- OECD (2012b), Better Skills, Better Jobs, Better Lives: A Strategic Approach to Skills Policies, OECD, Paris.
- OECD, n.d. "Glossary of Statistical Terms", <u>http://stats.oecd.org/glossary/detail.asp?ID=1698</u>, accessed 14 December 2012.

Schwab, K. (2011), *Global Competitiveness Report*, World Economic Forum, Geneva.

Stone I. (2012), "Upgrading workforce skills in small businesses: Reviewing international policy and experience", presented at the OECD LEED international workshop on Skill Development for SMEs and Entrepreneurship, Danish Business Authority – Copenhagen, 28 November 2012.

- UKCES (2011), UK Sector Skills Councils Annual Performance Report, April 2010 – March 2011, available on the UKCES website at <u>http://www.ukces.org.uk/ourwork/sector-skillscouncils</u>.
- UNCTAD (2001), World Investment Report 2001 Promoting Linkages, United Nations, New York and Geneva.
- UNCTADStat, "ICT producing sector core indicators", http://unctadstat.unctad.org/TableViewer/tableView.aspx?R eportId=1634, accessed on 9 May 2012.

Annex

Stock-taking exercise of linkage programmes

| Name of the | Country | Industries | Year(s) | Responsible entity |
|--|---------------------------|--|--------------------|--|
| programme | | concerned | | |
| Partnership for enterprise development in Africa (UNIDO and Microsoft) | Pan-African | IT and Business Services | Started in 2006 | United Nations Industrial Development Organization (UNIDO) in partnership with Microsoft |
| Integrated Programme to Support Capacity- Building for Sustainable Industrial Development in Pakistan | Pakistan | Mixed industries (focus on manufacturing SMEs and light engineering) | Started in 2000 | UNIDO and the Government of Pakistan |
| SBP (Small Business Project) | Sub- Saharan Africa | Mixed industries | Started in 1998 | SBP (formerly known as the Small Business Project): an independent private sector development and research organization based in Johannesburg, South Africa, with experience across sub-Saharan Africa |
| ACG/BTC Linkages Program | Azerbaijan | Oil and Gas | Started in 2006 | IFC (International Finance Corporation) and BP |

| Women Entrepreneurship Development Programme in Bolivia | Bolivia | Food Processing | Started in 2008 | United Nations Industrial Development Organization (UNIDO) in partnership with several MNEs |
|---|---|--|--------------------|--|
| Andean Trade Promotion and Drug Eradication Act (ATPDEA) | Bolivia | Textiles | 1991-2006 | Government of the USA and Government of Bolivia |
| GTZ Projeto Vinculos (PROMINP) | Brazil | Chemicals | Started in 2004 | Collaboration between the Government of Brazil, UNCTAD (United Nations Conference on Trade and Development), Government of Germany and German multinationals |
| Centre for Enterprise Excellence | China | Telecom | Started in 1998 | Motorola in partnership with China's State Development and Planning Commission |
| Integrators' Subcontracting programme | Hungary | Automotive, electronics, rubber and plastics, textiles, furniture, building materials, services and retail trade | Started in 1998 | Ministry of Economic Affairs jointly with Hungarian Investment Development and Trade Development Agency |
| Distribution and retail Linkages | Global (initially South- Africa) | Retail | | Coca-Cola in partnership with the IFC and the Africa Project Development Facility |
| Small Business Development Group (Chevron) | Kazakhstan | Oil and Gas | Started in 1997 | Governement of Kazakhstan, Chevron and Chevron's joint venture Tengizchevroil (TCO) |

| Ispat Karmet | Kazakhstan | Steel | Started in 2000 | IFC (International Finance Corporation) |
|---|------------|---|--|--|
| Fondo Tijuana | Mexico | Machinery and electronics | Started in 2000 | Tijuana Development Council, Government and MNEs |
| Danida's B2B Programme | Vietnam | Plastics | Started in 2005 | Government of Denmark, Government of Vietnam and MNEs (VINAPLAST) |
| Vietnam Business Links Initiative (VBLI) | Vietnam | Footwear | Phase I: 1999-2005, Phase II: 2005-2008 | IBLF (International Business Leaders Forum), UNIDO and UNIDO-CSR and Government of Vietnam |
| Ford's Program | Russia | Automotive | | Ford and IFC (International Finance Corporation) |
| Mgadan Program | Russia | Mining | 2002 | IFC (International Finance Corporation) |
| Ancillary Development Program | India | Automotive, Food Processing, Pharmaceuticals, and Apparel and Textiles | 1998-2007 | Government of India |
| Industrial linkage program of the industrial master plan | Malaysia | Electrical and electronic products, chemicals, petrochemicals, pharmaceuticals, textiles apparel, autos, motorcycles, marine and aerospace development; machinery and equipment, resource-based industries | 1996-2005 | Ministry of International Trade and Industry, Malaysian Industrial Development Authority, Small and Medium Industries, MNEs via Industrial Coordination Council |

| MozLink | Mozambique | Aluminum | Phase I: | IFC and MNEs |
|-----------------|------------|----------------------|------------|----------------|
| | | | 2003-2007; | (Mozal, Sasol, |
| | | | Phase II: | Cervejas de |
| | | | 2007-2010 | Mocambique, |
| | | | | Coca-Cola) |
| | Czech | Electronics, | 1999-2006 | CzechInvest |
| | Republic | automotive | | (National |
| | | components, | | investment and |
| | | precision | | business |
| | | engineering | | development |
| | | | | agency), EU |
| Costa Rica's CR | Costa Rica | High-tech | Started in | Inter-American |
| Provee | | industries, textile, | 2001 | Development |
| | | agri-business, | | Bank, Procomer |
| | | services | | |
| | Ireland | Computer, | Phase I: | Enterprise |
| | | telecom, medical | started in | Ireland |
| | | devices | 1984; | |
| | | | Phase II: | |
| | | | 1990s | |