

## The Role of Public-Private Partnerships in Driving Innovation

LOUIS WITTERS, REVITAL MAROM, and KURT STEINERT, Alcatel-Lucent

The term ‘public-private partnership’ (PPP) describes a relationship in which public and private resources are blended to achieve a goal or set of goals judged to be mutually beneficial both to the private entity and to the public. The term has gained prominence as its importance has become more significant over time.

### The role of public-private partnerships in national economies

The use by governments or public authorities of private contributions for public benefit is nearly as old as recorded history.<sup>1</sup> For example, in the city-state of Athens in the 4th century BC, prominent citizens made major contributions in order to stage public festivals and religious events and to build public buildings and monuments. Some centuries later, when the Roman army conquered large parts of Europe and the Mediterranean region, civilians worked hand-in-hand with the army to exploit the new territories and build needed infrastructure. PPPs have a long history in the United States of America (USA) as well: the principle that government and political leaders should use and support private businesses—in order to develop scientific advancement and innovations for the benefit of the society—was well established at the time the country’s constitution was written. One of the first instances of a PPP in the New World occurred in

1742 when Benjamin Franklin established the American Philosophical Society of Philadelphia, which— together with the Pennsylvania House of Representatives—sponsored the founding of the University of Pennsylvania, the first medical school in the British colonies. The purpose of this collaboration was to make advancements in agriculture, science, and medicine available to all citizens. Another, more recent, renowned project that brought the business world and government together in the public interest was the building of the Paris metro: the tunnels were constructed by the city, while the tracks, energy, signalling, and rolling stock were provided by the operator, a Belgian entrepreneur.

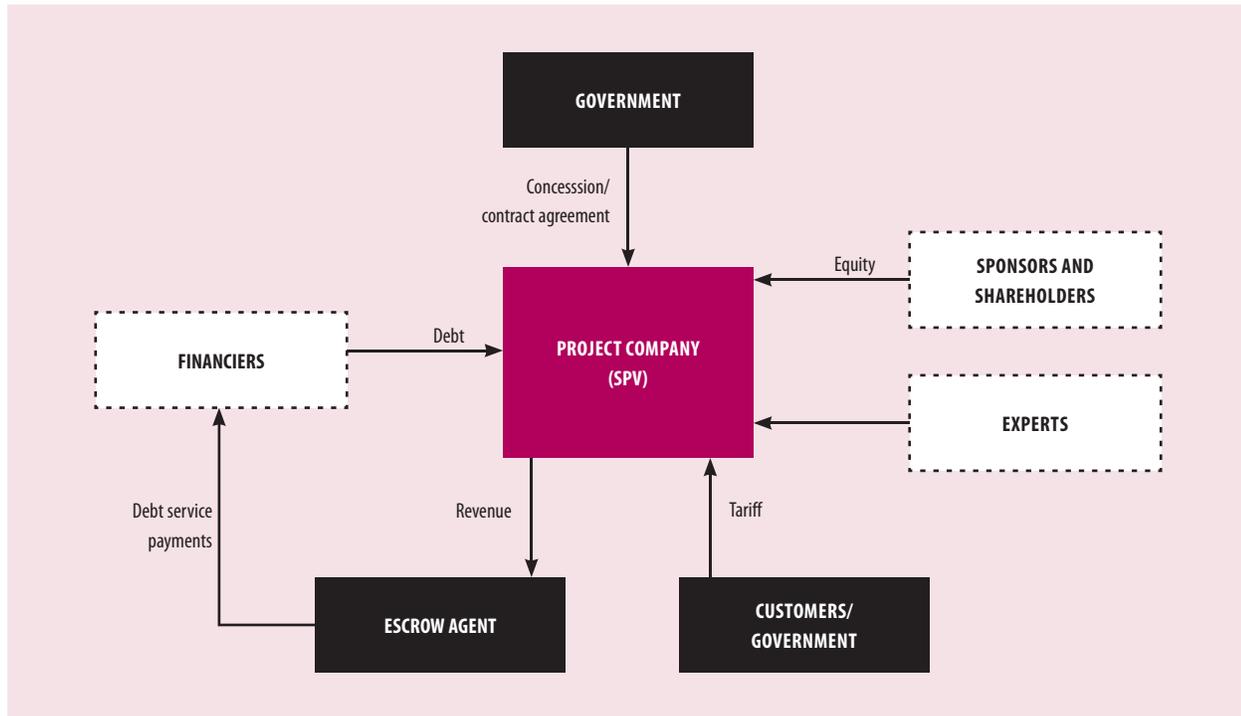
In today’s economic environment, PPPs are defined as contractual agreements between a public agency or public-sector authority and a private-sector entity that allow for greater private participation in the delivery of public services, or in developing an environment that improves the quality of life for the general public (Figure 1). Under such a legal construction, the partners share risk, reward, and responsibility for a shared investment.<sup>2</sup> These partnerships are not simply tools for funding projects, but they require full commitment from all partners for the entire undertaking.

The PPP legal construction can cover three types of arrangements. First, it can be used to introduce

private-sector ownership into state-owned businesses through a public listing or the introduction of an equity partner. Second, it can become a private finance initiative, where the government takes advantage of private-sector management skills by awarding long-term franchises to a private-sector partner, which assumes the responsibility for constructing and maintaining the infrastructure and for providing the public service. Third, it can cover the selling of government services to private-sector partners, which can better exploit the commercial potential of public assets. In these three arrangements, the private-sector consortium typically forms a special company—called a ‘special purpose vehicle’ (SPV)—to develop, build, maintain, and operate the assets for the contracted period. In cases where the government has invested in the project, it is usually—but not always—allocated an equity share in the SPV. Within the PPP, it is the SPV that signs the contract with the government and with subcontractors to build the facility and then maintain it.

### Achieving urban sustainability through public-private partnerships

History has frequently shown that PPPs can improve urban living through collaborations that combine innovative efforts from the private sector, forward-thinking policies

**Figure 1: Typical structure of a PPP project**

Source: UN ESCAP, 2011.

from governments, and support from nonprofit organizations.<sup>3</sup> This is still true: today's cities too can be transformed by forging PPPs that encourage new ways of doing things. What makes the current situation different from that of the past is that information and communication technologies (ICT) are reinforcing and expanding these PPPs beyond all previous limitations and boundaries. PPPs that incorporate—in innovative and creative ways—the deployment and use of ICT have the power to improve the services that matter most to city residents: education, transportation, economic development, public safety, healthcare, and social services. Rather than simply cut back on these services in the face of budget deficits, governments can work with private corporations to transform the way such services are delivered by using ICT through initiatives such as e-government,

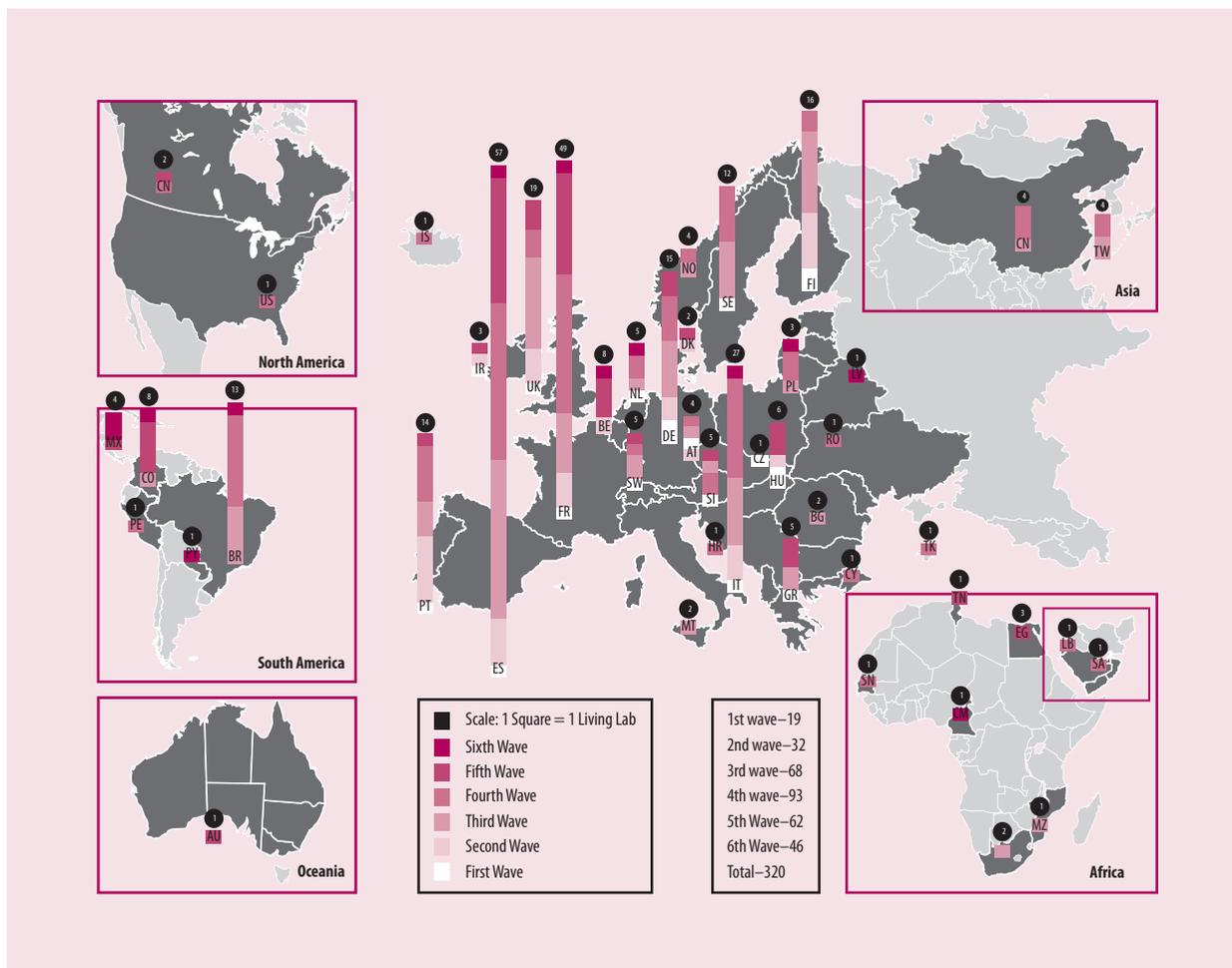
remote healthcare, and intelligent transport.

A good example is Living Cities,<sup>4</sup> a USA-based innovative philanthropic collaborative of 22 foundations and financial institutions that takes a comprehensive approach to improving the lives of low-income people and revitalizing the urban areas in which they live. Living Cities works to connect city governments and private partners to ensure that key urban issues—such as green jobs, housing, education, and neighbourhood stabilization—are addressed in innovative ways. In another example, in Europe the Living Labs PPP of city governments and private companies aims to create a user-driven open innovation eco-system where users live, work, study, play and entertain (Figure 2).<sup>5</sup> In this real living environment, the participants—in cooperation with government institutions and private

companies—co-create, experiment, and test new ideas, new products, and new services. Ultimately this approach is expected to lead to user-centric solutions and social innovation processes. Crucial drivers of the Living Labs are ICT and the Internet, which are at the heart of the open co-creation; the platforms and open connectivity, which are key facilitators; and open innovation, which is the soul of competitiveness and new services.

What is more, individual cities (e.g., Oulu in Finland, Dubuque in the USA, and Beijing in China) are pursuing their own models for using PPPs for urban development. The Oulu city project is using the living lab approach to win inward investment for the city; this successful undertaking has encouraged some companies to locate research and development resources in the city. The city of Dubuque (Iowa,

Figure 2: European network of Living Labs



Source: www.openlivinglabs.eu.

USA) is leveraging a PPP to amplify the potential benefits of the Energy Efficiency and Conservation Block Grant funding programme from the federal government. The PPP aims at making the city ‘smart’ by reducing energy consumption and greenhouse gas emissions, and by building up the community’s technical capacity to conduct energy-efficient retrofits of existing infrastructure, ultimately helping to foster local job creation. The city of Beijing used the PPP model in the building and operation of the city’s fourth subway line (28 kilometres long, with 24 stations), with companies from both inside and outside of China participating.

Although these efforts do help to highlight the effectiveness of the PPP model, they are hardly the rule. The overwhelming majority of PPPs are still issue-specific, focusing on a particular area of civic engagement such as education, healthcare, the environment, or the arts. Few such initiatives are elevated to the level of an entire city, where all of the issues noted above and many more intersect. However, as cities struggle to overcome economic stress and accommodate rapid population growth, they must pursue an interconnected model of problem solving. Innovation from the private sector can be extremely beneficial in this

process by leveraging the capabilities of ICT to make all the systems used to supply the city with services smarter, more efficient, and more effective. Similarly, the public sector can explore models that have proven to be successful in corporations and other enterprises. The first step in such an innovative transformation is the creation of a city-wide strategy that allows leaders to view their cities as an interdependent system of systems, and to assess ways in which ICT can be used to improve them all.

### Box 1: Public-private partnerships in the ICT sector

**e-Mitra (India):** This project was undertaken by the government of the Indian state of Rajasthan and local service providers to deliver e-government services (e.g., forms, birth certificates, information) to Indian citizens via dedicated centres and kiosks.

**Eastern African Submarine Cable System (EASSy):** This is a multi-country, multi-partner consortium set up to connect 21 countries in East Africa with each other and with the rest of the world via undersea optical fibre cables.

**Estonia Rural Connectivity:** This project exhibits cooperation between the national authorities and the Estonian Telephone Company to expand access to broadband communications services in scarcely populated areas.

**Egypt Smart Village:** This is a technology park/PPP between Egypt's Ministry of Information and Communication Technology and a private consortium designed to remove obstacles for ICT firms investing in the country.

**SOURCE:** infoDev and ITU, available at [www.ictregulationtoolkit.org/en/PracticeNote.aspx?id=3160](http://www.ictregulationtoolkit.org/en/PracticeNote.aspx?id=3160) (accessed 19 April 2012).

### Driving key social and economic sectors through public-private partnerships

PPPs have been heavily promoted in key sectors such as education and healthcare with the aim of improving efficiency and innovation in the generation and performance of public services. However, the infrastructure for improvement in these sectors comes from the ICT sector, where many PPPs have been established to respond in faster and more inventive ways to the

ever-increasing demands of customers.<sup>6</sup> One example is the European Union (EU)'s Future Internet PPP,<sup>7</sup> which covers a research program co-funded by private enterprises and the European Commission's Information Society and Media Directorate General. This project addresses some of the key challenges described in its *Digital Agenda for Europe*<sup>8</sup>—in particular, Europe's competitiveness in future Internet technologies and systems and the need to make public-service infrastructures and business processes significantly smarter—more intelligent, more efficient, more sustainable—through tighter integration with Internet connectivity and computing capabilities.

PPPs in the ICT field are driven primarily by mobile applications and more affordable Internet access (see Box 1). The success of an ICT-centric PPP project depends largely on the establishment of economically viable business models and self-sustaining schemes for the delivery of e-services, because most private participants are interested in PPPs only if there is a possibility of a return on their investment (and the associated risk that is deemed worth taking). However, global initiatives—such as the Digital Opportunity Task Force, the Global Knowledge Partnership, and the World Summit on the Information Society<sup>9</sup>—have increased awareness of the vital role that PPPs play in providing access to ICT for all as an instrument for social, industrial, and economic innovation.

Schooling and education is, in general, largely provided and financed by governments,<sup>10</sup> but unmet demand for education coupled with shrinking government budgets requires that—in many parts of the world—public-sector organizations develop partnerships with the private sector if educational needs are to

be met. The main rationale behind these PPPs is that private companies can stimulate equitable access to education and, ideally, can improve learning outcomes.<sup>11</sup> In low-income countries, excess demand for schooling results in private supply when the state cannot afford schooling for all. In high-income countries, demand for 'differentiated' education leads to a call for private schooling, as a sophisticated clientele demands different kinds of schools. Just as importantly, expectations of the integration of new devices to access the Web, along with the availability of new broadband networks and new social networking applications and the increasing availability of educational content for online learning, are becoming a crucial part of global education and learning services.

The transport sector has seen multiple PPP initiatives, which aim to upgrade transportation infrastructure with innovative ways of funding, technological development, and streamlined management.<sup>12</sup> The EU is enabling innovation by co-funding a €5 billion European Green Cars PPP initiative that would improve the sustainability of all European road transport and accelerate the move towards the electrification of road and urban transport.<sup>13</sup> Between 2005 and 2008, more PPPs for surface transportation facilities were established in the USA than during any comparable period in that country.<sup>14</sup> One example is the collaboration between the Carlyle Group and Doctor's Associates—called Project Service—which resulted in the formation of a 35-year PPP with the State of Connecticut to redevelop, operate, and maintain the 23 highway service areas across the state. Project Service will reduce the energy usage and emissions associated with trucks by implementing new environmental technologies.

Similar efforts are underway in the manufacturing sector. For instance, the EU is supporting a €1.2 billion Factories of the Future PPP initiative to promote the competitiveness and sustainability of the European manufacturing industry.<sup>15</sup> The initiative has embarked on its first 25 research projects, which focus on four main innovation areas: (1) smart factories, by using more streamlined ICT or the next generation of robotics, automation, planning, and simulation; (2) digital factories, which reduce the need for physical prototyping; (3) sustainability and exploiting new methods, or new green technologies and people-friendly strategies in factories; and (4) rethinking the use of materials or processing with new high-performing materials.

Other sectors that witness the PPP as a framework for action to direct basic research and basic services are the agriculture and healthcare sector (see Box 2).

### Public-private partnerships: Inseparable parts of international and national innovation policies

PPPs in the field of technological innovation are essential for the competitiveness of regions and individual countries, and various regions are making moves to identify the best use of PPPs in this respect. The European Commission, for instance, is building up a specific legal framework to facilitate the creation of PPPs and ensure that risks and responsibilities are shared.<sup>16</sup> The intent is to guarantee access to finance through grants, public procurement, or investment. In the Middle East and North Africa, PPPs are also taking centre stage in terms of regulatory requirements.<sup>17</sup> The need for the rapid delivery of large-scale and complex projects conflicts with

significant capital needs that should remain available for infrastructure, education, and healthcare. This puts heavy constraints on public budgets, but the availability of private capital is also constrained because investors are now more risk-aware than they were earlier, and are less willing to take risks in emerging markets. On the flip side, efficiency gains from private-sector involvement are believed to be considerable.

Countries are also defining legal frameworks and policies to make the usage of PPPs more transparent and better integrated in the national context. Studies by the Organisation for Economic Co-operation and Development (OECD) revealed that an important weakness in the Dutch national innovation system was the inadequate interaction between science/higher education and industry.<sup>18</sup> Different models of PPPs were already key components of the Dutch innovation policy toolkit, but the OECD recommended additional PPPs to improve the country's innovation and economic performance. In Austria, the OECD noted that the national government had taken a variety of policy initiatives to increase R&D intensity and the efficiency of the national innovation system.<sup>19</sup> Fostering linkages in the national innovation system had become the major policy focus and PPPs the major policy instrument. The Kplus programme of the Ministry of Transport, Innovation and Technology, and the Kind/Knet program of the Ministry of Economics and Labour were seen as emblematic examples of this reorientation of Austria's technology and innovation policy because they encourage and organize collaboration between enterprises and research institutions in pre-competitive research with a high potential for commercial application.

### Box 2: Public-private partnerships in the agriculture and healthcare sectors

**Biotech Brinjal:** This PPP uses technology donated by private-sector developers to local researchers in India, Bangladesh, and the Philippines to improve eggplant productivity and yields.

**Improvement of teff yields:** This project was established to improve yields of the cereal grain teff, which is an important staple in Ethiopia. Private-sector researchers have teamed up with the University of Bern in this PPP.

**ASAQ Winthrop:** This is a PPP between the World Health Organization (WHO) and a private company to develop a new anti-malarial medicine and to address issues posed by its deployment in the field.

**Chiranjeevi Yojana (meaning 'long life'):** This is a PPP in Gujarat (India) between the government of Gujarat and private-sector gynaecologists to remove financial barriers so that poor women can access qualified health-care facilities.

**SOURCES:** Bompert et al., 2011; CropLife International, 2009; MDG-5, 2010.

In Hong Kong (China), the idea of implementing PPPs was explored several years ago when the economy accumulated a budget deficit following the Asian financial crisis. The government had to explore ways to cut expenditures and still deliver much-needed infrastructure. Since that time, several projects have been put forward, sparking much debate about whether PPPs are the appropriate model for infrastructure delivery in Hong Kong (China).<sup>20</sup> PPPs were also not unknown in the Russian

Federation, but their number, size, technological scope, and geographical spread were very limited.<sup>21</sup> PPPs in the Russian Federation were too often seen as a mere financing instrument with which actors could attract additional funding without altering their research agenda. Government financing was welcomed by researchers in the private sector, because it was obtained without any change to planned development stages. According to the OECD, there is room in the Russian Federation both for improving existing PPP schemes and for new PPP initiatives that could increase the breadth, depth, and economic relevance of the national R&D portfolio.

PPPs are also pursued as innovation vehicles in the USA, where policy makers are creating a legal framework to better use the strength of PPPs for technological and social innovation in the telecommunications sector. North American political leaders are eagerly looking for close collaborations with telecommunications service providers to address critical societal issues, such as improving healthcare, distance learning, better education, and more open government. The current USA administration is also asking the telecommunications industry to help to bring the USA back up to speed with the rest of the world in embracing technology and innovation. Cox Communications and Comcast Cable have replied enthusiastically to the request and entered into a partnership with the Commonwealth of Virginia to provide general educational development classes on their on-demand platform, making those available to thousands of Virginians.

### Public-private partnerships: Crucial in driving innovation

The examples cited here—whether at the level of a city or a specific sector—show clearly that PPPs are critical instruments for innovation. PPPs help governments become more inventive by creating a space outside the government structure that allows innovation to flourish. PPPs help to inject a broader set of skills and talents, as well as a more diligent and responsive work culture into the government machinery and to create a solid foundation for innovative thinking and creativity. PPPs also help private companies embrace innovation and bring together new financial resources and business capital to help open the door for the creation of new industry clusters, thus ultimately helping to facilitate innovation in increasingly competitive environments. Moreover, PPPs allow private companies to engage in large-scale projects that go far beyond their traditional capacities.

PPPs have gained particular relevance in the ICT sector. Much of the innovation taking place in various business sectors depends on ICT—or rather, ICT is necessary to facilitate the formation and operation of virtually every PPP. The relationship between PPPs and ICT can be described as symbiotic. PPPs create opportunities to reduce the risks associated with investing in new technologies, while they simultaneously drive the development of new services, applications, and solutions that do not yet exist. PPPs often deliver services and solutions more cost effectively than traditional approaches can manage. Moreover, close cooperation with the public sector defines clearer social and economic objectives, which can be reached in a more satisfying way.

On one hand, the PPP model can provide an ideal vehicle for

funding ICT projects, helping enable the development of the needed infrastructure with some relative assurance of an appropriate return on investment. On the other hand, ICT services can more easily be put within the financial reach of millions of consumers in rural and urban areas because service delivery objectives of the public sector can be easily aligned with the business objectives of ICT service providers.

Just as importantly, as the delivery of social services becomes increasingly dependent on communications networks, it is natural and appropriate that government and private-sector organizations collaborate to ensure that needed ICT infrastructures are in place and available to businesses and individual citizens alike.

### Notes

- 1 For more examples of the role of PPPs in history, see Bertig et al., 2001; for the role of PPPs in the history of the USA, see Cellucci, ed., 2010.
- 2 Akkawi, 2010.
- 3 Crozier, 2010.
- 4 For details, see [www.livingcities.org](http://www.livingcities.org); <http://thecityfix.com/blog/living-cities-collaboration-is-key/>.
- 5 de Oliveira, 2011. For more information on Living Labs, please contact [info@ENoLL.org](mailto:info@ENoLL.org).
- 6 For more details on these projects, see infoDev. n.d.; Jazyńska, 2007; Marcelle and Hinz, 2011.
- 7 ENVIROFI Consortium, 2011.
- 8 European Commission, *Digital Agenda for Europe*. Available at [http://ec.europa.eu/information\\_society/digital-agenda/index\\_en.htm](http://ec.europa.eu/information_society/digital-agenda/index_en.htm).
- 9 Pillay and Hearn, 2009.
- 10 World Bank, n.d.
- 11 For more information on the role private companies can play in education-centric PPPs, see Aggarwal and Ladda, 2010; for examples in the Indian education system, see Bhattacharya and Rahman, 2010.
- 12 Details of PPPs in the transport sector can be found in IFC, 2011; Mak and Mo, 2005.
- 13 European Commission, 2011.
- 14 US DOT, 2008.

- 15 EFFRA, 2010.
- 16 Europa, 2010.
- 17 Akkawi, 2010.
- 18 OECD, 2004a; Koppenjan, 2012.
- 19 OECD, 2004b; Oder, 2008.
- 20 Kwan, 2005; Mak and Mo, 2005.
- 21 OECD, 2005.

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