

## Chapter 6

### A new balance between manufacturing and services in Korea

*This chapter examines the economic performance of the services sector in Korea and analyses reasons for the sector's relative weaknesses. Recent policies to strengthen the sector are described. Possible ways forward for policy are also considered, from framework conditions to the design of targeted policy initiatives.*

Improving the size, productivity and knowledge-content of the Korean services sector is a key challenge facing Korean policy makers. Korean economic development to date has placed great emphasis on manufacturing, initially in light industry (the initial surge in Korean exports during the 1960s was in industries such as footwear and textiles), and more recently in technology-based industry such as electronics. There is widespread recognition that, in the face of low-cost competition from China and others, the next phase of economic development needs to put more emphasis on manufacturing-related services and other knowledge-intensive services that will help strengthen competitiveness, improve the quality of life, help address societal challenges and aid the creation of (high-wage) jobs.

Progress on high-value service-sector job creation is especially important given that domestic job creation by large firms has slowed on account of the fact that their productivity has risen, while the share of their production occurring abroad has grown (the share of large firms in domestic employment has fallen from 18% to 12% from 1995 to 2010, while large corporations' overseas operations have expanded significantly). Evidently, given the overall economic weight of the services sector, raising productivity in services is also an important step in achieving higher aggregate productivity growth (it is recognised however that, other things unchanged, raising productivity in services will put pressure on employment over the short-term).

### 6.1. Underdevelopment of the service sector

Korea possesses a number of globally competitive service sector firms, such as in air transport and engineering, which also pay high wages and offer high-value added services. The Korean entertainment industry has also recently gained worldwide attention. However, a number of key indicators describe important weaknesses in the service sector:

- Service-sector productivity is one of the lowest among OECD economies. Value added per employee is less than a third, and less than a half, of levels in the United States and the United Kingdom respectively. The ratio between productivity in services and manufacturing is also below the levels in major comparator countries (Table 6.1).

**Table 6.1. Labour productivity in manufacturing and the service sector**

Value added per employee, USD

	Services(A)			Manufacturing(B)			Services/Manufacturing(A/B)		
	2000	2005	2010	2000	2005	2010	2000	2005	2010
Korea	20 964	29 866	28 001*	31 726	49 819	54 928	0.66	0.60	0.51
United States	65 003	80 571	94 352	80 380	107 813	143 878	0.81	0.75	0.66
United Kingdom	40 915	61 083	60 772	50 011	74 771	79 050	0.82	0.82	0.77
Japan	76 894	74 732	79 449*	82 781	89 140	90 577	0.93	0.84	0.88
Germany	42 454	61 784	68 690	48 812	76 656	90 603	0.87	0.81	0.76

\* Korea (2009); Japan (2008).

Source: OECD (2012a), "STAN Database for Structural Analysis ISIC Rev.4", *STAN: OECD Structural Analysis Statistics* (database) (accessed 10 September 2013).

- In line with experience in other countries, output growth in services has for some decades lagged behind employment growth in services (Park and Shin, 2012). The employment share of services has grown at a remarkable rate, from 37% in 1980 to 67.8% in 2009, which may have been too fast (Eichengreen, Perkins and Shin, 2012).
- The share of services in GDP in Korea (61% in 2009) is lower than in many relevant comparator (OECD) countries (79.2% in France, 72.7% in Germany and 77.4 % in the United States, in the same year, for example). Furthermore, the share of the service sector represented by high-end services is somewhat smaller than in relevant comparator countries.<sup>1</sup> EU KLEMS data indicate that in 2007 such high-end services contributed around 33% of service sector output, as compared with around 36% in the EU15 and 37% in the United States.
- The share of service sector R&D in total business expenditure on R&D, and the share of researchers in services, have for some time also been low compared to other OECD economies (see Tables 6.2 and 6.3).
- The share of services in exports in Korea is the fourth lowest in the OECD, with only Mexico, Chile and Norway having lower shares (with the low shares for Chile and Norway being in part explained by the dominant role of exports of primary products such as oil and minerals). In turn, Korea's relatively low share is partly explained by the significant presence of manufactured goods in its overall exports.

**Table 6.2. Share of the services sector in business expenditure on R&D (BERD): Korea and selected countries**

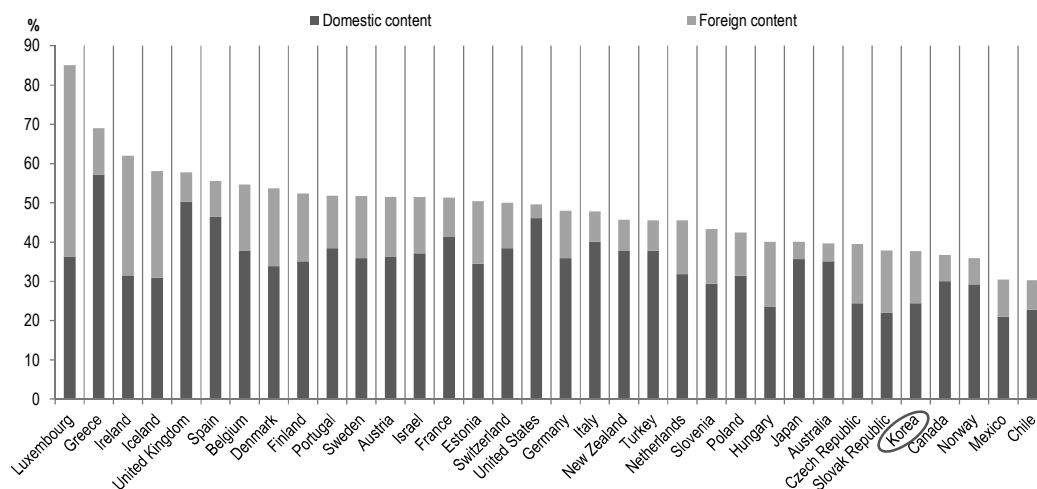
	Percentage						
	2000	2006	2007	2008	2009	2010	2011
Korea	10.5	7.1	7.2	7.9	9.4	9.0	8.8
Japan	6.7	10.4	10.3	11.3	11.2	11.2	10.7
United Kingdom	16.5	23.2	24.4	24.7	24.1	25.7	..
United States	36.9	29.6	29.1	29.1	30.0	28.0	..
Germany	7.9	9.4	10.6	10.3	13.5	13.3	13.8

Source: OECD (2013a), *Main Science and Technology Indicators*, Vol. 2013/1, OECD Publishing. doi: [10.1787/msti-v2013-1-en](https://doi.org/10.1787/msti-v2013-1-en).

**Table 6.3. Researchers in services: Korea and selected countries**

	Per thousand employed				
	2000	2006	2007	2008	2009
Korea	1.1	1.4	1.6	1.7	1.9
Japan	1.0	1.8	1.9	2.2	..
United States	3.6	3.3	3.2	..	..
Germany	..	..	1.6	..	2.1

Source: OECD (2013b), “Research and Development Statistics: Business enterprise R-D personnel by industry”, OECD Science, Technology and R&D Statistics (database) and OECD (2012a), “STAN Database for Structural Analysis ISIC Rev.4”, STAN: OECD Structural Analysis Statistics (database) (accessed 10 September 2013).

**Figure 6.1. Services value added in total exports (percentage), 2009**

Source: OECD (2013c), “Interconnected Economies: Benefiting from Global Value Chains”, OECD Publishing, doi: [10.1787/9789264189560-en](https://doi.org/10.1787/9789264189560-en)

**Table 6.4. Services trade balance: Korea and selected countries**

Exports minus imports of services, 2004-11, USD billion

	2004	2005	2006	2007	2008	2009	2010	2011
Korea	-6.0	-10.0	-13.3	-12.0	-5.7	-6.6	-8.6	-4.4
Germany	-51.1	-48.8	-38.3	-39.4	-37.4	-23.1	-24.2	-31.6
Japan	-34.3	-24.0	-18.2	-21.2	-20.7	-20.4	-16.1	-22.1
United Kingdom	51.0	60.4	76.2	105.8	111.8	97.0	103.5	122.4
United States	58.2	72.1	82.4	122.2	131.8	126.6	150.4	178.5

Source: OECD (2013d), “Trade: Key Tables from OECD”, *OECD Factbook* statistics.

## 6.2. Reasons for weaknesses in the Korean services sector

Many factors contribute to the weakness of Korea’s services sector. These are likely to include:

- Repercussions from the fact that manufacturing and the development of the tradeable sector have been central to Korea’s post-war economic development strategy. Attention to the services sector has been of lesser importance. For instance, much R&D and innovation policy has focused on manufacturing, with the effect that services have benefited less from advances in technology. Service-sector firms have not all enjoyed other forms of policy support given to manufacturers (such as exemption from land ownership taxes). The rise of the services sector in Korea has been relatively recent and, as noted above, extremely rapid (Eichengreen, Perkins and Shin, 2012).
- Regulatory burdens and lack of competition, with restrictions on entry, and other barriers to inward investment and competition from abroad. The OECD’s Product Market Regulation scores show Korea to be performing somewhat better than the OECD average as regards barriers to entry in services (2.31 as against an OECD-

wide score of 3.24 in 2008 [a higher score indicates higher barriers]). Korea's economy-wide PMR score is 1.48, a little higher than the OECD average and other major economies (although the PMR database indicates low barriers to entrepreneurship in Korea). But barriers to trade and investment were higher than the OECD average (Korea's score is 1.30 as compared with the OECD average of 0.49) (Table 6.5). An often cited competition concern is the high degree of internal trade in services that occurs within the large conglomerates. Korea's 2012 Fair Trade Commission report asserts that more than half of IT services in Korea are purchased by large corporations from 'captive' supplier companies operating in their groups.<sup>2</sup> McKinsey (2013) notes that lack of competition also hinders productivity growth among services companies that do supply the *chaebols*, citing as evidence that the leading systems integrators in Korea have low – between 5% and 8% - shares of overseas sales.

- Regulations also weigh on many service-sector companies. For instance, restrictions exist on the number and size of outlets in some lines of business. Firms in service sectors considered as luxury businesses are not eligible for certain forms of financial support. A competitive market in electricity is also not yet established. Korea introduced a whole-sale power market in 2001 and eased entry restrictions for private power generation firms, but this exchange market system did not bring greatly increased competition because of structural problems in energy trading (KDI, 2012).

**Table 6.5. Product market regulation indicators: Korea and selected countries, 2008**

	Korea	Germany	Japan	United States	United Kingdom	OECD average
<b>Product market regulation</b>	1.48	1.27	1.14	0.84	0.79	1.35
<b>1. State control</b>	1.99	1.96	1.43	1.10	1.50	2.12
1) Public ownership	2.76	2.76	2.01	1.30	1.90	2.92
2) Involvement in business operation	1.22	1.16	0.85	0.90	1.11	1.32
<b>2. Barriers to entrepreneurship</b>	1.14	0.31	1.37	1.24	0.82	1.45
1) Regulatory and administrative opacity	0.00	2.05	1.13	0.19	1.11	1.06
2) Administrative burdens on start-ups	1.57	0.47	0.74	0.99	0.59	1.62
3) Barriers to competition	1.85	1.43	2.24	2.53	0.77	1.66
4) Barrier to entry in services	2.31	3.44	3.36	3.64	1.69	3.24
<b>3. Barriers to trade and investment</b>	1.30	0.53	0.62	0.17	0.04	0.49
1) Explicit barriers to trade and investment	1.00	0.39	1.24	0.34	0.08	0.70
2) Other	1.60	0.67	0.00	0.00	0.00	0.28

Source: OECD (2008), Product Market Regulation Statistics (database) (accessed on September 2013).

- Relating to the state of competition and other enabling conditions, the effects of an economic dynamic whereby productivity growth is driven largely by within-sector productivity change, rather than resource allocation to higher productivity activities. Indeed, Eichengreen, Perkins and Shin (2012) estimate that around 70% of overall productivity growth in Korea during the period 1970 to 2007 was attributable to within-sector increases. This phenomenon is likely to have been exacerbated by cyclical entry in subsectors with low initial capital and skill requirements – as workers laid off from large corporations during the crisis

entered necessity-driven entrepreneurship.<sup>3</sup> In addition to such crisis-related conditions, necessity-driven entrepreneurial activity is likely to have been spurred over the long-run by the early age of retirement from firms. The mandatory age of retirement set by firms in 2010 averaged 57 years (95% of firms with more than 300 workers set the age below 60). Many workers also leave firms prior to the mandatory retirement age, with firms encouraging workers to retire through incentives or penalties (OECD, 2012b).

- The productivity-inhibiting effects of some policies aimed at assisting SMEs, many of which operate in the services sector. For instance, much financial (credit) support for SMEs is aimed at bolstering employment, in a country where social welfare expenditures are low as a share of GDP (indeed, the share of SMEs in services employment rose significantly between 2011 and 2009). This helps to keep low productivity firms in operation (and bundles social and economic policies, which likely need to be unbundled).
- Structural features of the Korean economy, in particular that the share of micro-firms and SMEs is large. Indeed, 99.9% of firms in the service sector have less than 250 employees and 98.4% are micro-firms with no more than 10 employees in 2010 (OECD, 2013e). As is common in many countries, such firms typically have a local orientation and often have difficulties in attracting skilled graduates.
- As described above, an R&D intensity of service sector activities that is below the OECD average.
- Sector-specific barriers that are reported in the medical, tourism and education sectors (MOSF, 2013).
- Limited growth aspirations among entrepreneurs.<sup>4</sup> An aggravating factor in this regard may be that some policies create growth thresholds (see Chapter 5 in this report on entrepreneurship and SME growth).
- The possibility – suggested by various Korean commentators – that new but as yet unexploited opportunities for the service sector could arise from improving the regulatory environment (for example, testing services based on the setting of appropriate standards and/or certification requirements).

### 6.3. Recent targeted policy initiatives

In July 2013 the Government announced a service sector development plan, ‘Service Industry Policy Directions and Measures’. Two major goals were set for developing the services sector: creating high-quality service-sector jobs to support a 70% employment target; and, boosting productivity and fostering high value-added service industries. Box 6.1 describes the key measures included in the government initiative.

Targeted policy towards the services sector must be seen as welcome, even if it is not entirely new.<sup>5</sup> Previous work on innovation in services by the OECD’s Working Party on Innovation and Technology Policy found that, in many countries, including Korea, service sector firms are often under-represented in innovation programmes (Sheehan et al., 2005). A few countries are nevertheless developing innovation policies that focus on services. Internationally, such policies usually encompass:

- *Support for the application of ICTs.* ICT-related service businesses have received strong support in many countries (for instance for e-trade). Such support sometimes has a human capital dimension: the Danish Ministry of Science, Technology and Innovation has for instance implemented measures to assist ICT staff with a short-cycle higher education (such as multimedia designers) to receive credits towards a university education. Through a number of types of support the Korean government is also promoting ICT-related services such as the use of RFID (radio frequency identification) technology. To promote electronic document and RFID services, the government provides financing to users of the services when they co-operate with service providers and install ICT equipment.
- *Supporting software industries.* Korea has actively promoted the software industry, with software policy being based on the 1987 Software Promotion Law. This law requires MSIP to formulate a mid-term (three-year) plan and an implementation plan (one year) to promote the software industry. The Law also includes provisions for software-related R&D support, the development of human resources in software, policy loans and tax incentives for the software industry, and standards and certification. It also provides a legal basis for software pricing and contract terms with respect to public procurement.
- *Making R&D support more relevant to the service sector.* Across countries, relevant approaches have included: establishing R&D programmes related to the needs of the more R&D-intensive segments of the service sector, such as computing, software and telecommunications services – for instance the US government invests in software-related R&D (the National Science Foundation, for example, funds university research on software engineering and languages); promoting R&D related to the application of ICT to other innovative service industries, such as health-care, financial intermediation, wholesale and retail trade, and education, where much innovation derives from ICT use; and, securing transparent regulation of the transfer of public data (maps, meteorological data, etc.) for private sector commercial use. In Korea, the MSIP provides some KRW 150 billion per year of support for software-related R&D. It also operates an “IT convergence R&D” programme which provides financing support to SMEs for the application of ICT to other manufacturing and service industries, such as automobiles, shipbuilding, health-care and education.
- *Fostering start-ups in services.* New firms effectively serve as a platform for experimentation with service-sector innovations. This is addressed in Chapter 4 of this report.
- *Standards.* The development of standards can affect innovation and other economic outcomes through multiple routes.<sup>6</sup> Standards are especially important in network industries, such as ICTs, in that they can facilitate a critical mass of users. In this connection, standards ease the emergence of technological platforms - independently supplied yet inter-operable components with shared technical standards. Korea has a legislation-based national standards system. The two overarching laws in Korea are “Framework Act on National Standards of 1999” and “Industrial Standardisation Act of 1961”. The Korean Agency for Technology and Standards (KATS) under MOTIE is the national standards authority of Korea, and is responsible for the two laws. KS (national standards of Korea), managed by KATS, is classified into 21 sectors which includes service sector activities. The KS certification scheme for services, established in 2008, is designed to ensure that the service provider who passes an onsite and service quality audit is allowed to indicate the KS mark on the contract, statement of delivery, warranty and/or promotional materials.

### **Box 6.1. Forthcoming measures to expand services-related infrastructure and resolve difficulties in the services industry**

To expand service industry infrastructure, specific steps include:

#### **Providing support through the tax system**

The ‘SME Special Tax Deduction and Exemption’ and the ‘Job Creation Investment Tax Credit,’ which target service industries, will be expanded. R&D-performing service-sector businesses will receive tax credits on research and human capital development outlays, and the ratio of indirect R&D costs will be expanded from 10% to 17% of the sum of labour cost and direct cost. When an SME sells a technology, it will receive a deduction and exemption on the income and corporate taxes resulting from the transfer.

#### **Improving financial support systems**

The government will carry out an investigation into the actual conditions of service-sector support given by public financial institutions, and will work to resolve any discriminatory practices with regards to financial support for the service sector. The government will provide export financing for exports of goods and domestic services. The ‘Export Performance Confirmation System’ was implemented in June 2013, and export financing support will be provided beginning in September of this year. Regarding credit guarantees for the service industry, the government will introduce an intellectual property evaluation model which assesses the value of IP with a view to its being used as loan collateral, and will expand credit guarantees for technology related to the culture, information and content industries.

#### **Improving systems and social image**

Public utility fee systems for the service industry, which are at a disadvantage when compared to the manufacturing industry, will be made fairer. The government will work to transform the social image of the service industry, including the introduction of the ‘citizen’s star’ for exemplary service companies and offering the APEC Business Travel Card to companies in the service industry. Consumer reports, private sector brand evaluations, Korean Standard Association certificates and corporate certificates will be expanded to the service sector in order to increase the amount of information being offered.

#### **Fostering human capital in the service sector and expanding job training**

Among other measures, the government will promote Meister’s designations in the software and ICT sectors, the expansion of new courses in promising service industries at Polytechnic Universities, and college specialisation. Worker education programmes will be strengthened through the establishment of ‘corporate universities,’ and e-learning systems will be introduced to provide start-up consulting support for the unemployed and retirees. Job training groups will be established for the service industry.

#### **Providing support for service sector start-ups and commercialisation**

The early commercialisation of ideas will be supported through the establishment of ‘smart venture start-up schools’. Integrated business support centres will be expanded, addressing service-sector start-up support and 1-person start-up issues. Certification systems will be introduced for excellent R&D outcomes in the service sector, and commercialisation support will be provided (funding and tax support as well as support for market expansion).

The government is also adopting measures to resolve specific day-to-day difficulties encountered by service-sector firms. These measures include:

- Improving outsourcing contract systems at professional baseball stadiums.
- Supporting service-sector businesses entering the public procurement system. Twenty new service contracts will be signed for government procurement, including for mobile surveys, big data analyses, and mobile e-publishing. Consulting services will be offered to new venture firms that are trying to access the procurement market.

.../...



**Box 6.1 Forthcoming measures to expand services-related infrastructure and resolve difficulties in the services industry (continued)**

- Supplying IT solutions to small businesses: For small businesses which do not have access to IT-based management solutions for sales or inventory management, IT solutions will be supplied to service-sector SMEs and other small businesses.
- The ‘High Value Service Project Guarantee System’ will be introduced to provide production funding support even if a distribution contract has not been signed.
- Flexible Fiscal Support for Foreign Education and Research Institutes in Free Economic Zones: Universities receive national funding support regardless of their ranking and research institutions uniformly receive support regardless of their renown or research plans. Flexible support measures will be introduced that reflect ranking and research outcomes in order to provide expanded funding support for excellent foreign institutions.
- The government will collaborate with the related ministries to uncover and alleviate other difficulties and plans to phase-in competitiveness-strengthening measures by sector, in tourism, medical tourism, industry services, culture, art, entertainment and communications.

Source: MOSF (Ministry of Strategy and Finance) (2013), “Service Industry Policy Direction and Measures”, July 2013, Korea.

#### 6.4. Reflections on policy options and the way forward

In most countries the broad category “services” actually consists of a distinct group of subsectors, with varying productivity performance and different mechanisms for enhancing output per employee. Innovation in services is not just about the resources allocated to ICT and intangible investment. Service industries must draw on these investments to reshape the way they conduct business, and to invent entirely new services. To do so, supportive framework conditions must be in place. Indeed, one recent cross-country review concludes that: “the best way to encourage innovation in services is by removing (or at least reducing) identified barriers to service innovation, as well as to the related policy design, rather than introducing direct support measures for companies or other specific programmes for innovation in services (Inno-Grips, 2011).” This insight should be a starting point for Korean policy makers. The many measures of support and enablement described in the immediately preceding section are welcomed. However, *over time, no number of services-specific programmes will offset the drag on service-sector development coming from unsupportive framework policies.*

Key framework conditions that require ongoing policy attention include labour market flexibility (the latter being critical in helping to reduce structural unemployment arising from de-industrialisation), competitive markets for goods and services, and free trade of services across borders. Policies that are plainly discriminatory towards services, in their design or application, need to be identified and removed. Legacy policies that served to underpin manufacturing at the expense of services need to be reconsidered. The description of the causes of weakness in the Korean services sector provided above also points, among other things, to the particular importance of competitive markets in ICT.

Important interactions also exist with social welfare reform. Shifting resources from manufacturing into services and undertaking structural reform in the service sector would both require the social safety net to be strengthened to ease the adjustment costs that individuals face. As previously noted, much financial (credit) support for SMEs is aimed at supporting employment, in a country where social welfare expenditures are low as a share of GDP (for a comprehensive examination of the social welfare system in Korea see OECD [2013f]). This helps to keep resources locked into low productivity firms and entails a bundling of social and economic policy. Better design of social and SME support policy is likely to occur when the two forms of policy are unbundled.

Education and training policies represent another framework condition within which firms operate. Korea has an impressive system for skills development (recent developments and challenges affecting that system, and the system's relationship to the labour market, have been reviewed in the context of the OECD Skills Strategy. Highlights from the ongoing review are summarised in Box 6.2). Vocational education and training has dwindled over time (Korea has the highest rate of university attendance – on 4-year programmes – of any OECD country, but only about 21% of high-school students receive some vocational education, a figure below that in many other OECD countries. The number of high school students which have vocational education is less than that of other countries such as Japan, Germany and the United Kingdom (see Table 6.6). Many parties affirm that there are relatively few technicians, which can hinder development of some service sector activities. Only 21.0% of 25-64 year-olds who have general upper secondary have vocational education and training (OECD, 2012c).

### **Box 6.2. OECD skills strategy for Korea: Selected findings**

Korea is a top performer among OECD countries in terms of 15-year-old student achievement and a high share of young adults has attained tertiary education. However, the skills system is currently being challenged in terms of its relevance, cost and equity implications. The financial burden of skills development on households needs to be reduced, in particular for socio-economically disadvantaged families. And it is important to ensure up-skilling opportunities for older workers, women and employees in small and medium-sized enterprises.

Korea can also boost economic growth by better utilising inactive skills. Target populations here include women, youth and older workers. Korea has one of the lowest female labour participation rates (55.2%) across OECD countries. To boost female participation many inter-connected challenges need to be addressed, ranging from labour market policies, childcare and social values. For example, the lack of affordable high-quality childcare creates disincentives for mothers to work. Compounding this problem, Korea also has one of the highest gender pay gaps across OECD countries (38.9%). And when employed, Korean women are more likely to have work of lower quality (e.g. non-regular jobs) than males. The government aims to increase the female labour participation rate to 61.9% by 2017.

While Korean youth are highly qualified in comparison with their international peers, the share of youth neither in education nor in employment or training (NEET) with a tertiary education qualification is well above the OECD average. Considerable waste of public and private investment in skills development is entailed if the skills of such young people are not utilised. As one of the OECD's most rapidly aging societies, Korea also needs to ensure active labour market participation of older workers, especially given the country's relatively underdeveloped welfare system. The current cohort of older workers has much lower skill levels than the younger generation (and also has the highest relative poverty rate among OECD countries).

President Park's administration aims to create 2.4 million jobs by 2017. It will be important for this process to: (1) use inactive workers; (2) tackle skills mismatch for skilled workers; (3) tap the skills potentials and foster the growth of SMEs and venture enterprises; and, (4) at least maintain employment quality. It is also important to improve the quality of existing jobs and skills. Korea has a large share of low-paid temporary workers (24%) and a problem of decreasing service sector wages relative to manufacturing. Improving the quality of existing jobs would require strategies with different incentives for different workers, e.g. improving employment protection for irregular workers, and flexible employment for regular workers. To improve the quality of existing skills, a fundamental shift in thinking is required: skills must be recognised by assessing competencies rather than qualifications. Furthermore, forecasting skills needs is critical, especially at the local level.

For Korea to more fully develop, activate and use skills, greater policy coherence is required, connecting education, vocational education and training, business and employment, social welfare, tax and financing policies. This will help the government to identify trade-offs between different policies and avoid any duplication. A commitment to a whole-of-government approach is necessary. For example, the sector councils could be better governed and coordinated if the Ministry of Education, Ministry of Employment and Labour, and Ministry of Trade, Industry and Energy could share a common goal and responsibilities in developing an effective skills system. This can be further reinforced through collaboration between national and local authorities.

*Source:* OECD (2014, forthcoming), "Skills Strategy Diagnostic Report for Korea", OECD Publishing.

**Table 6.6. Percentage of students enrolled in vocational programmes during upper secondary education**

	2001	2003	2005	2007	2009	2011
Korea	34.1	30.7	28.5	26.8	24.4	21.3
Japan	25.1	24.7	23.9	23.4	22.8	22.3
United Kingdom	66.9	69.2	72.2	41.4	30.5	36.0
Germany	63.3	62.2	60.3	57.4	53.2	48.6

Source: OECD (2011), OECD Education Statistics: Students Enrolled by Type of Institution (accessed on 10 September 2013)

Based on cross-country data, Uppenberg and Strauss (2010) also identify three frequent drivers of service sector productivity expansion. These are:

- *‘Tangible fixed investment.* On average, market services have as much fixed capital per employee as manufacturing, but this capital stock is more skewed towards buildings and information and communications technology. These investments contribute substantially to productivity growth in several key services subsectors. National Accounts data show that gross fixed capital formation in Korea fell from 29.3% of GDP in 2009 to 26.7% in 2012. Nevertheless, its share was the second largest among OECD countries and well above the OECD average of 19.5%.
- *Intangible capital.* Services industries attain higher productivity by combining investment in fixed capital, new computer software and human capital so as to create new organisational structures and business models, and sometimes entirely new service products.<sup>7</sup> There are big differences across countries in the extent of business investment in such intangible assets – with a wide range of policy considerations being involved – as examined in detail in OECD (2013g). Much of Europe, for example, lags behind the United States with respect to intangible investment, especially in economic competencies, and such cross-country differences are also closely correlated with GDP per capita). The measurement of aggregate business spending on intangible capital is a relatively new and still highly imperfect undertaking (and many data sets are not current). Nevertheless, Chun, Pyo and Rhee (2011) find that the ratio of intangible investment to GDP in Korea has significantly risen from the early 1980s, but by the early 2000s was still about 20-30% lower than in Japan, the United Kingdom and the United States.<sup>8</sup> This relatively low level of intangible investment is mainly attributed to limited investments in non-scientific R&D and economic competencies, such as advertising, training and business reorganisation. Those authors estimate that the contribution of investments in intangible assets to labour productivity growth in the early 2000s was less than half of that in the United States. In this connection, it is noted that the government is taking steps to raise the relatively low levels of service-sector R&D. Policy must also ensure that conditions exist to facilitate business investment in other forms of intangible asset, such as design, which will be particularly important in the expansion of high-value added services (see Box 6.3).

### Box 6.3. Design and innovation

A design is a plan or representation of the look, function or workings of a product or system. Beyond physical appearance, design is often integral to all stages of the business process, from manufacture, brand development and marketing, and after-sales service (in a global context, design can help to differentiate products to meet the requirements of different local markets). The impacts of design are not limited to physical products. Design also plays a major role in innovation in services, such as have occurred with respect to online purchasing or airport check-in. There is substantial quantitative and qualitative evidence that design plays important roles in innovation and firm performance and that overall business spending on design is large. For instance:

- A number of world-beating products owe at least part of their success to different facets of design. For tablet computers and smartphones, some of the most prominent intellectual property conflicts in recent years have focused on design.
- Research published in 2010 indicated that the iPhone had then added around USD 30 billion to the value of the Apple Corporation, only 25% of which was attributable to patentable technology stemming from R&D. Much of the rest was attributable to Apple's innovations in design, marketing and management. Incorporating design into the early stages of new product development has been shown to result in stronger corporate financial performance (Korkeamäki and Takalo, 2013).
- Design can allow firms to pull away from cost-based competition. For example, design enabled Sony to charge a 25% higher price for its Walkman than competitors (Czarnitzki and Thorwarth, 2009).
- Design competencies can also help companies in traditional industries such as textiles, apparel and furniture to succeed. Italy has long had a successful furniture industry largely based on small and medium-sized firms with competitive advantages in design.

Policy makers need to ensure that design education is properly incorporated into curricula (for instance, it is helpful if engineers have familiarity with principles of industrial design, and industrial designers have an understanding of engineering). Also important is a system of design rights that is easy to use, and relatively inexpensive, for small and micro-enterprises, and provides enforcement in the case of design right infringement.

Sources: Korkeamäki, T. and Takalo, T. (2013), "Valuation of Innovation and Intellectual Property: The Case of Iphone", *European Management Review*, (Winter 2013) Volume 10, Issue 4, pp. 197-210, 2013: Available at SSRN: <http://ssrn.com/abstract=2365944> or <http://dx.doi.org/10.1111/emre.12016>. and Czarnitzki, D. and Thorwarth, S. (2009), "The Design Paradox: The Contribution of Inhouse and External Design Activities to Product Market Performance", *ZEW Discussion Papers*, No. 09-068.

- *Services sector innovation, relative to manufacturing, draws less on in-house knowledge creation in the form of R&D.* Service industries tend to innovate in interaction with customers, suppliers and competitors. There is also substantial scope for productivity improvements by adopting best practice, both within and between certain service industries.<sup>9</sup> *These observations underscore the importance of ensuring competitive and otherwise enabling conditions in markets for services.* A number of additional possible implications for Korea also stem from these observations:
  - The greater reliance on external sourcing of new knowledge suggests that networks and clusters that foster knowledge transfers and spillovers may be particularly important to service sector innovation. Korean policy makers have sought to support cluster and network programmes of different sorts.<sup>10</sup> International experience suggests that important design issues need to be borne in mind when developing cluster/network schemes. Economic logic

suggests that a policy towards clusters should be based on government facilitating existing and emerging clusters rather than trying to create them *ab initio*. A policy aimed at developing entirely new groups of firms in selected sectors could entail high costs, high risks and give rise to deadweight losses should many regions follow policies in pursuit of the same industries. Accordingly, there is a strong case for arguing that an indirect role for government is preferable. By contrast, a more pro-active role for government seems merited as regards the facilitation of business networks. Business networks operate with varied forms and objectives. Some aim at general sharing of information, while others tackle more specific goals. Networks can allow rapid learning (and small companies often favour the peer-based learning that networks permit). Networks can also facilitate the reconfiguration of relationships with suppliers. In some instances networks have led to a new division of labour in a group of firms, allowing individual companies to reap economies of scale and scope. And networks have spurred co-operation on issues as diverse as training, product design, marketing, exporting and distribution.<sup>11</sup> An outline of possible policies towards clusters and networks, and their merits, is contained in Annex 1.

- The lack of effective IP protection for non-technological innovation raises the risk of suboptimal levels of knowledge transfer and wasteful duplication of innovative efforts, protected by secrecy.
- Many service industries would gain from learning from best practice in other firms and even in other sectors, yet many are relatively closed to information sharing and co-operation, partly for competitive reasons. *Public support for the dissemination of best practice – say through technical extension programmes – could complement traditional R&D subsidies in fostering more innovation in the services sector.* Korea does operate at least one programme of technical extension, modelled on the United States’ Manufacturing Extension Partnership scheme. A detailed assessment of that and other programmes aimed at enhancing information supply (and its absorption) to SMEs is beyond the scope of this study. However, MOTIE and other Ministries and agencies in Korea are seeking to foster innovations that entail convergence across multiple technologies (as for instance in ‘smart’ cars). These public bodies also wish to bring about a greater contribution to manufacturing from disciplines such as design, the arts, marketing and psychology. This multi-disciplinary orientation is to be welcomed, given an emerging understanding of the importance of intangible assets to innovation generally and advanced manufacturing in particular. In this connection, policy makers in Korea might bear in mind that extension and other information-bridging programmes could be designed to emphasise creativity, going beyond the typical focus on STEM-related information and expertise (see Box 6.4).

#### **Box 6.4. Facilitating access to information and expertise beyond the STEM disciplines**

Most OECD governments operate programmes that facilitate business access to research or technology-related advice and information, often from universities and public research organisations. These schemes – such as innovation vouchers, know-how funds and technical extension services – tend to focus on technological information and typically create links to academics in science, technology, engineering and mathematics (STEM) disciplines. Work on knowledge-based capital (KBC) suggests that an exclusive focus on STEM disciplines is too narrow. In fact, businesses require information and advice relating to many forms of KBC and interact with academics for a variety of reasons. In the United Kingdom, for instance, survey data suggest that nearly a third of all academics in the arts and humanities are engaged with business in some way, as are nearly half of academics in the creative arts and media (Hughes *et al*, 2011). As well as knowledge related to STEM disciplines, businesses may want assistance with marketing, sales and support services, as well as human resource management, logistics and procurement.

*Source:* Hughes, A., Kitson, M. and Probert, J. with Bullock, A. and Milner, I. (2011), “Hidden Connections : Knowledge exchange between the arts and humanities and the private, public and third sectors”, Arts and Humanities Research Council, and the Centre for Business Research, Cambridge, United Kingdom.

### **6.5. Growth opportunities in specific service activities**

The Korean government allocates only 3% of its R&D budget to services. However, in 2012 the government introduced R&D tax credits for 11 knowledge-based service sectors, including health care. Government analysts observe that many service sectors, from retail to knowledge services, have the potential to become more creative and increase value added. McKinsey (2013) describes specific opportunities for growth and productivity increases in health care, social welfare services, financial services and tourism. Again, a discussion of these opportunities is beyond the scope of the present report. However, it is relevant to note emerging good practices as regards policy for the application of ICT in the health sector (which is set to account for a growing share of national income as the Korean population ages rapidly) (see Box 6.5).



### Box 6.5. Enhancing the role of ICTs in healthcare: Insights from recent analyses

The application of information and communication technologies (ICT) in the health sector can bring a range of benefits, including: increasing care quality and efficiency; reducing operating costs in clinical services; reducing administrative costs; and enabling entirely new modes of care. Despite their promise, the adoption and use of health ICTs has proven to be a complex undertaking. Around the world, significant public investments have brought not only notable successes, but also costly delays and failures.

Against this background, the OECD has prepared case studies in six OECD countries (Australia, Canada, the Netherlands, Spain, Sweden and the United States) to analyse the conditions under which these technologies are most likely to result in improved efficiency and quality-of-care (OECD, 2010). The OECD has found that successful implementation and widespread adoption are closely linked to the ability to address three main issues:

- *Alignment of incentives with health system priorities:* Governments need to address the fixed costs associated with setting up the health ICT system. In all six case studies, governments are promoting the adoption of ICTs either through direct regulation, financial incentives or persuasive measures such as providing education and training. Public support has generally been aimed at unambiguous public health priorities with clear benefits that would not have been achievable without ICTs.
- *Robust and coherent privacy protection:* Due to the sensitivity of health information, and uncertainty regarding how existing legal frameworks apply to the health ICT system, privacy concerns constitute one of the most difficult barriers to promoting ICT application. The OECD findings emphasise that reliable and coherent privacy and security frameworks must be incorporated into the design of new health ICT systems and policies from the outset in order to establish the public confidence and trust.
- *Achieving commonly defined and consistently implemented standards:* The development and implementation of standards to enable interoperability requires government leadership and the collaboration with the relevant stakeholders. To move the interoperability agenda forward, four of the case study countries established formal health-care ICT product certification processes. Some governments provide financial incentives for the adoption of certified products.

*Source:* OECD (2010), “OECD Health Policy Studies: Improving Health Sector Efficiency”, OECD Publishing, Paris. DOI: [10.1787/9789264084612-en](https://doi.org/10.1787/9789264084612-en).

## Notes

1. “High-end services” include, for instance, computing, engineering, legal, design, financial, accounting, insurance and other business services, as contrasted with low-value-added services such as cleaning and many personal services.
2. The ICT service industry in Korea includes many SMEs. However, large ICT service companies such as SDS (Samsung) and CNS (LG) hold large shares of Korea’s ICT services market. The government judged that unfair pricing practices for SMEs have inhibited the development of the ICT service industry, and decided that it would ban the big ICT service providers, subsidiaries of the *chaebols*, from the public IT service market from 2013, based on the Software Industry Promotion Act (see Fair Trade Commission [2012], Annual Report, July 2012).
3. The Global Entrepreneurship Monitor 2012 Global Report defines ‘necessity-driven’ entrepreneurs as those pushed into starting businesses because they have no other work options and need a source of income. By contrast, ‘opportunity-driven’ entrepreneurs are those entering business to pursue an opportunity and seek to improve their income or independence through entrepreneurship. In Korea, among early-stage entrepreneurs, around 35% are necessity driven, a percentage somewhat higher than in Japan (21%), the United Kingdom (18%), Germany (22%), and the United States (21%).
4. McKinsey (2013) cites data, from various sources, that only 0.07% of SMEs become large companies. Of a total of 2.7 million SMEs in 1997, only 28 had become large firms by 2007 (The Korean Hidden Champions Strategy, Ministry of Strategy and Finance (MOSF), Ministry of Knowledge Economy (MKE), Financial Services Commission (FSC), March 2010).
5. In 2009, for instance, the OECD’s 2008 Economic Survey of Korea reviewed the government’s service sector roadmap, entitled “Service PROGRESS-I”, “Services PROGRESS-II” and Services PROGRESS-III”. These programmes focused on promoting specific service industries such as medical tourism, tourism, animation, etc.
6. Successful standardisation has variously been documented as achieving some or all of the following (Swann, 2000): accelerate enhance innovation because innovation requires competition and competition requires interoperability. Successful standards facilitate that interoperability; increase trade; codify and diffuse information on technology and best practice; reduce risks for producers and consumers (for instance, standardisation of measurement helps producers of innovations demonstrate innovative traits to consumers); reduce transactions costs between producers and between producers and consumers; and, protect against situations in which high-quality producers are driven out of the market by low-quality producers because information is not fully available to consumers on the quality content of their output.



7. For example, Brynjolfsson and Hitt (2000) survey mostly firm-level studies of the role of computers in driving productivity. They conclude that complementary investments in new business process skills and new organisational structures have been keys to enabling the contribution of information technology.
8. The aggregate measure of business investment in intangibles in Korea was subsequently revised down in Chun, Fukao, Shoichi, and Miyagawa (2012).
9. The lower level of in-house knowledge creation partially reflects the smaller average firm size in services industries.
10. Korea's cluster policy has been conducted as part of its regional development policy since 2003. During 2003-2008 the government pushed for "regional strategic industrial development". The government selected strategic industries based on cluster theory for each of the 16 administrative provinces. The government supported infrastructure, R&D, marketing and export activities. Techno parks established in almost all provinces played key roles in planning industrial development, supporting businesses and evaluation. Since 2008, however, Korea set up the 5+2 Economic Regions instead of 16 administrative provinces (5 regions surpass the previous administrative borders and 2 regions [Jeju and Gangwon] are coterminous with previous administrative borders). "Leading industries" were identified in each of these 5+2 Economic regions, with support being focused on these. The Leading Industry Programme has concentrated resources on consortia of firms and universities in the economic region and mainly supports R&D development. The Programme offers support for: developing new products, including new services; supporting the development of local value chains from production, to branding and international collaboration; and provides incentives for collaboration in the regional innovation system. The major lines of action for programme implementation derive from the Economic Region Development Committee, which draws up the development plan for each Economic Region. The Leading Industry Programme started in 2009, with a total of KRW 1.32 trillion to be invested to 2012.
11. In finance, each year, around one million Italian SMEs receive credits mediated by mutual guarantee schemes, a form of network organisation that is mainly local in scope.

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## Annex 6A.1

### Policy rationales and design for enterprise clusters and networks

“Clustering” is the tendency of firms in related lines of business to concentrate geographically. Policy initiatives to foster enterprise clusters are now common throughout OECD member and non-member economies, in wealthy and lagging regions, and in jurisdictions with *laissez-faire* and *dirigiste* approaches to economic development.

It is well documented that the agglomeration of firms and their suppliers can confer competitive advantage to the enterprises involved. For example, agglomeration can create locally concentrated labour markets, bring about specialisation and division of labour between firms (offering scale economies for individual firms), and attract buyers and sellers. The clustering of firms can also reduce the unit costs of technical services provided to members of the cluster. By operating in close proximity firms can also more easily subcontract to competitors those orders that exceed their own capacities, because proximity allows greater knowledge of the capabilities of potential contractors. This may allow firms to retain valued customers during peaks in demand. The clustering of firms can likewise facilitate the flow of ideas and information. Such flows occur formally and informally, for example when employees change employer, through contacts with common suppliers, and through social exchanges. Indeed, it is likely that frequent contacts between users and producers of capital goods have underpinned productivity growth in firms in many industrial districts. And locally overlapping commercial and social institutions can create a social substrate facilitating the reduction of transaction and other business costs. Furthermore, because factor costs are often similar if not identical for the cluster participants, competition may be driven by innovation.

A cluster can contain a small or large number of enterprises, as well as small and large-size firms in different ratios. Some clusters, such as many of Italy’s industrial districts, are comprised principally of SMEs. Different clusters involve varied degrees of interaction between the firms involved, ranging from fairly loose networks of association through to multifaceted forms of co-operation and competition.

It is not the case that benefits automatically arise from clustering – there can be congestion effects for example, especially for firms located in clusters belonging to industries other than their own – but gains are sufficiently common for us to take them as read here. Some clusters also decline: Michael Porter notes – in *On Competition* - how the manufacture of golf equipment in the United States shifted from the State of New England, where clubs were based on steel and wood, to California when the use of advanced materials became a possibility.

## Business networks

Intimately linked to the subject of clusters is the theme of business networks. Indeed, many public programmes to encourage inter-firm networks have been inspired by a desire to replicate the success of renowned clusters in such areas as Silicon Valley and Emilia Romagna.

Business networks operate with varied forms and objectives. Some aim at general sharing of information, while others tackle more specific goals. Networks can allow rapid learning - and small companies often favour the peer-based learning that networks permit. Networks can also facilitate the reconfiguration of relationships with suppliers. In some instances networks have led to a new division of labour in a group of firms, allowing individual companies to reap economies of scale and scope. And networks have spurred co-operation on issues as diverse as training, technological development, product design, marketing, exporting and distribution. In finance, each year, around one million Italian SMEs receive credits mediated by mutual guarantee schemes, a form of network organisation that is mainly local in scope. And at the end of June 2001, 10 000 SMEs located around Barcelona, about half that city's total population of small firms, organised through six territorial networks to buy electricity at a rate some 30% below that which they had paid previously (El Pais, 27 June 2001, p. 61).

However, it is important to make a clear conceptual distinction between clusters and networks. In this respect, one can note that:

- Networks allow firms access to specialised services at lower costs, whereas *clusters attract specialised services to a region*.
- Networks have restricted membership, whereas *clusters have open "membership"*.
- Networks are based on contractual agreements, whereas *clusters are based on market dynamics*.
- Networks make it easier for firms to engage in complex production, whereas *clusters generate demand for more firms with similar and related capabilities*.
- Networks are based on co-operation, *clusters require competition*.
- Networks have common business goals, whereas *clusters may have collective visions*.

It is important to make these distinctions because policy towards networks can obviously require resources very different from a range of other policies (say in infrastructure) that might be adopted to foster clusters. And while networks are often easier to form amongst co-located firms, geographic proximity is not a pre-requisite. Policy makers however often mistakenly refer to networks and clusters as if they were one and the same.

## Policy recommendations on clusters and networks

### ***Generic observations:***

A policy towards clusters should be based on government supporting existing and emerging clusters rather than trying to create them *ab initio*. A policy aimed at developing entirely new groups of firms in selected sectors can entail high costs, high risks, serve as a screen for outmoded forms of industrial targeting, and give rise to

destructive competition should many regions follow the same policies in pursuit of the same industries. Underlying programmes of cluster development is the idea that firms and industries are part of larger inter-linked systems involving market and non-market exchanges. It is difficult therefore for governments to create and manage such complex systems through policy. Accordingly, an indirect role for government is preferable.

There is another economic reason why an enabling role for government is appropriate. Regional and local development agencies sometimes express the view that public spending on cluster development is economically justified because it aims to create positive externalities, that is, it aims to facilitate the agglomeration economies referred to earlier. In fact, such an argument highlights the limits of policy. This is because, while agglomeration economies are clearly significant in many industries, policy makers do not generally have the information with which to judge their magnitude in different industries for agglomerations of different scales. Therefore, policy makers are usually not in a position to assess whether the cost of the support to be given is smaller than the potential benefits. Furthermore, diseconomies of agglomeration – say from congestion or pollution – may occur as clusters increase in size. So, beyond a given scale, a public subsidy of agglomeration may be guaranteed to reduce economic efficiency, although policy makers would not have the data with which to know when this occurs. Such considerations again suggest a non-distortionary and facilitatory role for the public sector, rather than one in which government seeks to plan the creation and development of new agglomerations.

So, essentially, a policy on clusters should provide a framework for dialogue and co-operation between firms, the public sector (particularly at local and regional levels of government) and non-governmental organisations. This dialogue can lead to efficiency-enhancing collaboration amongst firms, such as in joint marketing initiatives, the creation of mutual credit guarantee associations, joint design and sponsorship of training, a more efficient division of labour among enterprises, etc. Such a dialogue can also lead to an improved quality of policy and government action (such as in training, the provision of information, and infrastructure supply). Policy makers can lock-in some of the benefits of existing or embryonic clusters by ensuring suitable institutional conditions. For example, amongst other actions, promoting the establishment of suppliers' associations and learning circles, facilitating contacts among participants in the cluster, facilitating subcontracting arrangements within the cluster, and ensuring effective extension services can all increase the benefits to firms of belonging to a cluster.

Firms should have access to such institutional arrangements whether they belong to a cluster or not. However, it is likely that the benefits of such arrangements will be magnified by cluster membership, and the cost-effectiveness of provision may be greater when supplying to a clustered rather than a dispersed group of firms.

Policy should also obviously be informed by an awareness that programmes need to be tailored to diverse local economic, social and institutional circumstances. Mechanical replication of policy approaches will not produce optimal results.

Policy recommendations on enterprise clusters and business networks were analysed at length in the context of the first OECD Ministerial Conference on SME development,

in Bologna, Italy in 2000.<sup>1</sup> The essential recommendations emerging from that process were that:

### *On enterprise networks*

- **Implement broad campaigns to introduce the networking concept to businesses.** It is important to create informed demand for network services, with networks preferably addressing precise market-driven objectives. The most successful business networks organise around specific goals. Therefore, public authorities and business associations should seek to raise awareness of the benefits and opportunities of networks in order to increase informed demand for network services.
- A degree of financial support, in feasibility work, start-up activities, and the costs of network brokerage, is to be expected.
- **Work with realistic time-frames:** a commitment of 3-4 years is usually required for a significant business network programme.
- **Ensure the presence of experienced network brokers.** As with many schemes to support enterprise, the quality of management is critical. Persons with direct experience of SME development should be employed as network brokers, providing advice and a neutral corner for firms hesitant at the prospect of co-operation.

### *On enterprise clusters*

- **Facilitate local partnerships involving private actors, NGOs and different levels and sectors of government so as to arrive at agreements on individual responsibilities.** For example co-locating complementary public investments with related concentrations of private investment could be beneficial. The building of collective reputation, to take another example, can also be sought through such partnerships. In Oregon, a Wood Products Competitiveness Corporation was initiated by the State legislature and established a common “Made in Oregon” brand for their products. Tourism clusters are another case in which collective promotion can be important.
- **Let the private sector lead in cluster-development initiatives, with the public sector playing a catalytic role.** Policy makers should generally refrain from seeking to build entirely new sector-specific clusters of firms. There should be an element of market-test before significant public resources are committed to a cluster. Adopting this practice may help avoid situations in which sub-national bodies compete in implementing identical cluster development strategies. Similarly, cluster initiatives should not be used to introduce distortionary industrial policy intended to target “national champions”, “sunrise sectors”, etc.

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1. OECD (2001), *Enhancing SME Competitiveness: The OECD Bologna Ministerial Conference*, OECD Publishing, doi: [10.1787/9789264192560-en](https://doi.org/10.1787/9789264192560-en)



- **Where possible, match initiatives to the most suitable level of government.** The ideal level of government will correspond to the physical scope of the cluster while having substantial influence over relevant programmes and expenditures.
- **Some prioritisation among clusters is generally necessary due to limited resources** (selection criteria might include the opportunity for the sponsor to add-value, and the existence of organised nuclei of actors in the cluster). There may also be benefits to working with a portfolio of clusters.

The choice of clusters to work with can only draw to a limited extent on economic theory-based prescription. In many localities the selection of clusters will be self-evident, as there may only be one or two clusters present. But in more economically diverse settings, with a number of clusters, the choice is more complicated. The temptation exists to seek sectoral priorities based on inherent technical or economic characteristics of the industry in question: value addition, the breadth of forward or backward linkages; technological complexity, employment intensity, growth prospects, etc. This temptation should be avoided. In ideal circumstances, policy makers could allocate resources between clusters if they had a description of the opportunity set of projects in different clusters ranked in terms of benefit/cost ratios. However, while informed policy makers may have access to technical information in a number of sectors, suggesting where unexploited good projects exist, they often won't have this information, especially when working with larger numbers of clusters. This highlights the importance of an iterative process of dialogue and exchange with the private sector in selecting actions that could be beneficial to firms within clusters. Private actors will generally have better knowledge of potential opportunities for collaborative projects, while public actors can help by outlining the scope for collaborative action amongst private agents unfamiliar with such experiences.

- **Initially adopt a low risk/early return focus.** It is useful to generate small but evident gains through collaborative effort at the outset. As success develops, higher risk and longer term activities can be introduced.
- **Target market failures.** Policy – in which local and regional authorities are critical – should explicitly target market failures. The fact that clusters can afford competitive advantages for member firms does not in itself constitute a justification for public action. Several forms of market failure are relevant to policy on clusters of SMEs. These include under-supply of public goods, and co-ordination failures. By not explicitly identifying market failures a cluster development programme might simply become a source of interest-group support. Indeed, assisting a group of firms to better act in concert can have the unwanted consequence of helping those same firms press for support that is economically unjustified.

***Seek to lock-in benefits of existing or embryonic clusters by:***

- Facilitating access to accommodation for new and small firms (given the widely reported difficulties faced by small firms, and particularly start-ups, in gaining access to industrial real estate).
- Promoting the establishment of suppliers associations and learning circles, and other forms of collaborative undertaking that are made possible by virtue of physical proximity among firms (such as mutual credit guarantee associations).

- Allowing specialisation and local adaptation in university-industry linkages including experimentation in incentive structures that can encourage local linkages to industry.
- Ensuring access to specialised infrastructure, communications and transport.

***If seeking to attract investments then:***

- Have local, regional and national authorities disseminate information about the cluster – and the locational advantages it offers – throughout the business community of a region or country.
- Focus investment promotion efforts on linkages within a cluster considered weakest (such as gaps in the chain of local suppliers).
- Consider complementing the national collection and organisation of statistics by adopting a frame of reference that would illustrate the geographic concentration of related groups of firms. Data organised according to the Standard Industrial Classification (SIC) omits the extent of inter-linkages among firms in a given locality belonging to different branches of manufacturing (or services).
- Evaluate the initiative throughout, not just at the end of the process.



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