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Poland 2025: Europe's new growth engine

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Acknowledgments

Poland 2025 marks both the 25th anniversary of the beginning of the economic and political changes that have since transformed Poland as well as the 20th anniversary of the founding of McKinsey's Polish office. The report aims to provide a fact-based perspective on how Poland can accelerate growth in the next decade, elaborating ideas first set forth in the McKinsey Global Institute's paper, *A new dawn: Reigniting growth in Central and Eastern Europe*.

The inspiration came from the debate on the innovative industrial policy initiated by Bronisław Komorowski, the President of the Republic of Poland, during the Economic Weimar Triangle Conference in February 2014, Eric Labaye, the Chairman of McKinsey Global Institute, and Pål Erik Sjøttil, Managing Director in EEMA.

Poland 2025 has been a joint effort between the 12 Polish partners. This team was led by Daniel Boniecki, Managing Director in Poland, working together with Wojciech Bogdan, Tomasz Marciniak, and Marcin Nowacki.

Our Polish partners and sector leaders developed the key industrial insights: Wojciech Bogdan (growth outlook for Poland, business services, agriculture); Tomasz Marciniak (energy and mining); Wiktor Namysł (mining and manufacturing); Marcin Purta (energy and transport); and Ewa Szmidt-Belcarz (pharma and retail). Special recognition goes to Joanna Iszkowska, the editor-in-chief of this report and external relations advisor in Poland.

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Should Poland choose an accelerated growth path to 2025, the country could...

... move from the eighth to the **seventh largest economy** in the EU

... attain levels of **Italy, Spain, and Portugal** in **GDP per capita**

... become the **third-largest process manufacturer** in the EU

... create **500,000 jobs** in advanced business services

... become a **major food supplier** for Europe

... unlock **2.4 million** additional **workers**

... become a European **pharma hub**

... **save** the Polish **mining** sector from bankruptcy

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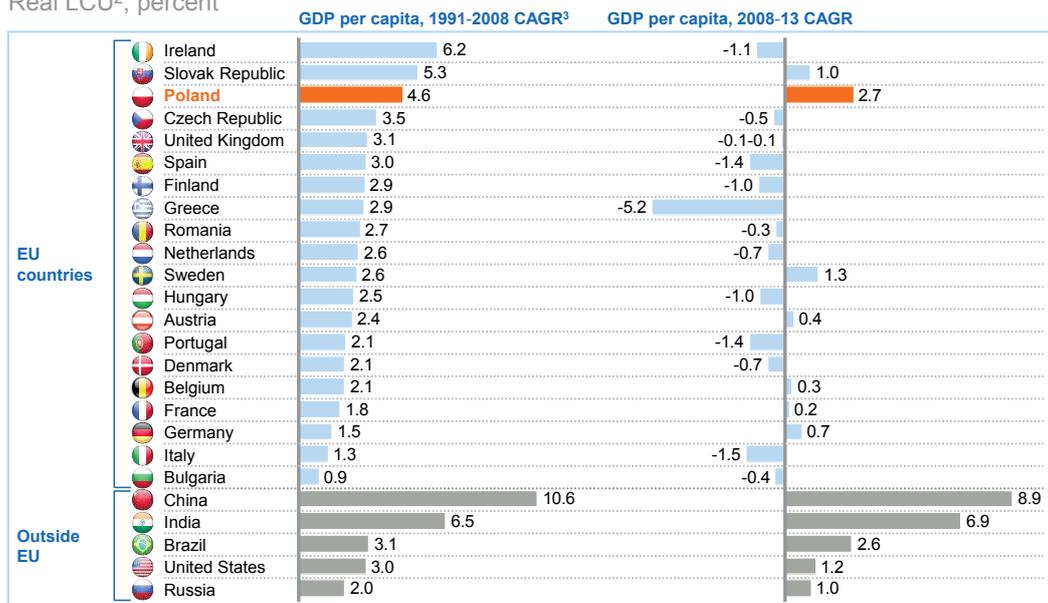
Executive summary

Twenty-five years ago events in Poland touched off changes that swept Central and Eastern Europe, resulting in massive economic and political transformations. As the Polish economy emerged from decades of state control, industries were privatized and market-based competition was introduced, followed by painful reforms. Within a few years, Polish GDP and living standards began to rise significantly, as the country started on a growth path that has not ended. Accession to the European Union in 2004 confirmed the success of Poland's effort and indicated a development path that was leading toward the level of Europe's most advanced economies.

Exhibit 1

Poland was one of the fastest-growing economies worldwide pre-crisis and the fastest-growing economy in post-crisis Europe¹

Real LCU², percent



¹ Ranking based on BRIC countries, CEE, the EU-15 (excluding Luxembourg), and the United States
² Local currency unit
³ Compound annual growth rate
 SOURCE: International Monetary Fund

Over the last 25 years Polish economy doubled in size, as measured in terms of real GDP. In terms of GDP per capita (at PPP), Poland narrowed the gap by nearly half, moving from 32 to 60 percent of the Western European average (EU-15).¹ Annual GDP growth between 1991 to 2008 was an impressive 4.6 percent (Exhibit 1). The growth continued thereafter, as Poland was the only country in the European Union to avoid recession during the financial crisis. Today Poland is the eight-largest economy in the European Union in real GDP terms and can look back with pride on an impressive history of growth over more than two decades. As

¹ The EU-15 is comprised Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom. These are the countries that constituted the European Union between 1995 and the expansion of 2004

a result, the country, long a marginal European economy, is poised to become Europe's new growth engine.

Poland's growth has been based primarily on dynamic exports, strong internal demand, productivity improvements, foreign direct investment (FDI), and the inflow of EU funds. This growth was supported by the buoyant demographics of the 1980s baby boom, as well as a stable banking system. Now, however, the environment has changed. Some of the fundamentals, including the volume of FDI, annual productivity and export growth, are slowing, while others, such as the flow of EU funds, will likely narrow after 2020.²

POLAND'S CHOICE: TWO GROWTH PATHS

The analyses conducted for this report suggest that today, 25 years from the beginning of the transformation, Poland has the opportunity to make a strategic choice to determine its growth path for the next decade. Two scenarios stand out (Exhibit 2). Poland can opt to stay the course, remaining a regionally focused middle-income economy. Alternatively, it can seek to accelerate the pace, catch up to the advanced economies, and become a globally competitive growth engine of Europe competing successfully on a global market.

Exhibit 2

There are 2 vastly different potential outcomes for 2025

	Today 2013	Business as usual 2025	Aspirational 2025
Size of economy Real GDP, USD billion	517	700	850
GDP per capita in PPP USD thousand	23	32	40
GDP per capita in PPP as % of EU-15 average	60%	70%	85%
Position in EU-28 GDP per capita in PPP	23 rd	22 nd	17 th

SOURCE: International Monetary Fund; McKinsey Growth Model

The first, conservative option is a business-as-usual scenario, under which Poland's GDP would grow at a moderate rate of 2.6 percent annually—the average rate since 2008. In the growth model created by the McKinsey Global Institute, the rate of growth of capital investments falls slightly, the economy faces the negative effect of demographic shifts in the labor supply, and the technology and efficiency growth are not accelerated (total factor productivity). If this scenario develops, then by 2025 Polish real GDP per capita will have

² The current EU budget allocations run to 2020; further financing is subject to political decisions

moved from 60 to 70 percent of the EU-15 level (in terms of PPP), reaching the levels of countries such as Portugal or Cyprus.³

Alternatively, Poland could seek to accelerate development, to become the fastest-growing European Union economy for the next decade. By this second, aspirational scenario, Poland would achieve even greater prosperity, with GDP growth above 4 percent annually between 2015 and 2025. The advance would put Polish per capita GDP (PPP) in 2025 at 85 percent of the projected EU-15 average (PPP). Such growth would allow Poland to attain levels not only of Portugal and Cyprus, but also of Spain, Slovenia, or even Italy. Poland would become a globally competitive advanced economy and a significant exporter of goods and services.

To achieve the more ambitious scenario, Poland does not need to abandon its growth model, but a powerful collective effort will be needed. Analyses presented in this paper reveal that Poland's current assets are sufficient to realize the more ambitious scenario. Growth can be accelerated by diffusing the best practices of the country's advanced sectors out to the less developed ones. Supporting advantages for accelerated growth are significant: an educated and affordable workforce; geographical proximity to Western Europe, Russia, Ukraine, and the Middle East; large internal demand from the population of 38 million; a stable macroeconomic situation; and an increasingly favorable business environment.

The aspirational scenario is designed to move the Polish economy from "good" to "great" with ten years of 4 percent-plus annual growth. The business-as-usual scenario, of 2.6 percent annual growth, can seem sufficient for Poland, but in today's uncertain world economy, it hides certain risks. Europe's recovery from the five-year-old financial crisis remains fragile. Poland has been a bright spot, but its economy is becoming increasingly dependent on its European environment. In such conditions, leaders can lose momentum and eventually become laggards.

The initiative the Polish people have shown so far indicates that they aspire to become competitive on a global scale. The slower-growth model is not suited to satisfy that aspiration; a model for more advanced growth is both aligned with global trends and needed for Poland to reach the top tier globally. Achievement of the aspirational scenario will, however, place strenuous demands on the country; success will require a long-term vision, a concerted approach, and rigorous implementation.

FROM GROWTH TO PROSPERITY

For Poland to attain status as one of the world's most advanced economies, it will have to grow at a significantly faster rate. Since Poland is already a developed economy, such growth will only be achieved through a major multisector transformation program. This report presents a refined growth model for the achievement of the aspirational scenario, with a focus on four strategic elements: 1) overcoming growth barriers, focusing in this analysis on mining, energy sectors and agriculture; 2) expanding high-potential sectors, focusing in this analysis on advanced business services, process manufacturing, and food processing; 3) achieving cost-effective acceleration in technology, focusing in this analysis on advanced manufacturing and pharmaceutical industry; and 4) halting the demographic squeeze.

1. Overcoming growth barriers

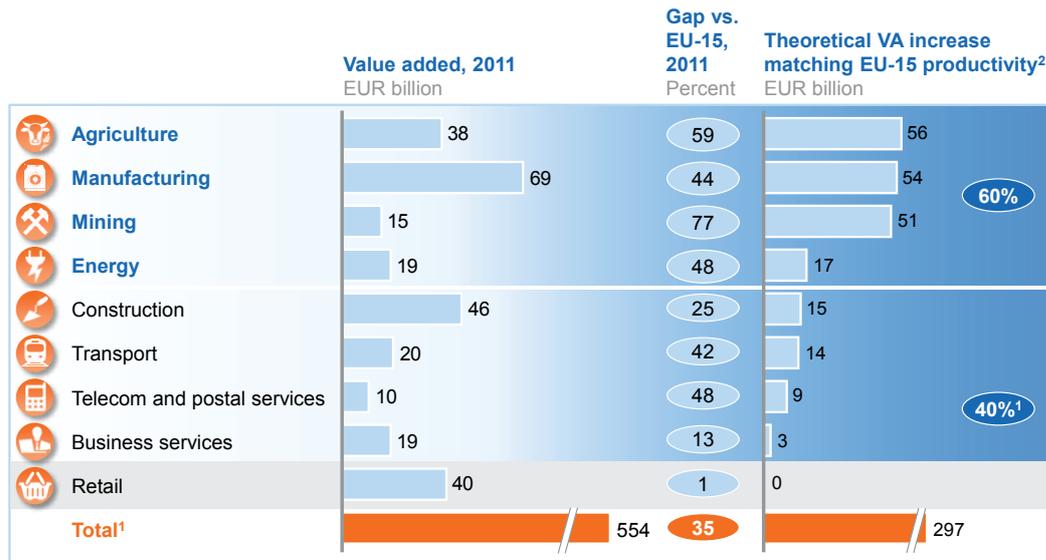
Since its accession to the European Union in 2004, Poland closed 27 percent of the productivity gap with the EU-15. Despite the progress, Poland's comparative labor productivity in 2012 remained low in a few key sectors, at two-thirds the EU-15 average; this developmental

3 GDP growth forecasts in this paper have been based on IHS global economic data (2014–25); Polish GDP growth forecasts are based on IHS data for the business as usual scenario and the McKinsey Global Growth Model for the aspirational scenario

asymmetry needs to be addressed. The shortfall is a result of the low position in the value chain occupied by a majority of Polish industries, unfinished transformations in sectors like mining (77 percent productivity gap versus the EU-15 average), energy (48 percent gap), and agriculture (59 percent gap), along with the relatively low level of capitalization in the economy (Exhibit 3).

Exhibit 3

Four sectors explain 60% of productivity gap vs. European Union and gap can be effectively closed as showed by retail sector



¹ Includes public sector and financial institutions

² Additional value added in sector assuming current Polish employment and EU-15 productivity
SOURCE: Eurostat; McKinsey analysis

Productivity improvements are needed in all sectors of Polish economy. This report focuses on three sectors where the gap is the most significant.⁴ Below we provide wide-ranging recommendations for each sector. Details can be found in respective chapters.

Mining structure and efficiency (chapter 6)

Mining, especially coal mining, presents the largest productivity gap versus the EU-15 average, at 77 percent. Coal mining is a focus of this report; our analyses suggest that internal demand for hard coal as a power source will decrease only slightly in Poland to 2025. With bold reforms, the Polish coal industry has a good chance of becoming stable, profitable, and perhaps even innovative. Analyses indicate that several concerted actions can turn the sector around. At the moment, more than a dozen Polish coal mines are in danger of bankruptcy. Applied systematically, the following recommended actions could result in a double-digit productivity improvement in Poland's mining sector.

- Abandon geological areas that cannot be made economically viable by operational improvements (i.e., closing shafts)
- Eliminate those regulatory barriers that increase effective costs and decrease labor productivity without improving safety or work conditions (e.g., no link to performance or the current shift model)

⁴ A fourth gap of significance exists in the public sector, which is outside the scope of this report

- Apply process improvements: standardize procedures and enable continuous improvement in equipment availability and effectiveness, labor productivity, energy and utilities efficiency, and safety standards
- Develop a hub for global underground operations and technologies, for instance intelligent mines. Poland is well positioned to become a leader in mine innovation, combining a highly skilled and cost-effective engineering workforce with local underground experience (in both coal and copper). These advantages will only gain in importance as global mineral reserves from easily available open-pit mines are depleted. This expertise could become Poland's export service, in line with philosophy of converting weakness into strengths.

Energy sector efficiency (chapter 7)

The energy sector plays a pivotal role in shaping the competitiveness of the economy as a whole, through the increasing role of electricity prices in industrial manufacturing. In Poland, contrary to the trends in major European markets, power demand had risen steadily in the past decade. To secure supplies, promote environmental sustainability, and (most importantly) keep prices at levels competitive within the European Union, the Polish energy sector needs to close its 48 percent productivity gap with the EU-15. The following options could be considered:

- Rejuvenating Poland's asset base; the energy groups could focus on the cost-efficiency of their generation investment portfolio
- Providing an efficient market support mechanism for conventional generation investments, combined with a cost-effective subsidy scheme for renewable energy systems (RES)
- Improving operational efficiency to close gaps in labor productivity and service quality along the value chain
- Leading efforts towards European energy market integration

Agriculture (chapter 7)

The sector went through radical changes over last 25 years. The productivity gap versus the European Union closed from 70 percent in 2008 to 59 percent in 2011. To become a sound base for a food industry hub in Poland, the sector needs further transformation, which could include:

- Increasing through consolidation the size of the average farm, which is now roughly 10 hectares, compared with 50 in France and Germany⁵
- Improving yields on Polish soil by encouraging land leases, contract farming and producer cooperatives
- Reorienting the sector from production of low-value-added raw produce toward processed products

2. Expanding high-potential sectors

Convergence with EU-15 productivity levels will only partially fulfill Poland's potential for faster growth. Further acceleration can also be achieved by developing new pockets of growth within existing sectors. The new growth would be based on a number of factors, including the country's existing strengths and competitive advantages as well as global trends. Three potential in-sector growth engines stand out: in advanced business services, in the international expansion of process manufacturing, and in Poland's potential role as a food hub for Europe.

5 Eurostat statistics 2013

Expanding advanced business services (chapter 4)

Poland is one of the world's leaders in the business-services sector, especially as a destination for outsourced or offshored business services (O&O). The expansion of this sector in Poland has outpaced the rest of Central Europe and grew three times faster than in India. At the moment the Polish outsourcing-offshoring sector employs almost 160,000 people in more than 530 centers.⁶

Poland possesses a unique combination of advantages in its role as supplier of advanced business services. These include plentiful talent, conveniently situated in modern cities, with lower costs than in Western Europe but similar quality, an EU time zone, and a familiar legal code. With the right mix of initiatives and policy enhancements, the sector could expand to 450,000 to 600,000 jobs⁷ over the next 10 years, and 90,000 to 150,000 in related support services.⁸

By further developing the sector, Poland could focus on advanced and sophisticated services by 2025. Centers could be attracted that provide middle-office services in loan and mortgage-process management, policy and claims handling, big data analytics, remote health diagnostics, and data storage, among other services. To enable the further growth of service industries the following measures could be considered:

- Adapt educational curricula to provide the more specialized needs of the sector, including foreign language proficiency and specialized thematic expertise in such fields as financial fraud detection or big data (business analytics)
- Offer growth incentives for Polish financial and insurance services leaders, to encourage the scale and efficiency needed to compete internationally, by utilizing the infrastructure of state-owned enterprises and the Polish capital market
- Develop and fund a broad international campaign to promote Poland as a European champion of outsourced and offshored business services
- Help Poland's largest cities become magnets for O&O investors by establishing world-class investors' front-desks and support services
- Build strong industry associations to develop a growth vision for the industry and aligned educational programs and standards; build a world-class "front desk" to serve all foreign investors considering establishing centers in Poland

Expanding process manufacturing internationally (chapter 5)

The process manufacturing sector is emerging as a stronghold of growth in Poland. The sector includes segments of auto manufacturing, furniture, food processing, textiles, and chemicals. It is second only to the service industries in advancing Poland's competitive position, and as such is poised for competitive expansion on the international market.

This sector builds on proven advantages of the Polish economy and has potential to become a major engine for growth. Polish entrepreneurs should raise their ambitions from competing on cost alone to competing on brand and technology as well. The country will not succeed on a predominantly lower-labor-cost model in the long term.

To build scale and enable the further growth of process manufacturing the following measures can be considered:

6 Association of Business Service Leaders (ABSL) data for 2014

7 McKinsey forecast

8 McKinsey forecast based on Janusz Górecki, "Establishment of Foreign Business Services Sector in Poland and Its Relations with the Local Environment" (PhD diss., Cracow, 2012)

- Sector consolidation in Poland and acquisition of foreign players to gain scale and enter new markets
- Expansion of exports, in part by establishing production outside the EU, to connect directly with fast-growing markets in Asia, Africa, and Latin America
- Facilitating the move up the value chain in exports, by developing R&D co-location and investments in proven technologies
- Further development of the cluster model to promote cooperation, knowledge sharing, and more efficient supply chains
- Improvements in operational practices to maintain or deepen cost advantages

becoming a major food supplier for Europe (chapter 7)

Poland ranks fourth in the European Union in arable land, after France, Spain, and Germany. Growing urbanization in Western Europe has made Poland, with its large cultivated land areas, more attractive as a food supplier for Europe. Numerous Polish companies have invested in modern production-line infrastructure, especially in dairy, meat, frozen food, and beverages. They are setting an example for others to follow, as the potential market is very large: 200 million EU citizens live within 1,000 km of Poland's borders. Poland is uniquely advantaged to serve them as a major food production and processing hub.

Poland will not, however, be able to become a food hub unless it closes its productivity gap in agriculture of 59 percent with the EU-15 average. To do that, the basic changes in agriculture discussed in this report are needed. The following initiatives could also be considered.

- Further investment in intellectual property, as well as R&D in such areas as nanotechnology in conservation, filtering, and packaging innovation. Part of such an initiative would be the achievement of better cooperation between food processing companies and academia⁹
- Seek opportunities to consolidate food processors to gain needed scale, including the adoption of a cooperative model for fragmented producers
- Increase food product complexity and move up the value chain, for instance with organic food and products for customized diets
- Build Polish brands, possibly with the cooperation with European retailers, in categories such as poultry, pork, and dairy, where Poland has a strong position in the EU market
- Acquire foreign brands as needed to serve export markets

3. Achieving cost-effective acceleration in technology (chapter 3)

Technologically advanced industries in Poland, including advanced manufacturing and pharmaceuticals, make up about 2 percent of Poland's economy, compared with 5 percent in Germany and 4 percent in the Czech Republic. While the adoption of foreign technology has helped Poland grow, the country's future as an advanced economy depends also on the development of technology at home. Yet even given its size, Poland's advanced industries can have powerful indirect effects on overall economic growth, since they indirectly contribute to positive developments in other industries. Actions, including public policy, are therefore needed to create an environment more conducive to high-tech growth. The following steps could be considered.

- Establishing high-tech industry clusters to improve collaboration on large projects, with built-in mechanisms for cooperation and knowledge exchange

9 Andrzej Kowalski, Marek Wigier, "Rozwój sektora rolno-spożywczego w Polsce na tle tendencji światowych", Instytut Ekonomiki i Gospodarki Żywnościowej, Państwowy Instytut Badawczy, Warszawa 2008 ("Development of the agri-food sector in Poland in comparison with global trends")

- Strengthening ties between business and academia, to ensure the talent needs for high-tech industries and improve the utilization of research in business
- Allocating public procurement spending to technology- and R&D-driven projects to stimulate research
- Providing governmental support to help mitigate risks of large capital projects (for instance through debt guarantees)
- Increasing targeted R&D spending through the removal of tax barriers and access to financing through venture capital
- Potentially allocating direct public expenditures to local research

In this report we focus on two tech-forward sectors that can become Poland's high-tech industry drivers. In advanced manufacturing, including machinery and transport equipment, Polish companies could become truly competitive on a global scale, by transferring know-how from the nation's deep technical expertise in mining and defense. Poland could also become a pharmaceutical hub for Europe or even globally, by developing capabilities as a manufacturing center for complex generics and biosimilars. It could also strengthen its role as a manufacturing contractor for European generics products and become a packaging and logistics center for the European pharmaceutical industry.

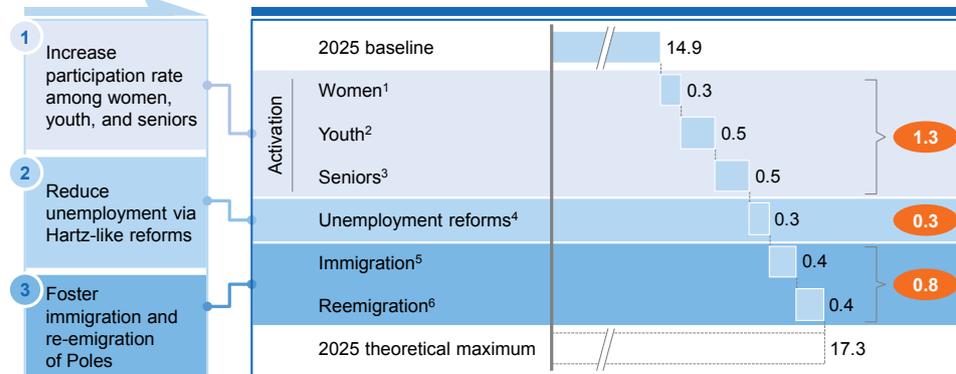
4. Halting the demographic squeeze (chapter 8)

The demographic outlook for economic growth is narrowing in Poland. The population is aging and living longer, the birth rate is down, and the share of people working will be shrinking soon. The 15-to-59 age segment is expected to decline by 2.7 million by 2025.¹⁰ These trends can, however, be stopped or even reversed, with targeted policy measures. First, measures are needed to raise the labor participation rates of women, youth, and older workers. Application of effective measures against unemployment, a re-emigration plan, as well as a targeted immigration policy may also create additional growth stimulus. In chapter 8, improvement examples from other countries are discussed and a potential scenario is laid out whereby Poland could engage an additional 2.4 million workers in the coming decade (Exhibit 4).

Exhibit 4

Ambitious pro-employment measures can add 2.4 million workers, counteracting the workforce decline caused by aging

Poland's working population, million



1 The gap between best in class Sweden and Poland is 8 p.p. Closing 50% of the gap assumed

2 14 p.p. gap between EU-15 and Poland. Closing the whole gap assumed

3 14 p.p. gap between EU-15 and Poland for 55-59 group. Closing the whole gap assumed. Assumed also grow by 7 p.p. for 60-64 group (50% of grow for 55-59 group)

4 Hartz IV reforms: holistic reform of the German labor market including long-term training, wage subsidies and start-up subsidies.

5 Assumes double number of settling immigrants from working foreigners

6 Assumes 16% of 2.5 million Polish emigrant returns

SOURCE: OECD; ZUS; MoF/ECFIN AWG; Eurostat; McKinsey analysis

* * *

Poland is at a unique moment in its history. The country has the means and resources to begin a new economic phase. After two decades of solid incremental growth, a point has been reached where ambitious plans are in order. In the next decade, greater prosperity for the Polish people, resolution of social problems such as growing income inequality or regional disparities, attainment of EU-15 economic levels, and a global presence are all possible for Poland. Businesses have the key role to play and companies can contribute with concerted activity in the following areas:

- Continuously improve productivity by process standardization and moving up the value chain in each sector
- Deepen relationships with emerging markets in Asia, Latin America, and Africa, to strengthen exports and attract new capital investors
- Build scale in process manufacturing through consolidation in Poland and acquisition of foreign players to gain established brands and enter new markets
- Foster innovation in technology-intensive industries by establishing high-tech clusters and increasing targeted R&D investment
- Reverse the effects of a shrinking workforce by boosting productivity and opening jobs for women, youth, and immigrants
- Improve the skills and competitiveness of the workforce by creating curricula at institutes and universities calibrated to the talent needs of business

Apart from improving productivity and creating new pockets of growth, Poland will need further to improve infrastructure, simplify regulations, and invest in education and innovation. More investment will be needed, to fund these programs and to deepen existing levels of capital formation. Domestic savings should be encouraged and new types of foreign capital, such as leading global infrastructure and pension funds, could be attracted.

The outstanding growth achieved by Poland since the beginning of the transformation 25 years ago is a sign that the country is well prepared for the next stage of its growth journey. Now Poland can draw upon its fundamental strengths to realize a refined growth model. We also believe that the people of Poland will rise to the challenge and use their talent and energy to move their nation forward. By 2025 the country could transform itself from a regionally focused middle-income economy to an advanced European economy competing successfully on a global market. Poland has a historic chance to capitalize on its assets, including recent achievements, for the benefit of its future generations.



1. A growth champion challenged

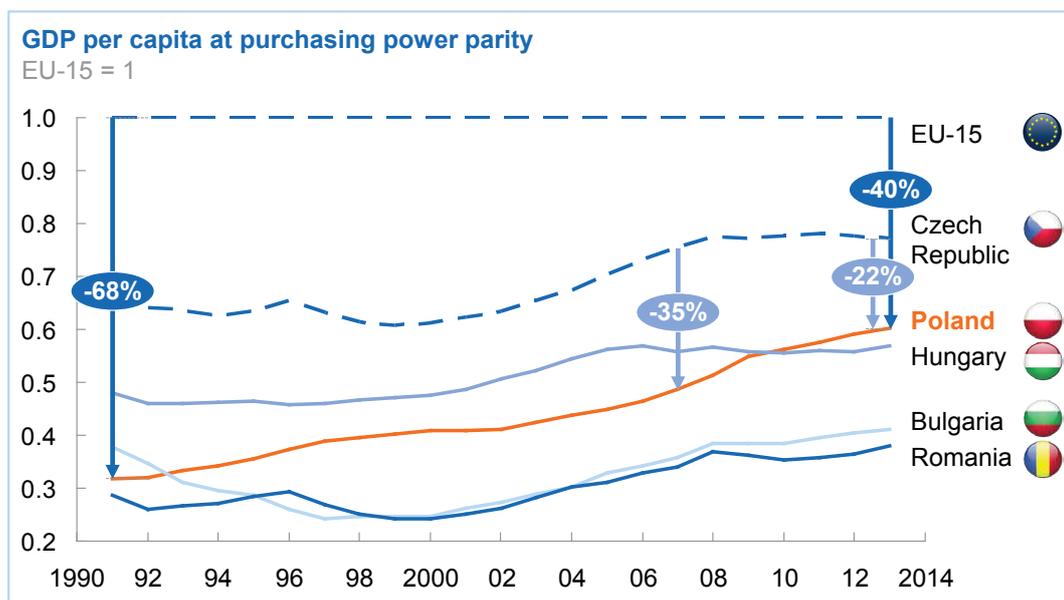
Poland's new golden age

Twenty-five years ago Poland began on a journey of economic transformation. The political and economic course of the nation was massively redirected, as industries across the state-owned economy were privatized and market-based competition was introduced. Thanks to the immense effort of the whole society, these reforms brought major positive change in both political and economic terms. After a difficult period of adjustment, GDP and living standards began to rise, as Poland set its sights on European Union (EU) membership and Western European-level development. Between 1991 and 2008 Poland averaged GDP growth of 4.6 percent annually, a singular achievement compared with other EU countries. Also, uniquely among the economies of the EU, Poland was able to avoid recession during the financial crisis.

Accession to the European Union in 2004 opened new growth horizons, signaled Poland's successful transformation, and confirmed the nation's goal of catching up with the economies of the most developed European countries. Between 1991 and 2013 Polish GDP at purchasing power parity per capita as a percentage of Western European GDP (the EU-15) almost doubled, from 32 to 60 percent. Poland has narrowed the gap with Western Europe in GDP per capita PPP by nearly half. This achievement is significant, since other countries that have attempted the same kind of transformation — despite tremendous efforts — have not met with as much success. Progress in Hungary has led to a narrowing of this gap by 17 percent, in Romania by 13 percent, and in Bulgaria by 5 percent (Exhibit 5).

Exhibit 5

Poland's GDP per capita at PPP moved from 32% to 60% of the EU-15 average, and the gap to Czech Republic is closing

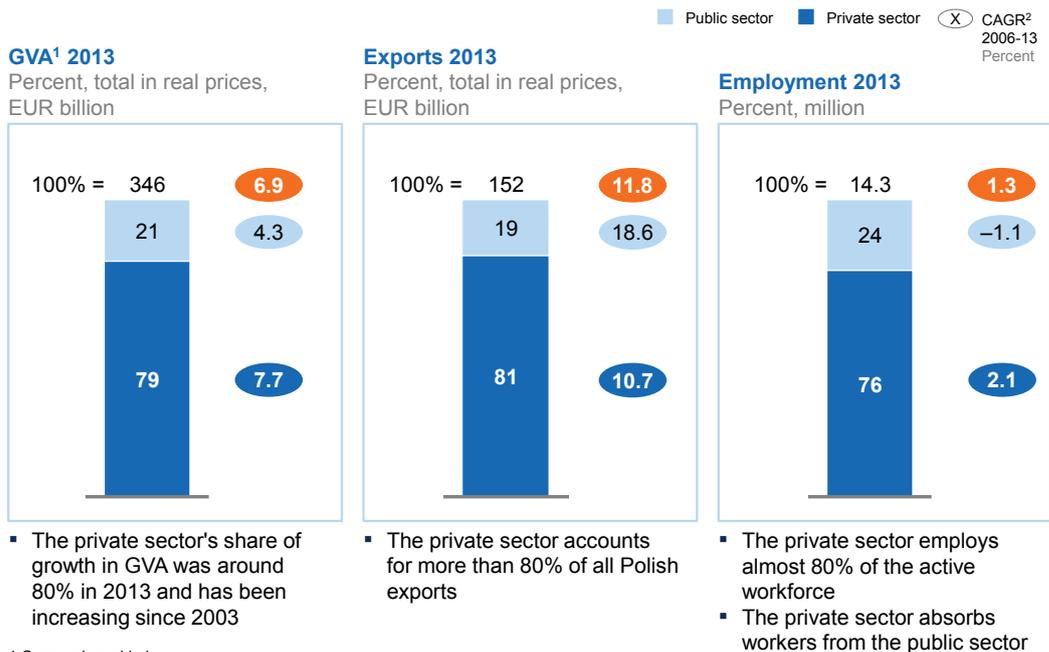


Note: EU-15 = Germany, France, United Kingdom, Netherlands, Belgium, Luxembourg, Ireland, Spain, Portugal, Italy, Austria, Greece, Sweden, Denmark, Finland
 SOURCE: International Monetary Fund

Today, Poland ranks as the eighth-largest economy in the European Union as measured by GDP and is recognized as one of the world's most impressive growth stories.¹ The role of the private sector has dominated in Poland's growth story in recent years. Market reforms have allowed the private sector to take an 80 percent share in three important economic indicators: exports, employment, and gross value added (GVA). While the Polish public sector continues to play an important role in Polish society and the economy, the private sector has become the key driver of the country's growth (Exhibit 6).

Exhibit 6

The private sector has been responsible for 80% of Poland's growth



¹ Gross value added
² Compound annual growth rate
 SOURCE: Polish Bureau of Statistics (GUS)

As a result, the private sector has been able to absorb some of the workforce from less productive areas in the public sector, playing a critical stabilizing role for society while starting up the growth engine of the economy.

Until now Poland's growth model was based on productivity gains, dynamic exports, strong internal demand, EU funding, and foreign direct investment (FDI). FDI helped to fund Polish economic assets and improve managerial practices through knowledge sharing. Additionally, positive demographics, including the 1980s baby boom and a stable banking system, were strong contributing factors to Poland's growth.

Lately, however, these positive factors have weakened: FDI in Poland has slowed down; EU funding will drop off after 2020; and demographic trends are already showing signs of turning negative: the labor supply will soon be shrinking rather than expanding. The financial crisis gave a glimpse of the challenges Poland will be facing. From 2007 to 2012, FDI flows to Poland narrowed as a percentage of GDP by 4 percentage points, while demand slowed from Western Europe, which accounts for nearly 75 percent of Polish exports.²

¹ Ranking based on International Monetary Fund EU total GDP data; Poland is ranked seventh by Eurostat

² National Bank of Poland (NBP), nbp.pl

Challenges ahead

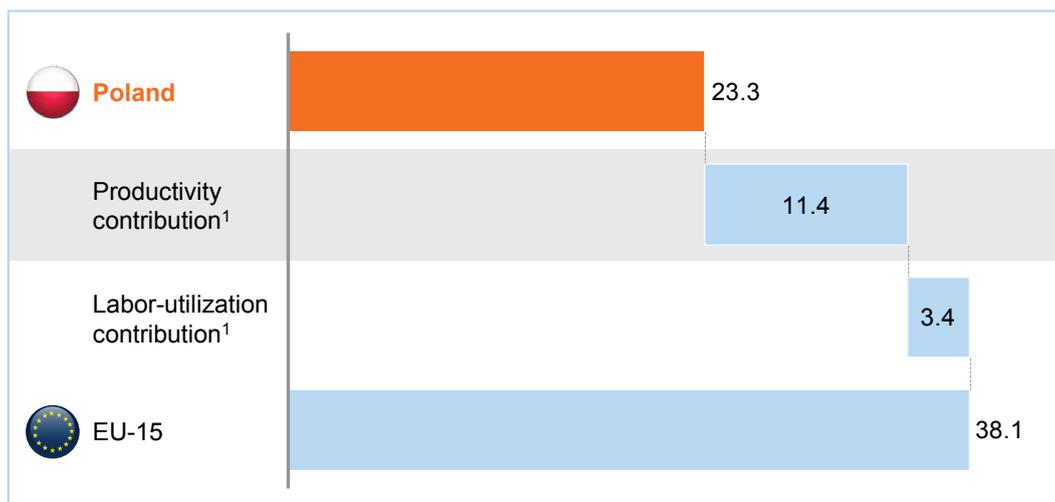
LOW PRODUCTIVITY COMPARED WITH THE EUROPEAN UNION

Productivity is a measure of how well human and technical resources are configured in the production of goods and services. At a national level, this depends on the efficiency with which available resources are utilized, including raw materials, labor, skills, capital equipment, land, intellectual property, managerial capability, and financial capital. With the right investments, higher value added and higher incomes can be achieved for every hour worked. Generally speaking, higher productivity results in higher standards of living for the country's population. Over the past 25 years, Poland has made considerable progress with regard to GDP growth and increased productivity. Since the accession to the EU in 2004, Poland closed the productivity gap with the EU-15 countries by 27 percent. Despite this progress, however, Poland's comparative labor productivity in 2012 remained low, at 67 percent of the EU-15 average. Closing this gap is one of the biggest challenges Poland faces (Exhibit 7).

Exhibit 7

Poland still faces a substantial per capita GDP gap with EU-15, mainly driven by productivity contribution

GDP per capita, 2013, PPP, USD thousand



¹ The difference in labor productivity between countries may be explained either by difference in the labor productivity per working hour (productivity contribution) or by the difference in the labor-utilization contribution (working hours per capita)
 SOURCE: Eurostat; International Monetary Fund

A country's GDP can grow either through an increase in productivity or in labor utilization. The first component measures the contribution per worker as the value of produced goods and services divided by working hours. The second component is a measure of the size of the workforce actually engaged in production as the number of working hours per capita.³ Poland's GDP gap with the EU-15 is largely the result of lower productivity, which in turn is caused by several factors:

- The majority of Polish industries, including agriculture and process manufacturing, are focused at a low point in the value chain, meaning that their products have low value added per unit of labor
- Key capital-intensive sectors, such as mining and power generation, have not completed their transformations and are sustaining inefficient levels of employment, using dated operating practices, and freezing out resources from better growth opportunities

³ Working hours per capita equals working hours per employee times employment to total population

- The Polish economy remains generally undercapitalized compared with advanced European economies, so closing this gap will mean investing more capital in industry, including for modern machinery and infrastructure
- The country has an unfounded belief that labor costs will remain relatively low compared with those of the EU-15. This belief can further delay modernization, putting productivity at additional risk.

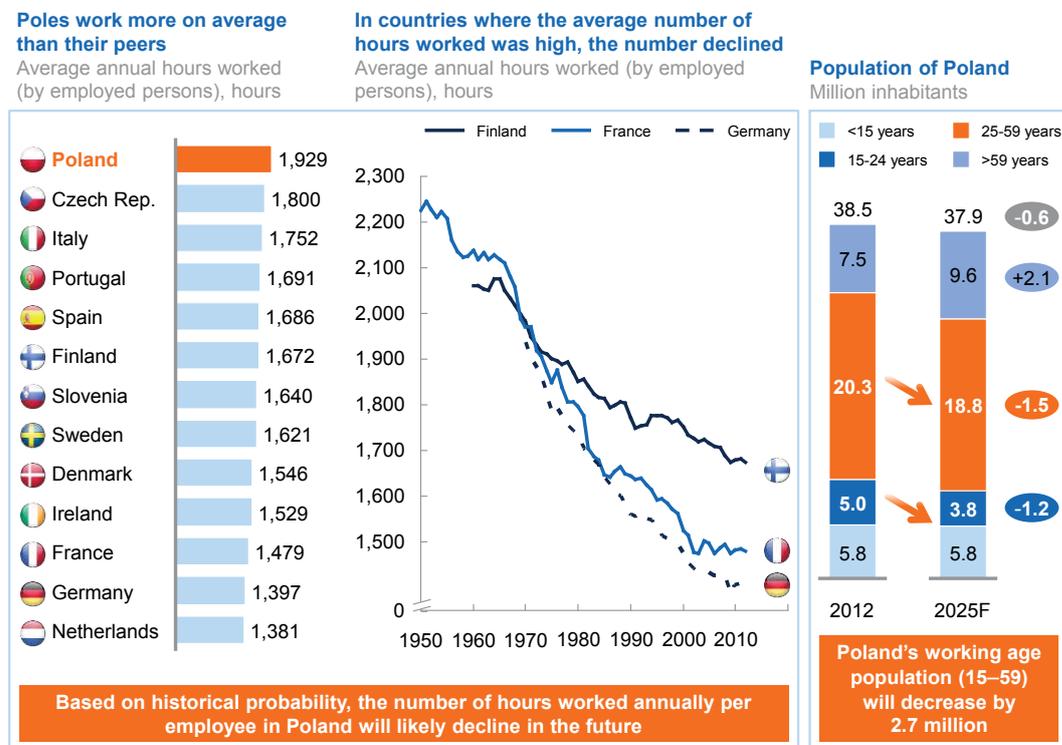
Raising productivity is the key to Poland's future growth, especially since Poland will likely not escape the negative demographic forecasts for all of Europe.⁴ Poland, like the rest of Europe, will be facing a shortage of workers, so now is the time to invest in the modern machinery, branding, and infrastructure that will enable much higher productivity from the smaller Polish workforce of the future.

NEGATIVE IMPACT OF DEMOGRAPHIC SHIFTS

Poland's demographic outlook is unfavorable: with an aging population, the birthrate will drop and life expectancy will increase. The prime working-age population (15 to 59) is expected to decline by 2.7 million by 2025, and the old-age dependency ratio (population older than 59 to working-age population) will jump from around 29 percent in 2012 to 42 percent in 2025.⁵ In the face of these demographic trends, Poland's budget will come under increasing strain, with a shrinking tax base accompanied by increasing demand for healthcare. Thus, increasing the labor supply and labor productivity are imperatives.

Exhibit 8

The working-age population of Poland will likely decrease in the future, will the number of hours worked per employee



SOURCE: Organisation for Economic Co-operation and Development; Polish Bureau of Statistics (GUS)

4 Organisation for Co-operation and Development, oecd.org; Polish Bureau of Statistics (GUS)

5 Ibid.

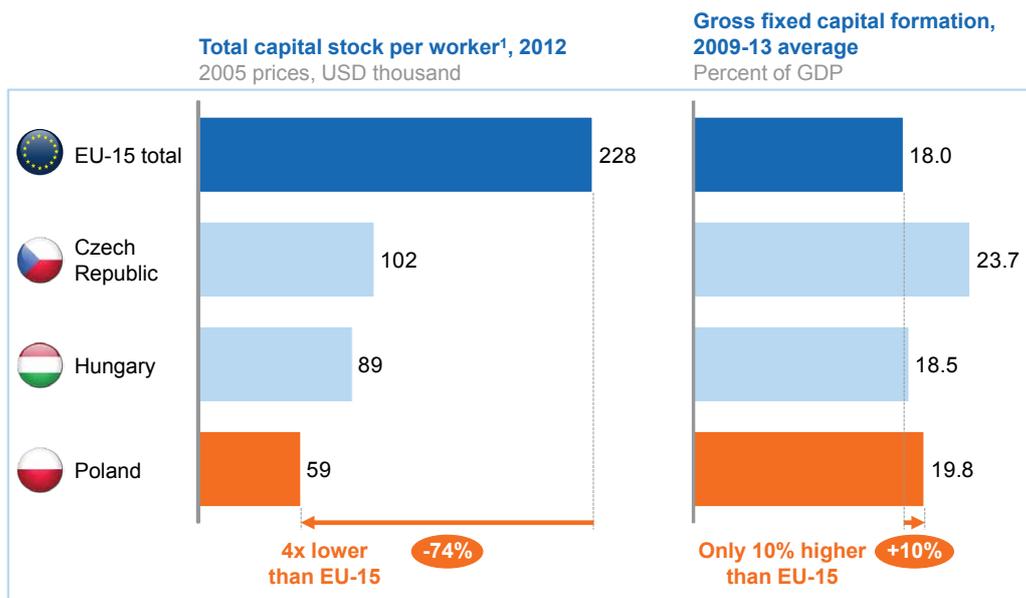
The labor supply in Poland cannot be increased by significantly extending working hours: Poles already work for more hours than their European peers. The average Polish worker works 1,929 hours per year, while Germans work 1,400 and the European average is 1,600 (Exhibit 8). At the same time, labor productivity in Germany is considerably higher than in Poland.⁶ As data from the Organisation for Economic Co-operation and Development (OECD) confirm, the correlation between the number of working hours and productivity levels is actually negative.⁷ The demographic challenges Poland faces are addressed in more detail in chapter 8.

UNDERCAPITALIZED INDUSTRY

The ratio of capital, as expressed by net assets, per employee remains very low in Poland compared with EU-15 levels (Exhibit 9). Most investments in Poland are financed by domestic savings, both household and corporate. However, the share of domestic savings contribution used to finance investments has decreased, from 87 percent for the period 1993–2003 to 80 percent in the past decade.⁸ Consequently, financing from abroad has grown in size and importance. In the past ten years, nearly 20 percent of investments in Poland came through FDI and EU funding.

Exhibit 9

Poland's level of capital stock per worker is four times lower than the EU-15 average and may not be closed at the current reinvestment rate



¹ All sectors excluding construction and real estate
 SOURCE: Eurostat; World Bank

In the pre-crisis years, until 2008, the contribution of FDI to GDP fluctuated between 2 and 5 percent. After the crisis, however, Poland and other Central and Eastern European (CEE) countries saw a significant drop in international capital flows.

Polish domestic household and corporate savings are relatively low, at around 17.4 percent of GDP in 2012, compared with the CEE average of 21.2 percent.

⁶ Ibid.

⁷ See Exhibit 34

⁸ McKinsey Global Growth Model

Adjusting for pension system variation between countries, Polish households have in the past five years saved between 2 and 9 percent of their disposable income: below Hungarian (7 to 11 percent) and Czech (9 to 11 percent) households, and far below German households (17 percent).

To fund future investments and bridge the gap in levels of capital, domestic savings can be increased, with added incentives, and new types of foreign capital, such as leading global infrastructure and pension funds, could be attracted.

EXPORTS CONCENTRATED IN THE EUROPEAN UNION

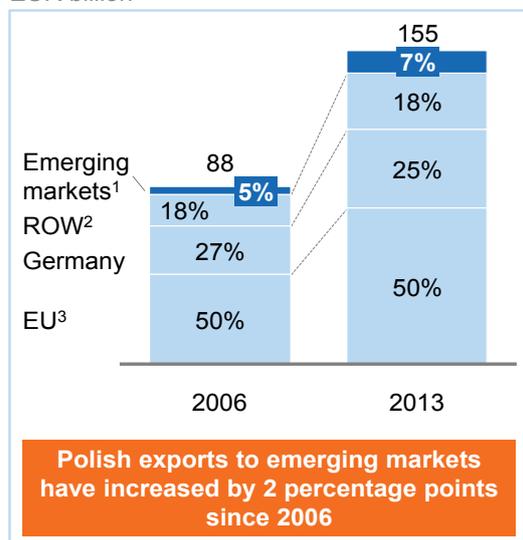
After EU accession, Poland turned to the open European market as its destination of choice for exports growth. Polish exports grew healthily because of the cost advantages of Polish products, the country's favorable geographic location, and high European growth fueling demand. The success of Poland's EU-bound products has been impressive, and this market will rightfully continue to be an area of focus for Polish exports. As the center of gravity of the world economy shifts toward growing economies in Asia and Africa, however, Poland will want to make direct connections with these markets to accelerate economic growth in the next decades (Exhibit 10). The objective would be to establish a presence and open markets beyond Europe directly to Polish goods so that Polish producers capture the margins, as opposed to merely supplying European exporters.

Exhibit 10

Poland could further diversify its exports to reach large emerging economies

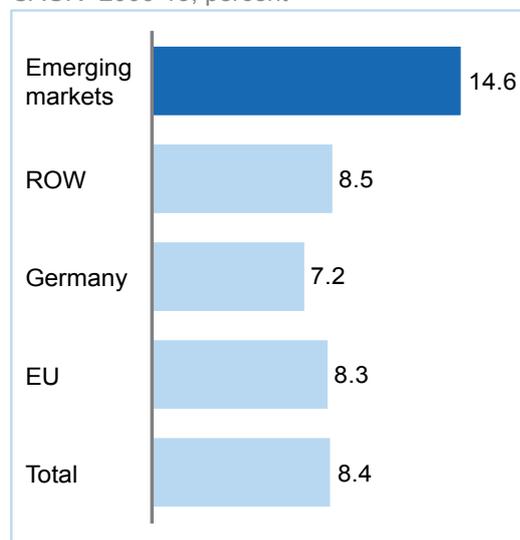
Polish exports

EUR billion



Export growth

CAGR⁴ 2006-13, percent



1 Africa, Middle East and Asia (excl. ex-USSR) 2 Rest of the world
3 Excluding Germany 4 Compound annual growth rate
SOURCE: Polish Bureau of Statistics (GUS)

Since 2006, Polish exports have grown at an average rate of 8 percent per year, with over 75 percent bound for the European Union. As a destination, Germany was the leading recipient, importing more than three times the share of the United Kingdom, the second-place country. Exports to countries outside the EU, meanwhile, account for less than 25 percent of the total, with only 7 percent bound for the Middle East, Asia, and Africa, the eastern growth engines of the global economy. To outgrow Europe, Poland needs to connect with the world's most dynamic economies directly by expanding exports to the new growth regions, establishing new international brands, and capturing additional margins on domestically produced goods.

Poland's assets for a new era of growth

Poland could bank on its natural advantages in order to magnify economic momentum and avoid fragmentation and costly experiments. The next phase of economic growth for Poland would be based on the further development of the country's existing strengths.

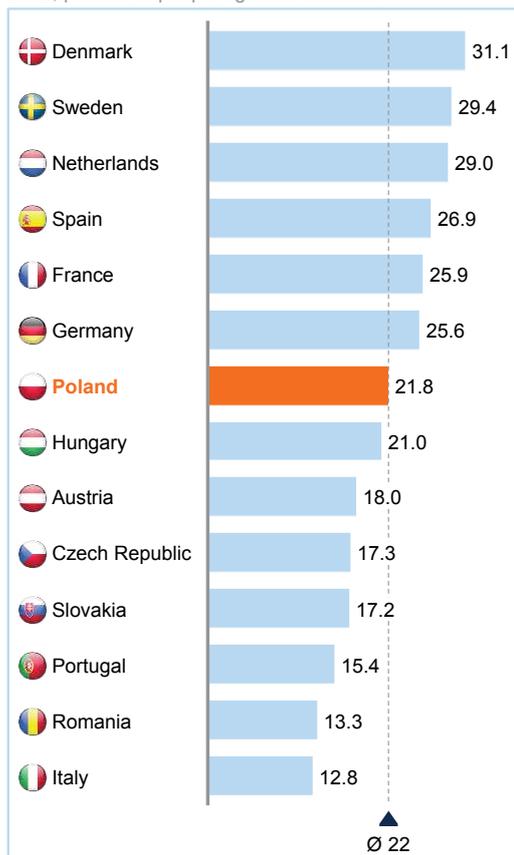
AN EDUCATED WORKFORCE

Poland has a talent pool of highly educated workers, as measured by the number and quality of graduates from institutions of higher learning (Exhibit 11). About 22 percent of Poland's population aged 24 or above has a university education. Since the 1990s, more of Poland's students have been gaining international exposure, through European exchange programs such as Erasmus, by entering the job market in other European countries, or by working for European companies in Poland. In addition, and very importantly, Poland is improving its foreign-language proficiency. It is now ranked sixth in the world in English proficiency.⁹

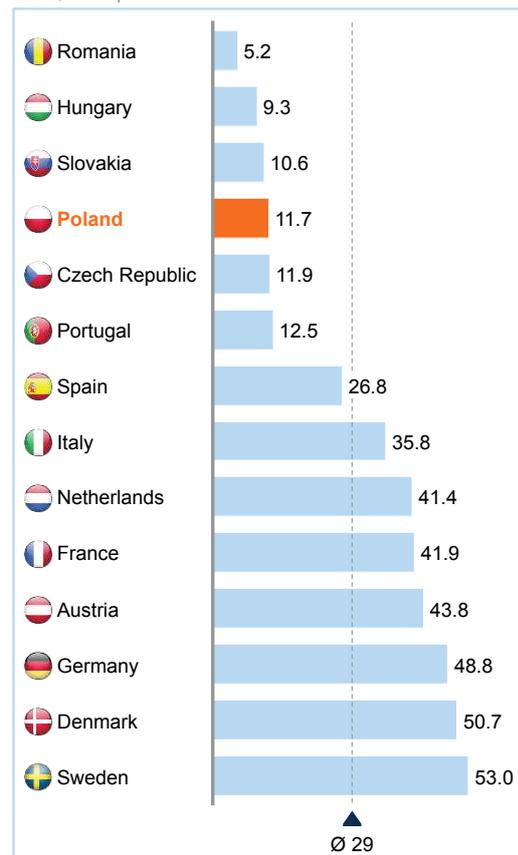
Exhibit 11

Poland combines an educated workforce with low labor costs

Share of tertiary-education graduates
2012, percent of people aged 24 or above



Cost of labor
2013, USD per hour



SOURCE: Economist Intelligence Unit; United Nations

9 English Proficiency Index for non-native English speakers, EF Education First, 2014, ef.edu

AFFORDABLE LABOR

While Poland's workers are well educated, they earn far less than Western European workers. Total compensation costs to the employer for an average German worker were USD 48.80 per hour; for a Polish worker, costs were a fifth of this figure. This kind of cost advantage for employers will likely continue for the next few years, since wages have been growing in Poland at a rate of only one percentage point faster than the consumer price index (compound annual growth rate, 2009 to 2013). At the same time, Poland faces competition from low-cost countries, such as China, India, the Philippines, and Vietnam—though distance and logistics issues often diminish some of the cost advantages. As Poland makes the most of its current but eroding cost advantages, it could move up the value chain faster. Quickening the pace will require upgrading qualifications, adapting educational offerings to better match business needs, scaling up innovation, strengthening branding, and implementing optimal managerial practices.

STRATEGIC LOCATION

Poland is strategically positioned between Western Europe—bordering on Germany—and Russia, and it has access to the Baltic Sea. It thus enjoys the advantages of proximity to attractive consumer markets in the EU, Russia, Ukraine, Turkey, and the Middle East. Thanks to accelerated infrastructure development in recent years, Poland has an opportunity to help local industry grow to serve neighboring markets more effectively. As more than 200 million EU citizens live within 1,000 kilometers of Poland's borders, the country is within reach of a highly attractive opportunity as a supplier of processed goods to many affluent markets.

VAST AREAS OF ARABLE LAND

Poland has the fourth-largest area of arable land in the European Union, after France, Spain, and Germany. Given this and other advantages, no other country is as well positioned as Poland is for becoming a pan-European food-production and processing hub. As part of this aim, greener, less industrialized regions of Poland can be developed for production of eco-friendly and organic foods for Western Europe.

STRONG INTERNAL DEMAND

Poland's population of 38.5 million creates strong internal demand, which helped the economy through the financial crisis. Thanks to robust consumption, Poland managed to avoid the recession, as internal demand provided a buffer from the shocks of softened exports and slowing inflows of external funds. In 2008 the share of private consumption was almost 62 percent in Poland, compared with 56 percent in Germany, according to the Economist Intelligence Unit. Consumption of course needs to be balanced with a rise in savings rates, but boosting the competitiveness of the domestic market will strengthen the economy, which continues to benefit from the stabilizing effects of its demand. One caveat is that the stability created by domestic consumption can reduce the imperative to eliminate inefficiency and raise global competitiveness.

STABLE MACROECONOMIC SITUATION AND INCREASINGLY FAVORABLE BUSINESS ENVIRONMENT

Poland has managed to establish institutions that have stabilized the economic environment, while constant improvements in regulations are improving the business climate. According to the World Bank's ease-of-doing-business ranking, Poland advanced from 76th place worldwide in 2009 to 32nd place in 2014.¹⁰ To set up a limited liability company in Poland in

¹⁰ *Doing Business 2009* and *Doing Business 2015: Going Beyond Efficiency*, World Bank Group, 2008, 2014), doingbusiness.org

2008, ten procedures had to be completed and capital equal to 196.8 percent of the national per capita income needed to be invested. Now, in 2014, only four procedures and investments equal to 14.3 percent of per capita income are required. Another sign of the country's improving economic environment is that Poland scored at the top of all CEE countries in investment attractiveness in the Ninth Economic Survey of the German Chamber of Industry and Commerce (AHK).¹¹

11 *AHK Investment Climate Survey Central and Eastern Europe 2014*, German Chambers of Commerce and Industry, 2014, ahkungarn.hu



2. Finding a new growth model

Poland's strategic choice

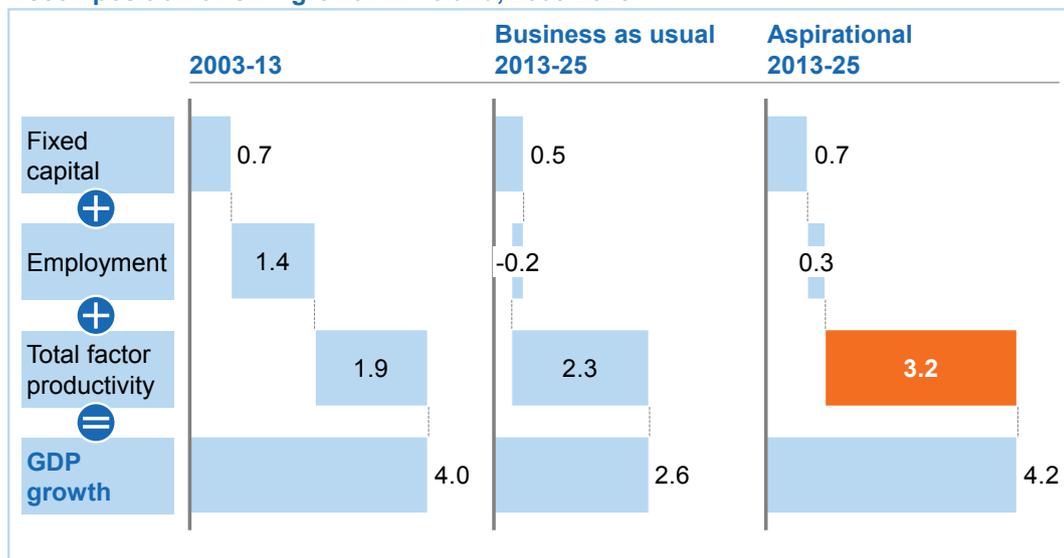
Recognized internationally for its second “golden age” of economic growth and resilience,¹ Poland is faced with a strategic choice. Twenty-five years after the onset of the economic and political transformation and a decade since it joined the European Union, Poland can take one of two paths. It can remain an economy of regional importance, maintaining moderate growth and slowly attaining midrange per capita income. Alternatively, it can seek to accelerate development and become the fastest-growing major EU economy for the next decade (Exhibit 12). Following the accelerated scenario, Poland has a chance to achieve per capita income, as measured by purchasing power standards, of such countries as Portugal, Spain, or even Italy. By taking full advantage of its strengths and far exceeding Europe's stagnating core economies in growth, Poland would take a major step toward the level of the world's leading economies.

Exhibit 12

In an aspirational scenario, Poland would achieve 4.2% GDP growth to 2025

Percent

Decomposition of GDP growth in Poland, 2003-2025



SOURCE: McKinsey Global Growth Model

Business as usual. The first option is a business-as-usual scenario, by which Poland's GDP would for the next ten years grow at a moderate rate of 2.6 percent annually—slightly below the average rate for the period of 2008 to 2013 of 2.8 percent. In the McKinsey Global Institute growth model created for this scenario, the rate of growth of capital investments falls slightly, the economy faces the negative effect of demographic shifts in the labor supply, and the technology and efficiency growth rates remain constant (total factor productivity). By this scenario, the Polish economy would grow by 33 percent in real terms over the next decade,

1 “Poland's Second Golden Age: Europe's Unlikely Star,” *Economist*, June 28, 2014

compared with 20 percent growth for the EU-15. This pace does not provide much in the way of a convergence effect, by which Poland catches up to its more advanced European neighbors. Accordingly, by 2025 Polish real GDP per capita moves from 60 to 70 percent of the EU-15 (in terms of purchasing power parity), and matches the levels of countries as Cyprus and Portugal. The gap with the United Kingdom and France would close by 8 and 14 percent respectively.

Aspirational growth. An alternative, aspirational scenario assumes that Poland would achieve GDP growth above 4 percent annually, 1.5 percentage points higher than the top end of the business-as-usual scenario. By such a scenario Poland would accelerate the convergence with Western Europe. Were Poland to achieve GDP growth of more than 4 percent and maintain that growth level to 2025, the resulting total real GDP growth would reach 60 percent and approach USD 850 billion. By this trajectory, per capita GDP (in purchasing-power standards) would exceed USD 38,000 in 2025, reaching 85 percent of the projected EU-15 average and matching the levels of Portugal, Spain, and Italy. Three principal components would underlie achievement of this ambitious scenario: significant increases in productivity, including socially tough reforms, further development of growth sectors, and active measures to mitigate the impact of demographic shifts and increase the size of the workforce.

This kind of growth would be an ambitious stretch, but it is not out of Poland's reach. With a nationally concerted effort, Poland can move up in the ranking of European countries as measured by per capita income (PPP). Without this effort, the country could become mired in a slow-growth channel.

Growth prerequisite: Close the productivity gap with Western Europe

Despite Poland's strong positive macroeconomic growth in recent years, significant productivity gaps with the EU-15 remain in many sectors. Closing this gap will be crucial to accelerate growth. The economy has locked labor and capital into sectors of limited dynamics with low added value per worker, such as agriculture, energy, and mining. As sectors begin the process of transforming toward higher productivity, the retail sector already stands out as an example to follow. The retail sector effectively closed the gap with EU-15 productivity completely between 2008 and 2011.

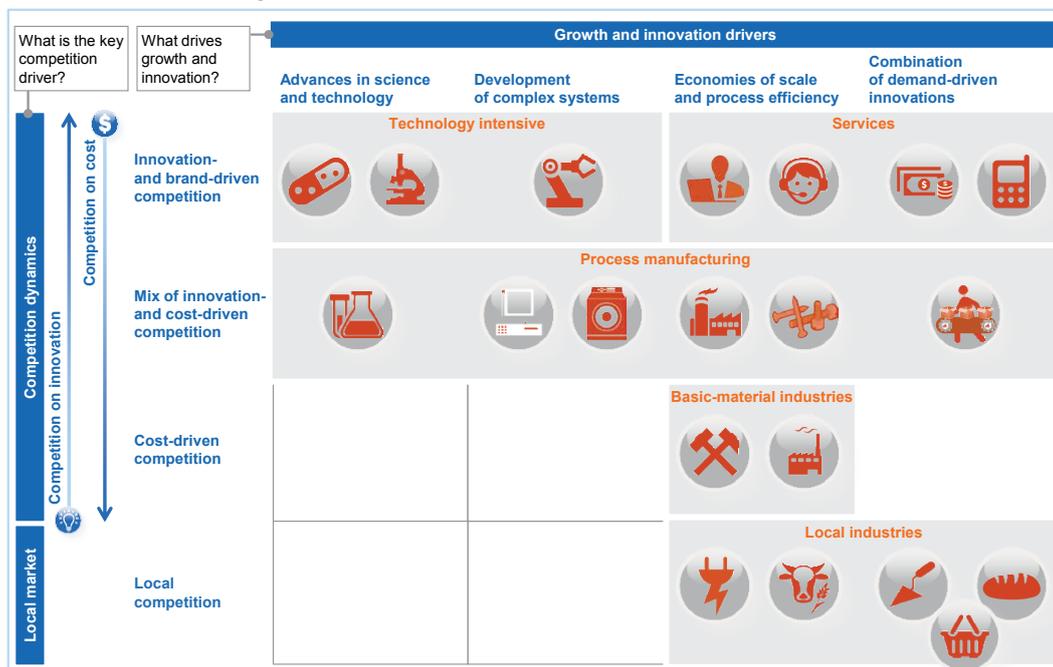
In many sectors, closing the productivity gap will require improvements in work organization and employment reduction. These changes will require difficult decisions in times of austerity and low momentum. Sectors, including business services and construction as well as retail, that have made these changes provide models for how they can be accomplished and therefore need to be carefully examined.

OUR CORE BELIEFS ON GROWTH DRIVERS

Overall economic growth in Poland will only reach the desired pace if productivity improvements are made in all large sectors of the economy. Growth potential and drivers of competitiveness vary significantly by sector. To understand how sector competitiveness and growth can be improved, the dynamics involved in that sector must be understood in detail. This can be achieved by mapping each sector based on the competition dynamics on the one hand and on the sources of growth and innovation on the other (Exhibit 13). To obtain the fullest possible picture of economy, an accounting will also need to be made of local industries, which may not participate in the global trade but which serve domestic and regional markets.

Exhibit 13

Sectors of the Polish economy mapped according to key market drivers and competitive dynamics



SOURCE: McKinsey analysis

The vertical axis considers the competitive dynamics in a given industry globally. The most advanced sectors compete based on innovation and branding, while the less advanced industries at other end of the spectrum tend to compete almost purely on cost. Along the horizontal axis we reflect the growth and innovation drivers within a specific industry are outlined. The matrix helps to aggregate sectors and develop analyses on a group level. These analyses in turn can lead to public policy options and priority actions and levers to boost competitiveness and growth for each sector.

By mapping the sectors in Poland, we identified five groups with different characteristics.

Technology-intensive industries are the advanced and innovative sectors, such as pharmaceuticals, medical and optical equipment, and most advanced machinery. These industries comprise a marginal share of GDP, even in the most advanced, large countries. In Poland their share is 2 percent, compared with 4 percent in the Czech Republic and 5 percent in Germany. At the same time, these sectors have been growing fast in Poland, with a compound annual growth rate of 7 to 8 percent (2004 to 2011), compared with Germany (5 percent). This group will not contribute significantly to Poland's value added in the next ten years but is important in the long term, since the development of technology and advanced systems will have important effects on other sectors.

Service industries are business services, including outsourcing and offshoring, legal, and business consulting, as well as financial services and telecommunications. In Poland this cluster accounts for 11 percent of GDP, only slightly below the share in the Czech Republic (13 percent). And it is growing fast: Poland's services industries are experiencing a 6 percent compound annual growth rate on average, compared with 1 percent in Germany. These results are in large part due to the success of the outsourcing and offshoring sector in Poland, which grew three times faster than India's in recent years.

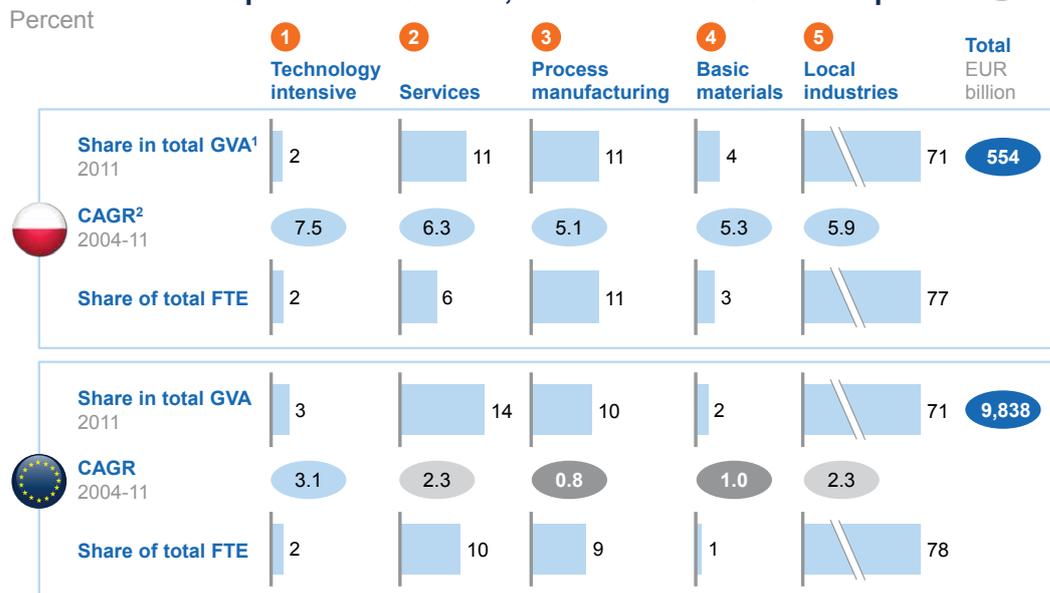
Process manufacturing comprises most manufacturing activities outside cutting-edge technology-intensive categories. These include motor vehicles, furniture, textiles, and chemicals. This sector is emerging as a stronghold for Poland, second only to the service industries in advancing the country’s competitive position. These industries combine customized technology with brands and competitive price positioning. This cluster is similar in size to the services sector, contributing around 11 percent of total GVA, which is below the levels of the Czech Republic or Germany (15–16 percent). This sector builds on the proven advantages of Poland’s economy and, following successful European examples, could become a major engine for growth.

Basic materials industries include the mining and manufacture of minerals. In Poland this sector contributes around 4 percent of total value added—twice the contribution in EU-15 countries. The sector is comprised of purely cost-based industries whose recent rate of development has been 5 percent annually, well above that seen in the rest of Europe (1–2 percent). The basic materials sector in Poland suffers nonetheless from a large productivity gap, with levels at about half that of the EU-15 average. The gap is large enough that only transformational reforms could achieve the needed efficiency improvements. After such a transformation, the sector is still not likely to be internationally competitive, but it will remain of national importance, in sustaining fuel supplies and controlling domestic energy costs. If reforms are not implemented, however, the sector will act as a drag on economic growth.

Local industries are by far the biggest sector and include industries such as agriculture, energy, transport, and retail and wholesale trade. These industries are less exposed to global trends and much more focused on the regional market. The sector contributes the most to the GVA in Poland: its 71 percent share is above that of Germany (66 percent) and the Czech Republic (64 percent). The sector has been growing at 6 percent annually, well outpacing peers: the EU-15 average is –2 percent, while the Czech Republic managed 3 percent growth. The sector’s large size and powerful growth, fueled by strong internal consumption, has been the cause of much of Poland’s economic success in recent years. To sustain that momentum, however, the sector’s competitiveness and regulatory framework needs further improvement.

Exhibit 14

Poland is growing faster than the EU-15 in all sectors; to achieve the aspirational scenario, it will have to sustain the pace



1 Gross value added
 2 Compound annual growth rate
 SOURCE: Eurostat

Poland has been outgrowing the EU-15 average in all sectors of the economy (Exhibit 14). For the country to catch up to its European peers, this growth will have to intensify, especially to close the productivity gaps that are holding Poland back.

Although importance of the public sector in Poland remains key to the country's future, the focus of this report is on the commercial sectors of the economy. In the following chapters (3 through 7), a detailed view on each of these sectors is presented, and examples of sector-specific insights on how to improve productivity are highlighted. Finally, in chapter 8 demographic trends are discussed, an important challenge to growth that will need to be addressed in deliberate ways.



3. Technology-intensive industries

Technologically advanced industries have been developing rapidly in Poland, with advanced manufacturing, pharmaceuticals, and other high-tech sectors experiencing annual growth of between 7 and 10 percent since 2004. Collectively, these industries form a relatively small share of Poland's economy: 2 percent of GDP compared with 5 percent in Germany. Though their share of total economic activity is small, technologically advanced industries can have powerful indirect effects on overall economic growth. The innovative research and design that drives competition in specialized industries such as pharmaceuticals or aeronautics can indirectly contribute to positive developments in other industries, such as chemicals and basic materials.

Growth in technology-intensive industries is primarily dependent on advances in science and technology and the development of complex production systems. The heavy and sometimes higher-risk investments required can be a barrier to progress. Actions, including changes in public policy, are therefore needed to create an environment more conducive to high-tech growth.

Specific measures to increase productivity and growth in high-tech industries are discussed in the following pages in the context of two particular sectors: advanced manufacturing and pharmaceuticals. In all of these high-tech sectors, Poland should build and further expand existing assets and intellectual capital base rather than invest in dozens of small-scale and higher-risk endeavors.

Advanced manufacturing

Advanced manufacturing is presented here using examples from the manufacture of machinery and transport equipment. In Poland, the gross value added to the economy by this sector is only 1 percent, less than half the share of the EU-15. Polish advanced manufacturing has been growing faster than it has in the EU-15, at 7 percent annually compared with 3 percent, but still has a long way to go (Exhibit 15). In labor productivity the gap with the EU-15 narrowed from 69 percent in 2004 to 44 percent in 2012, but still remains high.

Poland's advanced manufacturers are, however, successful and internationally recognized producers of specific low-volume and highly customized machinery for transportation, mining, rolling stock, aviation, defense, and navigation. Yet despite the sector's recent growth, a number of challenges remain. These include lack of scale, which persists because a predominantly organic growth path is pursued, without the benefit of mergers and acquisitions. Further challenges include weak ties to international markets, companies, and technologies, insufficient technical expertise, and insufficient R&D.

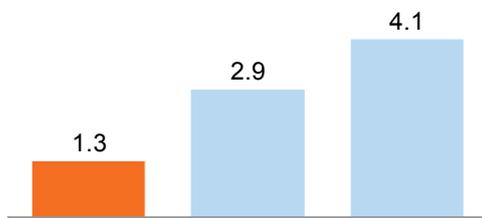
Poland needs to take advantage of the opportunities created by changing global market trends. Some Polish companies could become truly competitive on a global scale by focusing on areas in which Poland is strong, such as mining machinery and defense equipment.

Exhibit 15

The Polish advanced-manufacturing sector, still relatively small and inefficient, nonetheless outpaces sector growth in other EU countries

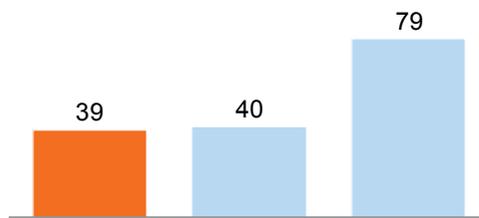
GVA¹, 2011

Percent of whole economy



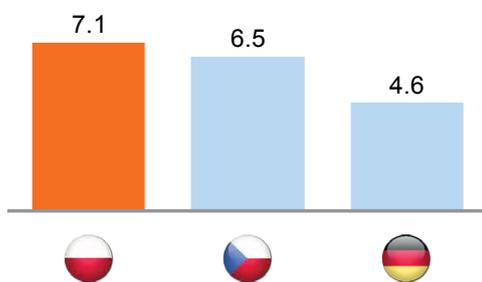
Productivity, 2011

EUR thousand, per worker



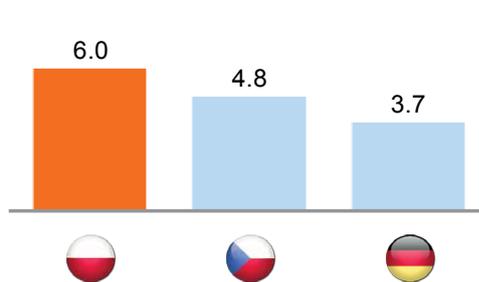
CAGR², 2004-11

Percent



CAGR 2004-11

Percent



1 Gross value added
2 Compound annual growth rate
SOURCE: Eurostat

POLISH SUCCESS STORIES

A few examples of Poland's successful high-potential companies in the sector can help illustrate strengths and give direction on how growth can be taken to the next level.

In the rolling-stock industry, PESA, a company with a 160-year history in rail transport, is a clear success story. The company transformed itself in recent decades from a state-owned business to a modern, innovative company supplying diesel and electric units of all kinds, including locomotives and trams. It has built up impressive technical expertise, kept fresh with a steady supply of new graduates with engineering backgrounds, ensured through close collaboration with universities.

Solaris is a highly successful family-owned manufacturer of city buses, intercity coaches, and low-floor trams. Its electrically powered vehicles set new standards in urban transportation and provide a model example of branded Polish technology. The internationally renowned company exports 60 percent of its output: Solaris vehicles are running in 28 countries, including Germany, France, Russia, and the United Arab Emirates.

Two Polish companies are solid competitors in the global mining-machines market: Kopex, a formerly state-owned company, and Famur, which was established through consolidation of small producers. Both companies enjoy relatively stable demand within Poland and cost advantages over international competitors. Kopex and Famur, furthermore, have well-established international links and access to global markets.

In defense, Polish Defense Holding (PHO) has grown by its access to talent, innovation capabilities, and internal demand. PHO has an educated workforce, drawn from the Military University of Technology and Poland's other technical universities. PHO has recently raised its investment in R&D by one-third; the company has 1,000 designers and engineers working on more than 100 projects. The demand is fed by Poland's relatively large defense budget, which is seventh among EU member states, at EUR 7.4 billion as of 2013.

FIVE DRIVERS FOR ADVANCED MANUFACTURING GROWTH

Growth in Poland's advanced manufacturing sector should be supported in five areas: clustering and consolidation, intensified international cooperation, R&D enhancement, acquisition of foreign companies and technology, and international promotion of Polish industry.

Industry clustering and consolidation of local companies

Polish advanced manufacturers often lack the scale required to become significant companies in the global market, even in their niche markets. To increase their power, Polish companies will need to consolidate and/or form clusters. Clusters are geographic concentrations within a particular industry of businesses, research centers, and possibly academic institutions. Clusters attract a qualified workforce, support knowledge development and knowledge sharing, and enable the consolidation of the supply chain, while raising the investment profile of the industry. They create healthy competition, driving productivity growth and innovation, while stimulating the formation of new businesses. The colocation of buyers and sellers translates into the advantages of vertical integration, with fewer inflexibilities, better coordination, and more trust. Finally, centralized essential facilities means better access to experienced talent, a deeper supplier base, reduced transportation and inventory costs, and more efficient information flow.

One of the most successful clusters in Poland is Aviation Valley in the southeast. Ninety percent of Polish aerospace production is concentrated in this area, with 119 companies, 23,000 workers, research centers, and educational and training facilities. The Polish cluster compares favorably with "bavAIRia," Germany's aerospace cluster, with 500 companies and institutions and 60,000 employees. The German cluster can provide a growth model for Poland, which needs bigger scale, and also a possible source of collaborative relationships. The companies of bavAIRia are engaged in a wide range of aeronautics and space applications, and are home to e.g. MTU engines.

Intensified international cooperation

International cooperation in knowledge exchange or joint ventures and partnerships must be stepped up. By collaborating with established players, companies from developing countries can learn the most modern processes and production methods, such as the application of design-to-target cost for advanced manufacturers. As an example, China demanded knowledge sharing in its very first import contracts for high-speed trains. In 2004 Chinese companies had no share of the domestic high-speed train market; by 2010 they owned it, with a share of nearly 100 percent.

R&D enhancement

Polish advanced manufacturers often lack the decades of experience that their international counterparts have. At the same time, developing technologies from scratch is costly. Advanced manufacturing companies should more often consider buying existing technologies and patents to develop and integrate into their own products. This approach enables companies to speed their market entry and avoid a vast amount of costly R&D. Such strategies have been adopted by companies in a variety of industries. Spain's Gamesa, for example, the seventh-largest wind-turbine manufacturer (2013), entered the market thanks to earlier technology-cooperation agreements with the global leader Vestas.

Acquisitions of businesses and technologies abroad

Polish companies that are large enough to build a presence abroad should seek to strengthen their position beyond organic expansion. The acquisition of foreign companies and technologies could be part of their growth plan. Chinese companies are leading in this approach, as witnessed, for example, by SANY Group's recent purchase of the German concrete pump manufacturer Putzmeister.

Promotion of exports of Polish advanced manufacturers

Exports are key to the development of Poland's advanced-manufacturing sector because of the relatively small size of the domestic market. The investment required to develop products as well as the need for access to new technologies makes this clear. At the same time, the products are costly to produce or buy, and their perceived quality is a strong purchase driver. The buyer is usually a government or a state-owned company, or is influenced by state actors. In this dimension of growth, international relations are very important. Sweden is a good model for how Poland might promote its advanced manufacturers. To support Swedish exports and help Swedish companies expand internationally, the government established "Business Sweden." Funded with public and private sources, the organization now has more than 500 employees in 57 countries. It also helps foreign companies invest in Sweden—whether they want access to the Swedish market or to Sweden's world-class R&D and innovation clusters.

As Poland's government and businesses promote Polish products, international competitors in the domestic market are aggressively seeking to place their own products in Poland. A policy balance will need to be struck between the objective of nurturing Poland's advanced manufacturing sector and fostering beneficial agreements with foreign countries and companies.

Creating a pharmaceuticals hub in Poland

The pharmaceuticals market in Poland has grown continuously for the last decade and now accounts for around 1 percent of GDP. The market is the largest in Central Europe and the sixth largest in the European Union. Pharmaceutical exports, especially to Western Europe, have been strong and on the rise, as local producers have increased their focus on more advanced-medicine markets.¹

According to McKinsey estimates, the value-added breakdown in pharmaceuticals ranges from 70 to 90 percent in manufacturing, with up to 15 percent in distribution (retail and

1 Business Monitor International, 2014, businessmonitor.com

wholesale), and 3 to 5 percent in logistics.² Poland has established a solid reputation and the fundamentals in the manufacture and marketing of pharmaceutical products. Strengths include generic prescription drugs (branded and nonbranded as contract manufacturing) and branded over-the-counter (OTC) products. Production reached EUR 2.8 billion in 2013, reflecting 6 percent annual growth. Several modern manufacturing plants are operating in the sector, with skilled labor that is competitive with specialists from other countries. The plants are situated in attractive locations, furthermore, to serve extensive Western, Central, and Eastern European geographies.

WHERE POLAND CAN COMPETE

Poland's pharmaceuticals sector can improve in three ways: by becoming a European or even global manufacturing center for complex generics and biosimilars, by developing its relationships to strengthen its role as a manufacturing contractor for European generics products, and by becoming a packaging and logistics center for European pharmaceutical companies.

A region-wide or global manufacturer of sophisticated generics

A big part of pharmaceutical manufacturing globally has moved to low-cost countries, especially China and India. At the same time pharmaceutical companies have been increasingly searching for new locations with a highly skilled workforce to manufacture products, such as insulin, that have very high quality requirements. Biosimilars is one area where Poland could excel. These "copycat" drugs are sophisticated biological equivalents of existing biological drugs that have already been approved for medical use. A biologic-manufacturing process is more complex than that of traditional small-molecule products, with longer cycle times, a higher number of parameters, and more challenging process optimization.³ A significant R&D effort is needed to develop a bioequivalent version of the biological original. Poland's skilled workforce typically comes with a lower price tag than the workforces in Western Europe's pharmaceutical hubs in Switzerland or Germany, while possessing the know-how and quality assurance needed for the most sophisticated products. In addition, Poland is centrally located for Europe-wide production and delivery, and some Polish companies have already made progress in biosimilars.

Contract manufacturing for European generics products

With wages and overhead rising in Asian manufacturing plants, European generics producers are increasingly searching for alternative solutions closer to their home markets. Such locations have lower logistics costs and faster fulfillment times. Poland already has a competitive cost base, skilled labor, manufacturing expertise, a central location, and solid logistics infrastructure. All the requirements are in place for the country to boost pharmaceuticals contract manufacturing and serve European generics producers. As a contract-manufacturing hub for the European market, Poland could also serve as a gateway to markets in the East, including Russia, Asia, and the Middle East. Because efficient manufacturing processes are highly automated, this opportunity has low job creation potential. However, its potential to accelerate GDP growth is meaningful.

2 Knut Alicke, Thomas Ebel, Ulf Shrader, and Ketan Shah, "Finding opportunities in uncertainty: A new paradigm for pharmaceutical supply chains," January 2014, mckinsey.com

3 Ralf Otto, Alberto Santagostino, and Ulf Shrader, "From science to operations: Questions, choices, and strategies for success in biopharma", September 2014, mckinsey.com

Packaging and logistics services for European pharmaceutical companies

Increasingly centralized and often outsourced production of high-volume pharmaceutical products must be distributed across all European markets. This logistics arrangement creates new challenges for producers. Strict labeling requirements for European and local markets, expectations of on-time delivery to minimize inventory, and smaller batch sizes are all factors that demand high-quality, flexible, and low-cost solutions. Poland could strengthen its position by becoming an end-to-end packaging and logistics leader. It has the capabilities needed to achieve the highest quality in secondary packaging and labeling as well as flexible low-cost delivery, warehousing, and distribution of pharmaceutical products and their ingredients manufactured in Asia. Moreover, packaging and logistics are labor intensive, so increasing their levels would not only add value to the economy, but also have a positive employment effect.

STRENGTHENING POLAND'S POSITION IN EUROPEAN PHARMACEUTICALS

Should Poland succeed in strengthening exports and becoming a European hub for generics manufacturing and logistics, manufacturing capacity as well as sales could nearly double.⁴ There are also potential smaller-scale opportunities beyond manufacturing. These include the renaissance of pharmaceutical R&D services, such as contract clinical development, as pharmaceutical companies shift focus to the region from regions troubled by clinical malpractice cases. Also, the R&D investments are increasing.⁴ The main question is whether Poland would be able to win against other countries in this competitive situation.

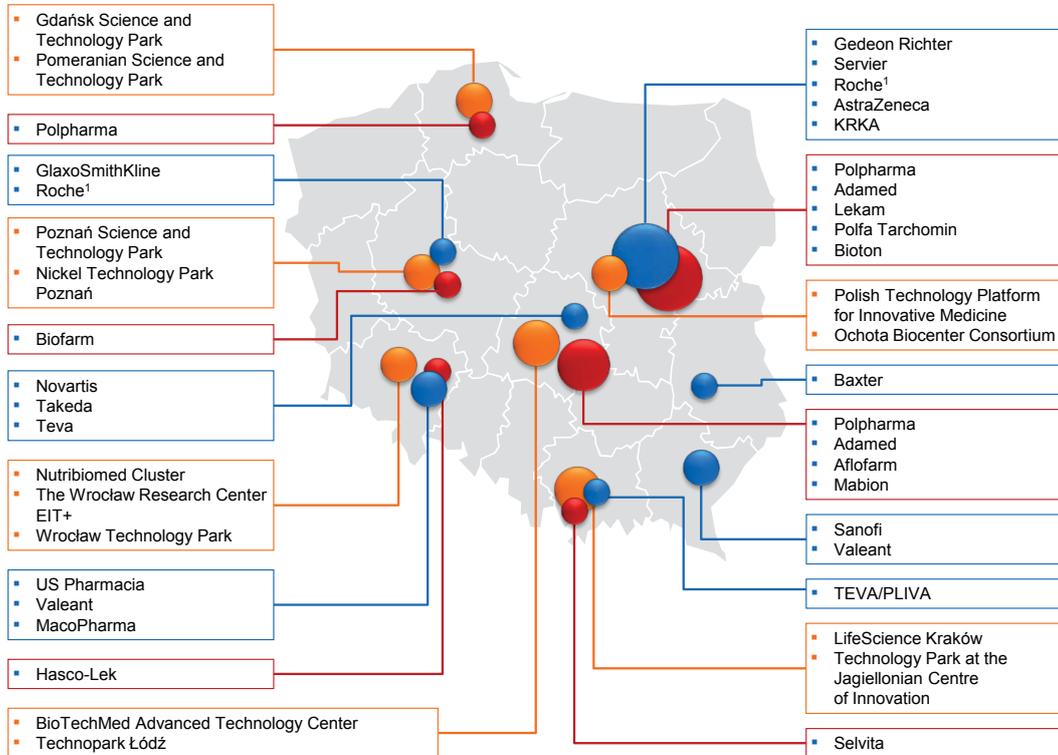
- Key stakeholders, such as the Polish government and Poland's pharmaceuticals producers and distributors, could increasingly market the country's capabilities, superior quality, and competitive cost structure to other European companies
- Special economic zones and technology parks will help draw investment and build capacity. Strong existing research centers can support the growth of Poland's pharmaceutical industry (Exhibit 16). International developments, such as contract manufacturing in eastern Germany, have demonstrated that close cooperation between government and local companies is needed for successful implementation

4 Pharmaceutical and biotechnological sector in Poland, Polish Information and Foreign Investment Agency

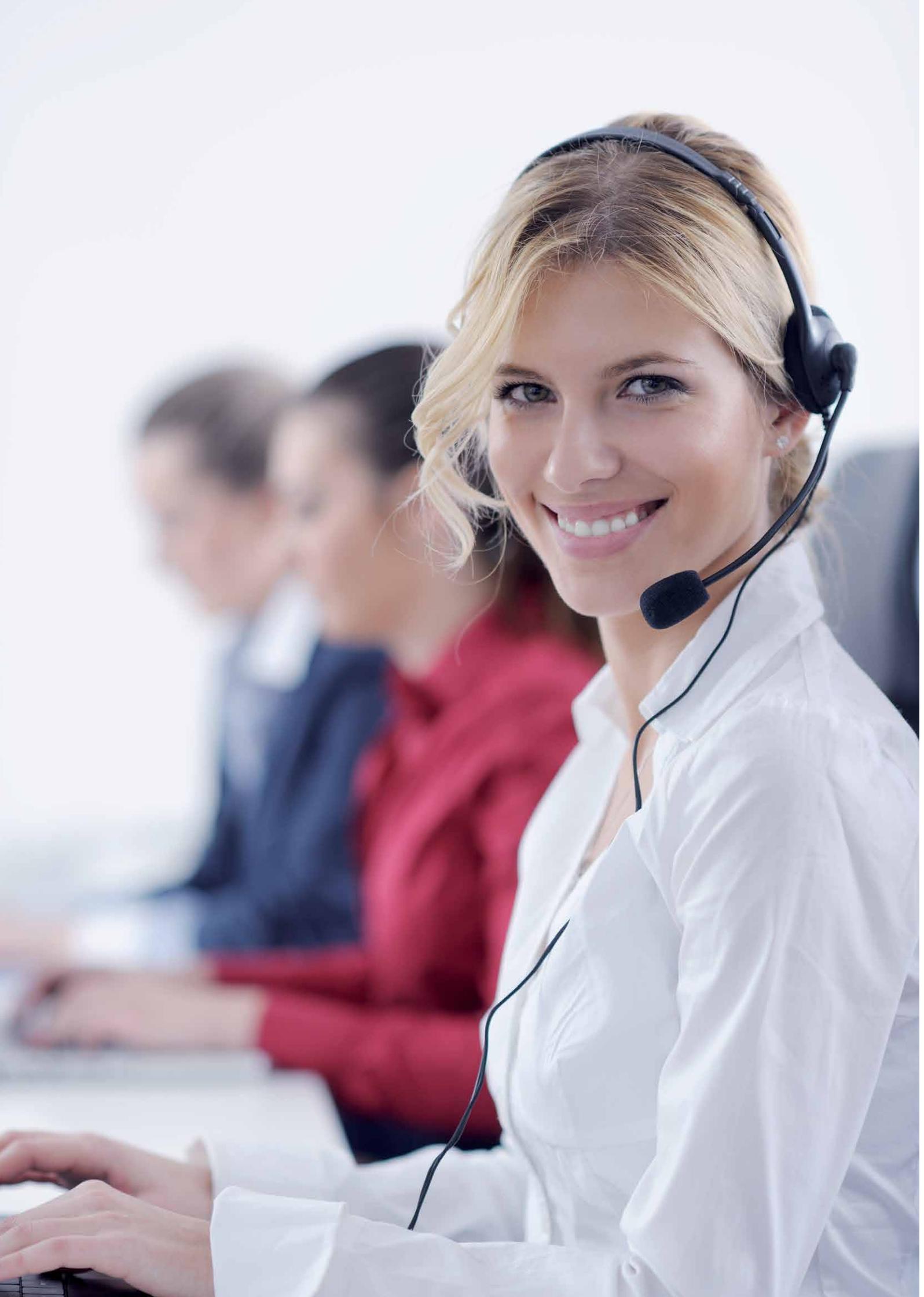
Exhibit 16

Existing pharma clusters can support growth of pharmaceutical sector in Poland

- Largest foreign investments in the pharmaceutical sector
- Pharmaceutical and biotechnology clusters and science and technology parks in Poland
- Largest Polish manufacturers



¹ Application Development and Maintenance Delivery Center
 SOURCE: Polish Information and Foreign Investment Agency; PMR; press search



4. Services

In the last half decade, services industries in Poland, including financial, legal, and telecommunications, have grown at a rate of 6 percent annually, faster than those in Germany (1 percent). Collectively, these industries have attained greater productivity than have other Polish sectors, as the overall services gap with the EU-15 is only 17 percent.

This chapter is focused on Poland's advanced outsourcing and offshoring (O&O) business services industry, which offers a largest growth opportunity in business services over the next 10 years. The focus on O&O should not, however, obscure the fact that high-potential areas are present in financial, insurance, and telecommunications services as well.

Advanced business services

Poland has the talent needed to become a leader in the business services sector, especially as a destination for highly sophisticated outsourced or offshored business services. At the moment the outsourcing-offshoring sector employs 160,000 people, with 140,000 in 470 centers with foreign investment and 20,000 in 60 fully Polish-owned centers. Recent research indicates that the sector has enormous growth potential in terms of employment. With the right mix of initiatives and policy enhancements, the sector could expand to 450,000 to 600,000 jobs¹ over the next 10 years, and 90,000 to 150,000 in related support services.²

Such expansion, furthermore, will do more than create jobs. Poland has the potential to provide the most advanced services to global businesses, and as these services become more specialized, spillover effects will stimulate the entire economy. Potential benefits include rising management capabilities in areas such as multicultural and dispersed team management, more niche specialists in fields such as anti-money laundering and advanced customer analytics, and greater availability of world-class management processes for fraud detection, supply-chain optimization, and claims management.

EXCEPTIONAL GROWTH

The business services sector has grown exceptionally in Poland over the last four years. The number of those employed in outsourced business processing, IT, and R&D nearly tripled between 2009 and 2014, as annual growth hit 20 percent. Poland's expansion outpaced the rest of Central Europe and grew three times faster than in India. Penetration is already higher in Poland than in India, in terms of jobs in outsourced business services as a percentage of the population, and the upward trajectory shows no signs of flattening (Exhibit 17).

1 McKinsey forecast

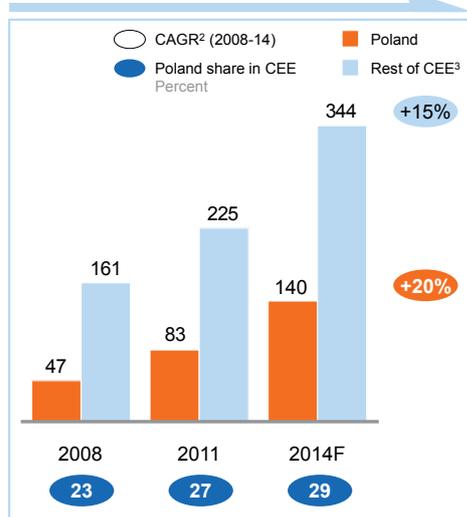
2 McKinsey forecast based on Janusz Górecki, "Establishment of Foreign Business Services Sector in Poland and Its Relations with the Local Environment" (PhD diss., Cracow, 2012).

Exhibit 17

Poland is outperforming CEE and India in the growth rate of outsourcing and offshoring jobs

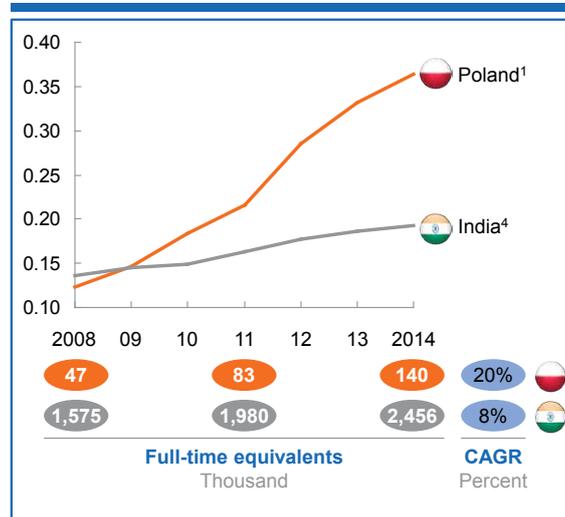
Employment in business-services sector¹

Full-time equivalents, thousand



Full-time equivalents in outsourcing and offshoring as share of population

Percent



¹ Business processes, IT, advanced services; only centers with foreign capital

² Compound annual growth rate

³ Bulgaria, Czech Republic, Hungary, Romania, Russia, Slovakia, Ukraine

⁴ Without centers working for domestic market

SOURCE: ABSL; EESTCom; Eurostat; Ministry of Finance, India; Nasscom

Most of the growth has come from international companies locating captive service centers in Poland. These captive centers—meaning that they are subsidiaries of the companies using them, rather than independent contractors—represent 70 percent of the foreign-owned centers in Poland. Rapid expansion of these centers has brought many benefits to the Polish labor market, having essentially facilitated the transfer to Poland of modern business management capabilities, processes, and technology. The foreign-owned centers have also helped stimulate the growth and professionalization of Polish-based service centers, a development whose potential, however, is limited by the lack of large Polish-based international outsourcing and offshoring leaders.

OUTSTANDING ADVANTAGES FOR BUSINESS SERVICES

Poland possesses a unique combination of advantages in its role as supplier of advanced business services. This is why the sector is expected to continue solid growth for the next 10 years.

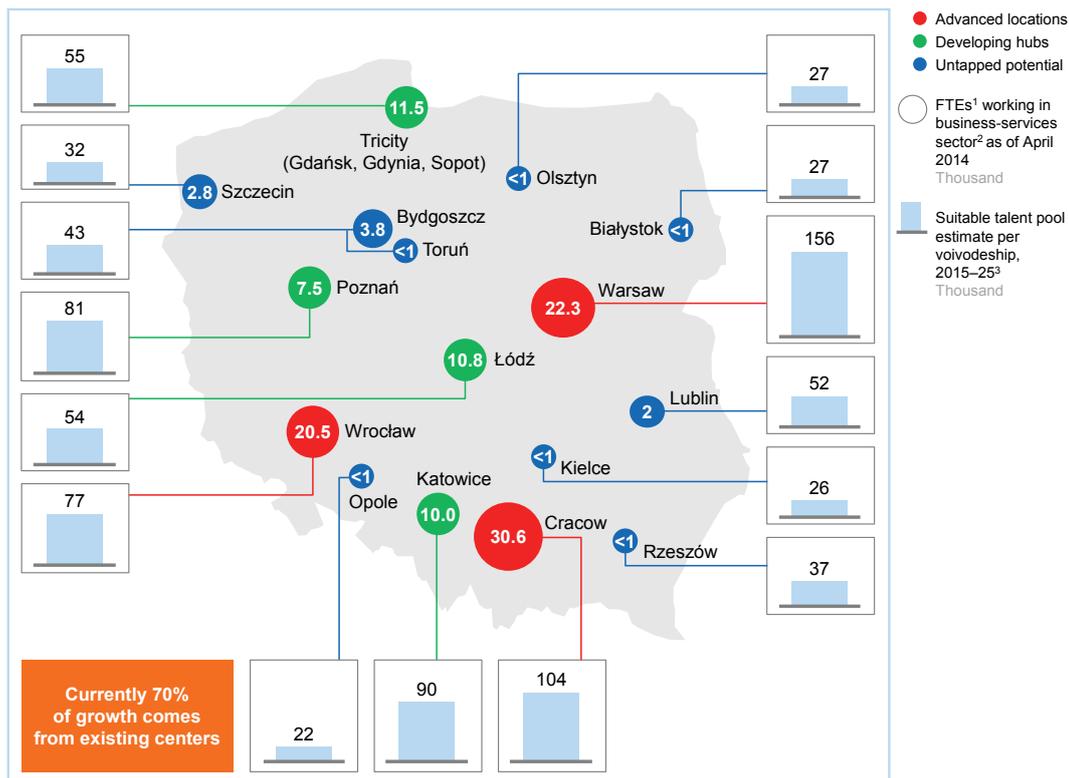
Plenty of talent in modern cities

The workforce in Poland is highly educated and growing. Every year, Polish institutions of higher education produce 450,000 graduates. As a body, their high level of education includes strong foreign-language proficiencies, especially in English and German but also in other Western European languages. These smart young workers are furthermore situated in metropolitan areas that can easily accommodate business-services centers. Poland has 16 urban centers with different levels of business-services experience and maturity. The cities with the most experience are Cracow, Wrocław and Warsaw; many centers already exist in Poznań, Łódź, Katowice, and Gdańsk, with more developing; and still a further tier of suitable cities remains almost untapped, including Lublin, Szczecin, Bydgoszcz, and Białystok. No other country in Central and Eastern Europe is able to offer such an attractive geographic and demographic profile for new centers (Exhibit 18). The many diverse and desirable locations

with plenty of talent and modern facilities are great advantages for Poland. They disperse the demand for talent as more companies create centers. This keeps labor costs manageable for the services provided. For investors, geographic diversity in outsourcing lowers their risk profile. In India, which has the world's largest business services outsourcing sector, a paucity of locations created such an effect and companies began to relocate. Poland has been the beneficiary of some of this motion, as a destination for advanced business services centers.

Exhibit 18

Poland has many cities well supplied with high-quality talent



1 Full-time equivalent
 2 Only business-services centers with foreign capital
 3 Sum of students graduating between 2015 and 2025 from suitable majors (classified into groups) in a given voivodeship multiplied by suitability coefficients based on industry experience
 SOURCE: ABSL; Poland Bureau of Statistics (GUS); McKinsey analysis

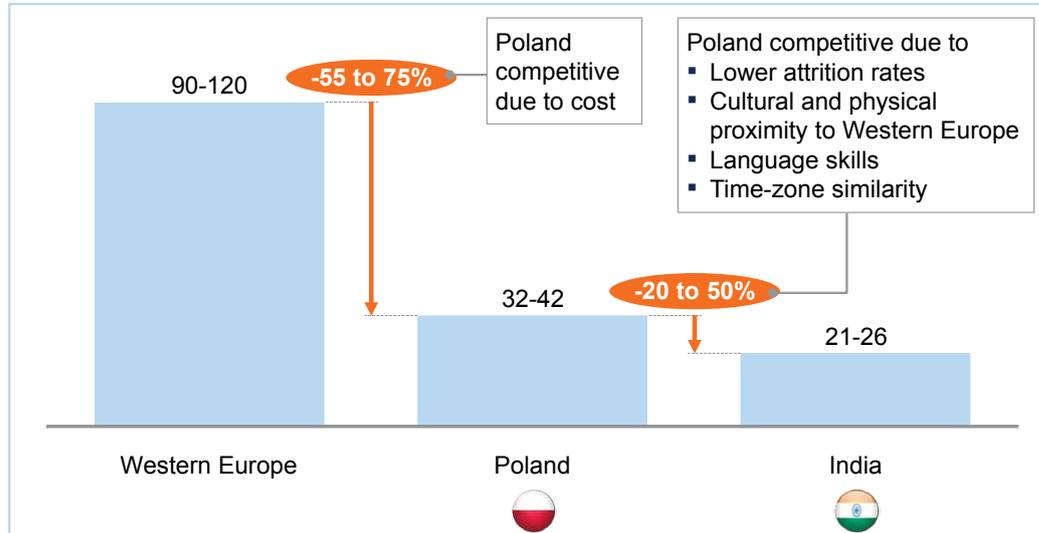
Lower cost

Talent in Poland comes at a lower cost than in other Western European countries, with no loss in quality (Exhibit 19). In some sectors like financial services, labor costs in Poland can be as much as 55 to 75 percent below those in Germany, France, the United Kingdom, or Ireland. In Europe, only Romania, Bulgaria, and Ukraine can compete with Poland on the cost of skilled labor, but Poland's supply is wider and deeper, especially in the most skilled categories. In the next 10 years the cost of Polish skilled labor will gradually converge with EU-15 levels, but cost advantages of Polish labor will still remain.

Poland's geographical situation provides another cost advantage. Business services can be provided in an EU time zone and familiar legal code, at convenient locations with easy access. These attributes are highly valued by foreign investors and the external customers of Polish outsourcing centers. In recognition of this value, Poland is continually developing regional international airports and its highway and rail systems.

Exhibit 19**Polish business services cost less than those of Western European peers and enjoy a quality advantage over the Indian sector****Illustrative cost per full-time equivalent per year¹**

USD thousand



¹ Indicative fully loaded cost for early tenure full-time equivalent in high-end services
 SOURCE: Location Readiness Index; McKinsey analysis

Come for the savings, stay for the quality

Many foreign companies located their business services centers in Poland for the low cost. Many have stayed and expanded, as they become more aware of the depth of the high-quality talent pool. Investors often begin by relocating relatively basic processes, but once they realize the potential of local employees, they begin to transfer more complex processes, for which the cost advantage is typically even greater than for the transactional services.

ADVANCE TO MIDDLE-OFFICE CATEGORY

The many advantages Poland offers mean that the country has the opportunity to become a world leader in the provision of business services. The healthy growth rate is an indication of what is to come. But the sector faces a number of challenges if it is to act as a transformer for Polish economic growth.

Poland's business services sector could build on a great beginning to quicken the pace toward higher value-added and more sophisticated services. Talent development can also become more focused on the evolving needs of the sector, especially with university and professional school programs oriented toward the most technically demanding services positions.

The central government can help in many ways, but one way is to sponsor international programs promoting Poland as a global leader in the provision of business services. Local leaders, furthermore, can be empowered to move ahead with their own programs for attracting companies in need of advanced business services to their municipalities. Finally, government can help foster the development of large Polish services companies.

From basic to more advanced services

Future growth depends on the ability to attract centers that provide more advanced and sophisticated services. Two global trends will work in Poland's favor in this transition. First, the global market for outsourced business process services is expected to continue growing, at

about 10 percent annually, to a projected value in 2020 approaching USD 100 billion.³ Second, basic, lower value-added services are naturally migrating toward the lowest-cost locations, such as India and the Philippines. At the same time, investors are increasingly valuing near-shoring solutions for more sophisticated processes, bringing them closer to home. Poland has been a beneficiary of both these trends.

The following areas are expected to be the richest sources of growth in advanced business services.

- **Middle-office for banks and insurance companies:** broad spectrum of end-to-end processes, including loan and mortgage process management, fraud detection, policy and claims handling, anti-money laundering processes (AML), and compliance audits
- **Advanced IT programming:** software development, system administration and integration services, IT infrastructure hosting, and maintenance
- **Supply-chain and logistics coordination centers:** European supply-chain optimization centers for FMCG (fast-moving consumer goods), logistics, and transportation firms
- **Business research and analytics:** high value-added business research for professional firms and financial institutions, and business analytics including big data advanced customer-base analytics
- **Research and development:** contract research across many industries and technology fields
- **Remote health diagnostics and data storage:** remote diagnostics of human body scans, patient health history data analysis, and storage and management
- **Advanced administrative business support:** executive assistant services for professional firms, document preparation, and high-end visual graphics

ENABLING GROWTH

Government, business, and academic bodies can all contribute to transforming Poland's business services sector into a global leader.

Dedicated talent development for advanced business services

Poland could take specific measures to strengthen the quality and specialization of "talent production." Business, academia, and government could develop a national talent program, addressing the following objectives.

- Raise the level of foreign-language proficiency throughout the educational system, promoting the learning of more than one foreign language and focusing on languages with high potential for future sector growth. Apart from English and German, important languages are French, Spanish, and Nordic languages
- Enrich university and professional education programs with skills development in management, teamwork, and leadership. This will help employers meet their future talent needs with a well-trained graduate cohort
- Develop new specialized thematic studies to ensure the talent pool necessary to support the future growth of advanced services. Program needs on the horizon include anti-money laundering (AML), financial fraud detection, corporate compliance, big data business analytics, advanced software programming, and supply-chain optimization

3 National Association of Software and Services Companies (NASSCOM), nasscom.in

Academic and business cooperation has already led to the creation of dedicated curricula in business services provision at the university level. In one such program at Kozmiński University, an internationally recognized certificate of specialization is offered in AML processes, a contribution that could help Warsaw become a global hub for this service.

Strong industry associations to quicken the pace of industry growth

Industry associations play a pivotal role in further stimulating growth in this sector. In India the National Association of Software and Services Companies (NASSCOM) has played a major role in building India's outsourcing industry into a world powerhouse. Tellingly, NASSCOM was founded in the 1980s, at the beginning of the boom. Poland has many active associations that focus separately on promoting the industry. This include the Association for Business Service Leaders (ABSL), Outsourcing Institute, and the Association of IT & Business Process Services Companies in Poland (ASPIRE). For these groups, an ambitious 10-year common agenda could be considered, with the following priorities.

- Develop a vision for how the industry should look in 2025, to highlight the growing services and the resources needed to feed their growth
- Train government and local authorities to understand the value of the business services sector to Polish economy and task them with establishing strong global awareness of Poland's services provision
- Develop a model for the constructive and mutually cooperative engagement of three core ministries involved in sector growth: Economy, Science and Higher Education, and Labor and Social Policy
- Develop a world-class "front desk" to serve all foreign investors considering establishing centers in Poland, in cooperation with the Polish Information and Foreign Investment Agency and local authorities of the 16 largest metropolitan areas
- Develop an education program and standards to help the less experienced among the 16 municipalities attract and retain outsourcing centers in their local areas
- Help Polish universities and the Ministry of Science and Higher Education connect with the important outsourcing companies, so that new specialized education programs can be developed to meet their professional needs in such areas as insurance and financial services, IT, business research, and marketing and sales

Government promotion for growth in the business services industry

The Polish government can provide additional help with a cooperative effort by the ministries of Economy, Labor and Social Policy, and Science and Higher Education as well as the Polish Information and Foreign Investment Agency. This effort would:

- Promote the business services sector as an attractive employer with above-average salaries and career opportunities for professionals
- Develop and finance a broad international promotion campaign for Poland as a European champion of outsourced business services
- Assist in developing large-scale international business-services champions in insurance, banking, and financial services in Poland, leveraging the infrastructure and capabilities of Polish state-owned enterprises operating in the respective sectors. Poland's largest financial services and insurance companies have the right components and reputation to offer advanced and sophisticated process services outsourcing to their international peers

Helping Polish cities attract international investors

City managers in Poland's 16 largest urban areas should continue extending their expertise in attracting, developing, and retaining business services investments over a longer time. Local leaders would likely have different agendas, depending on how much experience their city already has with outsourcing centers.

First-wave cities. In these experienced locations, including Cracow, Wrocław, and Warsaw, the authorities could seek to attract investors in more advanced services, while maximizing the specialized talent pool through dynamic business-academic partnerships.

Second-wave cities. In these developing hubs, including Łódź, Katowice, Poznań, and Gdansk, authorities could seek to diversify the mix of services offered, always looking to shift into more advanced offerings, building on the experience and infrastructure already established for basic services.

Third-wave cities. These untapped wells of talent include Szczecin, Bydgoszcz, Toruń, Białystok, Opole, and Lublin. These cities could establish professional business services investment units and help foreign companies move basic services to low-cost locations. They can also invest in office infrastructure, academic programs, and sector promotion among graduates, to retain talent in the area.

Develop Polish business services entrepreneurship

Poland's international business-services sector is dominated by captive foreign-owned centers. Unlike in India, Polish-based private business-services companies have not yet developed on a large scale internationally. Polish companies focus on locating outsourced basic services to Poland, including call centers, marketing and sales, archiving, accounting, and mailing. For Poland to become an international leader in the provision of business services, new international private companies will have to be created here. Approaches to be considered include a consolidation of existing companies on an ambitious international growth plan; acquisition of mid-scale international business services companies from Western Europe, for instant takeover of branding, technology platforms, local business development staff, and client relationships; and involvement of private equity capital and know-how to aid in building an international presence in professional advanced services offerings.

These discussions are not prescriptions, but they do indicate that Poland is well positioned in advanced business services internationally. With a willful and coordinated effort on the part of government, business, and the academy, by 2025 Poland could be a leading outsourcing and offshoring provider globally.



5. Process manufacturing

The process manufacturing sector is comprised of technologically advanced and complex manufacturing processes in diverse sectors such as chemicals, computing and electrical equipment, fabricated metals, and motor vehicles. These processes comprise technological advances and demand-driven innovation and might require the deployment of complex systems and economies of scale. Process manufacturing's share of gross value added in Poland is 11 percent, on par with the EU-15 average of 10 percent, but below Germany's level of 15 percent.

Annual growth in the sector has been a healthy 5 percent since 2004, well above the EU-15 average of 1 percent. With its spillover effect across the economy, process manufacturing can drive overall productivity growth. In the EU-15, 37 percent of productivity growth between 1995 and 2005 came from manufacturing, while employment in this sector was only 16 percent of the total. In Germany, as much as 90 percent of total business R&D is performed within the process manufacturing sector.¹ In Poland, much of the productivity gap with EU-15 levels (43 percent) is the result of lower levels of innovative knowledge-intensive manufacturing within this sector (31 percent in Poland, compared with 40 percent in the EU-15).² Related factors include the generally lower position in the value chain occupied by Polish industry as well as overall operational inefficiencies.

In aspiring to expand its capacity and sales beyond the borders of Poland, Polish process manufacturers have a unique opportunity to apply lessons from the experience of Germany's large process manufacturers (as well as the smaller, so-called "hidden champions"). (See box, "The hidden power of German process manufacturing").

Stimulating growth in Poland's process manufacturing sector

The value added, potential growth multiples, and size of the opportunity for all subsectors in process manufacturing are shown in Exhibit 20. Productivity gaps with EU-15 peers differ between subsectors. Those with the largest gaps and consequently the highest improvement potential (in terms of productivity growth multiples) are electronics, textiles and apparel, and furniture. Those subsectors best positioned to grow, given their large size and the value they add, are automotive (EUR 8 billion), furniture (EUR 6.8 billion), and textiles and apparel (EUR 5.7 billion). The companies in these subsectors mainly belong to larger groups, and growth has come mainly through technology transfer, design, and brand development.

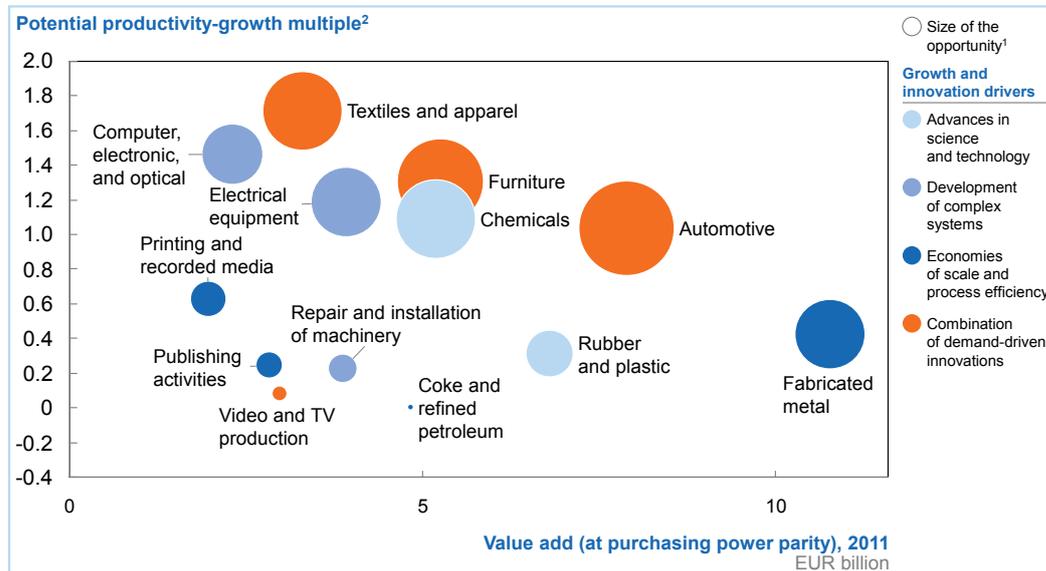
1 Eurostat statistics, ec.europa.eu/eurostat

2 Ibid.

Exhibit 20

The greatest opportunities to close the productivity gap with EU-15 are in automotive, furniture manufacturing, and textiles and apparel

Process manufacturing industries by gross value added with productivity gap to EU-15



¹ Calculated as potential growth multiple times gross value added

² Multiple of growth for Polish industries' productivity to reach EU-15 productivity levels

SOURCE: Eurostat

The hidden power of German process manufacturing

The German process-manufacturing sector is by far the largest in the European Union in terms of gross value added. It is over twice the size of the Italian sector, the second largest. Much of the value is created by Germany's so-called "hidden champions"—companies that are global market leaders but have revenue below EUR 3 billion and a low public profile. Most of these companies own more than half the global market for their products.¹ They typically specialize in manufacturing a narrow range of high-quality products. For example, Gerriets, producer of theater curtains, dominates the world market, and Heraeus Electro-Nite produces 60 percent of the sensors used in steel smelters worldwide.

To compensate for the narrow range of products and to enjoy economy of scale, these companies are vertically integrated and pursue a broad international strategy. Winterhalter Gastronom, for example, supplies ware-washing systems to

hotels and caterers around the world, offering comprehensive solutions: dishwashers, water treatment systems, chemicals, and service. The secret of success for these hidden champions are:

- A focus on growth and attaining global market leader position, with limited price competition
- Close relations with clients: the share of employees working with clients is five times higher than in big corporations, which enables direct sales
- High and efficient investment in R&D: on average these companies invest 5.9 percent of revenue, way above the average for the German economy of 1.8 percent, but they achieve patents at one-fifth the cost of large German corporations
- High employee motivation, creativity, and flexibility, with low attrition rates—2.7 percent versus the national average of 7.3 percent.

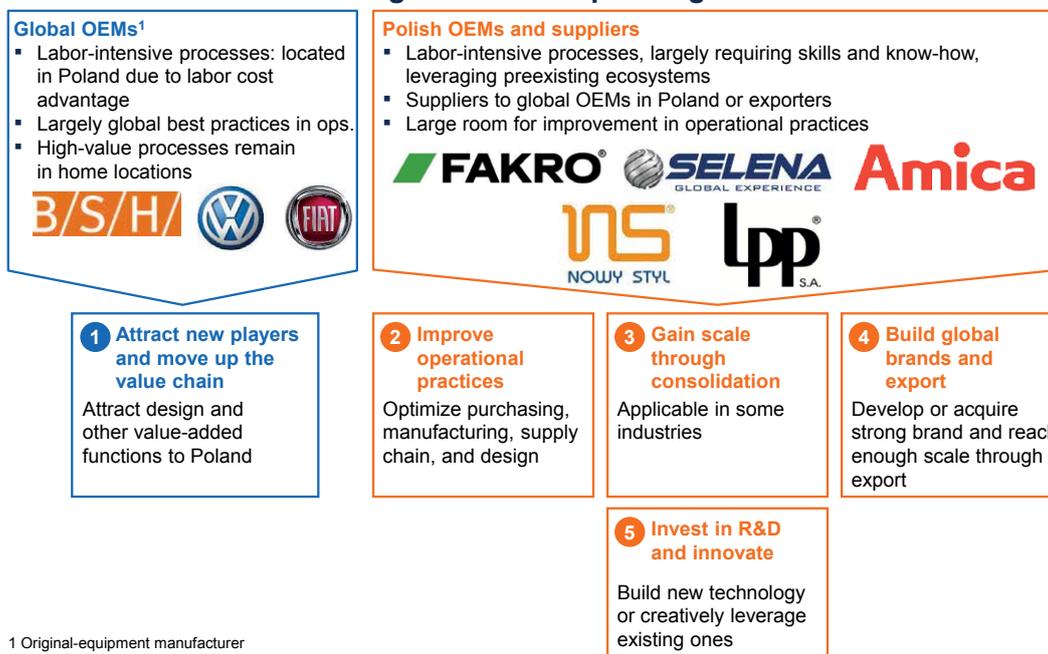
¹ Hermann Simon, *Hidden Champions of the 21st century: The Success Strategies of Unknown World Market Leaders* (New York: Springer, 2009)

The process manufacturing landscape in Poland is heterogeneous, but two broad categories of manufacturers can be distinguished: global original-equipment manufacturers (OEMs) such as Fiat and Volkswagen, and Polish companies, including OEMs (such as Amica, FAKRO, and Nowy Styl) and suppliers. The success factors differ by these categories. For global OEMs operating in Poland, the main drivers are low labor costs, introduction of international production standards, and the sizable Polish talent pool. For Polish companies, success depends on investment in product development, cost-effective production both in Poland and near shored, a tailored go-to-market strategy, and a bold strategy for international expansion.

Five factors of success are enumerated in Exhibit 21, with the first factor most applicable to global OEMs and factors 2 through 5 mostly relevant for Polish OEMs and suppliers.

Exhibit 21

The measures for raising productivity in Poland's domestic manufacturers are different than those for global OEMs operating in Poland



1. Original-equipment manufacturer
SOURCE: Expert interviews

ATTRACT NEW PLAYERS AND MOVE UP THE VALUE CHAIN

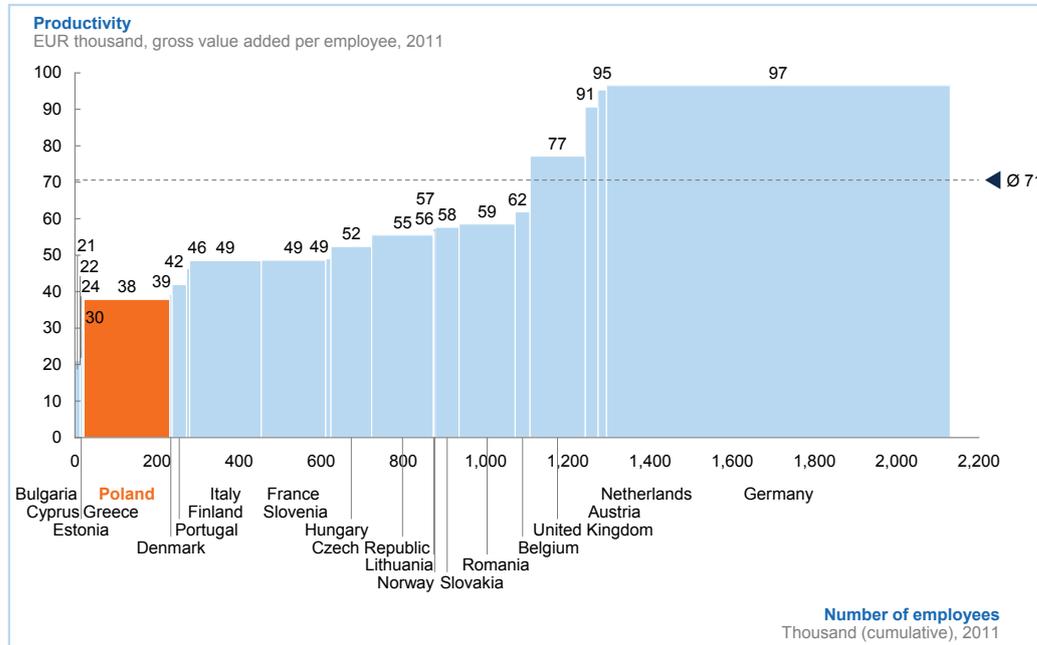
Global OEMs generally maintain best-in-class operational practices in Poland, but are also focused on labor-intensive, lower value-added production, which leads to lower productivity levels (Exhibit 22). The Fiat factory in Tychy, for example, recently received a golden medal in the prestigious World Class Manufacturing awards. Compared with other automotive industries in Central and Eastern Europe, however, Poland's industry is exclusively focused on a range of lower- and mid-range models (Fiat 500, VW commercial vehicles, Opel Astra) and low-value-added assembly procedures. Excluded are high-value-added processes like design or high-value components such as electronics. The same pattern can be found in global OEMs outside the automotive industry, such as furniture.

One opportunity is that the presence of R&D functions for global OEMs could be increased. For innovation-intensive, capital-heavy industry, such as automotive R&D, the benefits of co-locating R&D and production are considerable. The operations of global OEMs have grown enough over time in Poland to raise the level of expertise to support location of more advanced functions, such as R&D. A larger sector will be more conducive to the further development of the R&D, design, and supply-chain functions.

Exhibit 22

Poland's automotive industry produces low- to mid-value-added products, meaning there is an opportunity for improving productivity

Automotive industry



Note: European countries where data are available; does not include Spain, Sweden, or Switzerland
SOURCE: Eurostat

IMPROVING OPERATIONAL PRACTICES

Poland is a preferred location for labor-intensive manufacturing of furniture, textiles and apparel, and leather products. Yet even in this sector, we see a 59 percent productivity gap with the EU-15: EUR 16,000 per employee in Poland versus an EU-15 average of EUR 40,000. While the operational practices of global OEMs are typically best in class in Poland, many of the local manufacturers suffer from low efficiency and quality issues, some of which are legacies of state ownership. Other suppliers have grown from small private enterprises, but adopted best practices in manufacturing as they grew.

Where they are lagging behind, Polish suppliers could test their operational practices against global standards in four major areas.

Purchasing. To optimize purchasing, three areas are important: re-pricing needs to be mastered; a coherent sourcing policy has to be worked out; and the electronic-bidding and auctions processes need to be set up, whereby suppliers are invited to make offers on specific products or services.

Manufacturing. To realize full productivity potential in manufacturing, best practices need to be learned and applied in staffing adjustments, material flow adjustments, and lean transformation.

Supply-chain refining. This process requires that inventories are optimized and a network of suppliers is configured, with a neatly defined set of service-level agreements.

Product development. This process could be improved by reviewing the portfolio and applying “design to value”—a design process optimized to realize the required value and minimize production costs at the same time.

The barriers to Poland's advancement in the process-manufacturing sector include lack of knowledge and expertise; low labor costs, which tend to encourage more of the same low-value-added production rather than invite change; and limited aspirations across the sector.

Lack of know-how. Polish process manufacturing needs more skilled engineers and managers, and Polish technical and management-schools need to be upgraded, to match the best curricula world universities have to offer. In the category of mechanical, aeronautical, and manufacturing engineering, no Polish university ranks in the top 200 in the QS World University Ranking; only one Polish university makes the top 50 in Europe in management school rankings put out by the *Financial Times*. In the meantime, the Polish manufacturing sector has been hesitant to bridge the capability gap through experienced foreign managers.³

Low labor costs. In Western Europe high productivity justifies the higher labor costs. In Poland, where the cost of labor is less than half the EU-15 average, the large amount of low-value-adding production the sector attracts undermines demand for operational improvements that would lead to higher productivity.

Limited aspirations. Much of the country's labor-intensive manufacturing is performed by a multitude of small companies. In the apparel and shoes industries, for example, the average company has only 7 to 11 employees. Poland has limited experience in creating companies on a global scale. Few Polish companies can be described as global: no Polish process manufacturing company is on the Forbes 2000 list, which includes 18 German and 13 French companies. Few mergers and acquisitions, furthermore, take place in the Polish manufacturing sector: based on data from S&P Capital IQ, between 2009 and 2013 M&A activity in Poland was 3 percent of the EU-15 level, and gross value added for Polish M&A amounted to 6 percent of the EU-15 mark.

GAINING SCALE THROUGH CONSOLIDATION

Textiles and apparel, furniture, and fabricated metal products are among Poland's most fragmented industries (Exhibit 23). Skilled labor and supplier networks are concentrated in traditional regions, dating back to the 19th century. As textiles and apparel have low capital requirements, small and very small companies crowd the field as subcontractors to larger Polish and international producers. In textiles, 63 percent of revenue is generated by companies with revenues below EUR 40 million. In the longer view, the number of small companies has been declining slowly and steadily. To accelerate bottom-up consolidation, additional financing is required; alternatively, top-down consolidation motivated by the big OEMs would be expected eventually.

Consolidation will help the sector achieve economies of scale, and consequently the R&D and efficient modern production lines needed for further advancement, which only larger companies can afford.

3 Marzena Matkowska, "Imigranci na polskim rynku pracy" (Immigrants in the Polish labor market), Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania NR 25, Uniwersytet Szczeciński, 2012, wneiz.pl

Exhibit 23

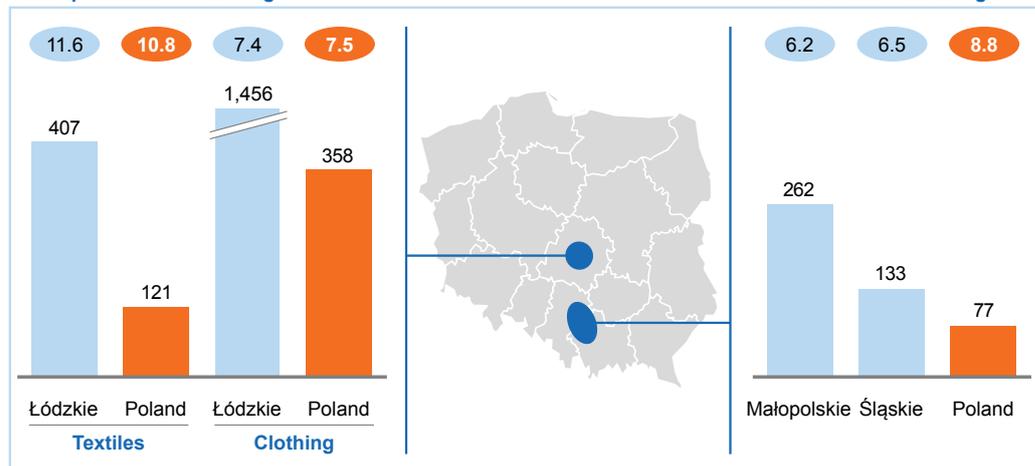
Poland's textile and apparel industry includes handicrafts concentrated in traditional regions

EXAMPLE

Number of companies¹ per million inhabitants, 2011○ Average number of employees per company¹

Textiles and clothing has traditionally been produced in Łódź region...

... and shoes in Jura region²



¹ Including sole traders in the number of companies, most of whom likely are subcontractors or employees of small and medium-size enterprises

² Data for leather products; Jura region spans two provinces (Małopolskie, Śląskie)

SOURCE: Eurostat

BUILDING GLOBAL BRANDS AND EXPORTS

The other half of process-manufacturing improvement will be achieved through the development of Polish exports. Exports growth can be a matter of survival for manufacturing companies, as the size of the domestic market is often insufficient for a company to achieve profitable scale. The key to further growth is in finding the best international opportunities for Polish products.

To compete internationally, Poland needs strong brands. Polish manufacturers can build strong brands in two ways: either they can develop their own brands in selected markets or segments, as Cersanit and Amica have been doing, or they can acquire an international brand, as Rovese did with Meissen Keramik, a former German producer of high-end ceramic tiles.

As Polish process manufacturing companies seek to create or acquire their brands, the Polish government can help them win in international markets with a "Made in Poland" campaign. As history shows, nations have been able to build their brands as their manufacturers change perceptions, from the status of producer of cheap imitative goods to one of high-quality products. Japan did this in the 1980s. More recently South Korea has followed suit. The so-called "Korea discount" once defined the nation as a producer of Japanese-like products that were lower in cost and quality. The government launched a series of initiatives in 2009 to promote Korean products. From 2009 to 2013, foreign direct investment increased by 132 percent and exports increased by 60 percent. By 2014, Samsung, Hyundai, LG, and KIA ranked among the top 100 most valuable global brands. There is no reason why Poland cannot achieve similar results for its products.

To cater to international markets efficiently, Polish companies will need to expand and optimize plant locations. One Polish success story, Selena, optimized logistics costs by locating plants on three continents. Many of the most successful Polish exporters began expanding quickly, within a few years of foundation: FAKRO, for example, began exporting after three years of domestic operations and also built production lines outside of Poland to be able to compete effectively in the large international markets.

GETTING TO INNOVATION: INVESTING IN R&D

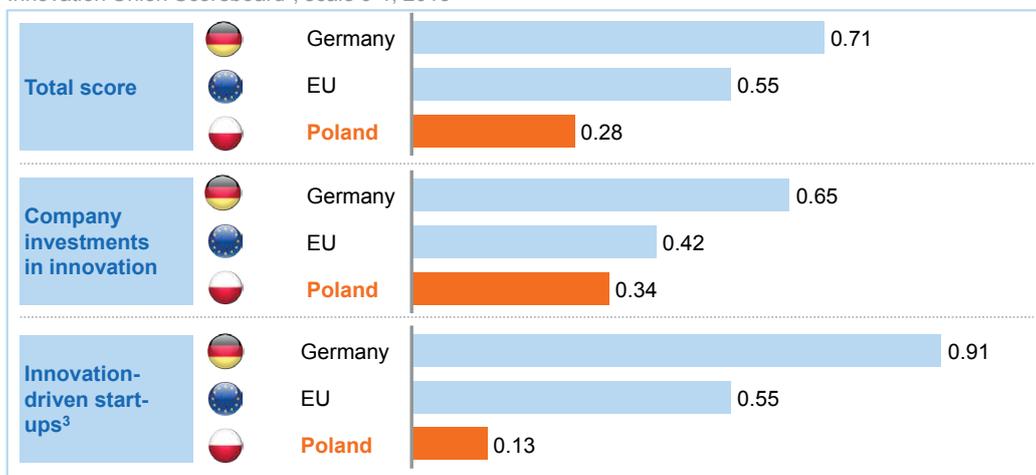
The Polish process-manufacturing sector lags behind European peers in innovation-generating R&D investment (Exhibit 24). To catch up, a number of pathways could be followed. Many process manufacturing companies do not develop their products from scratch, but rather buy existing technologies and patents, which they then develop and integrate into their own products. This approach enables companies to speed market entry and avoid costly R&D expenditures. Another approach involves the formation of strategic alliances or partnerships with global companies to gain access to patents, technology, reputation, and foreign markets.

Exhibit 24

Poland's process manufacturing industries will need more investment in R&D and innovation to catch up with Europe

Poland lags behind Europe in innovation¹

Innovation Union Scoreboard², scale 0-1, 2013



¹ Selected dimensions shown

² The Innovation Union Scoreboard 2014 gives a comparative assessment of the innovation performance of the EU member states and the relative strengths and weakness of their research and innovation systems

³ Based on number of small and medium-size enterprises monetizing innovation and number of innovative micro-companies

SOURCE: Innovation Union Scoreboard 2014, European Commission

These strategies have been adopted by companies within the process manufacturing sector. In 2009, the Chinese company BAIC acquired rights from General Motors for older Saab auto models. BAIC now produces their own cars based on Saab platforms and engine technology. Lenovo purchased IBM's personal computer business in 2005 to develop and produce laptops and tablets under its own name.

Process manufacturing is a large and fast-growing part of the Polish economy. It has been competitive mainly because of the relatively low cost of Polish labor, given its location in the middle of Europe. This advantage will slowly and steadily abate, as salaries in Poland rise to EU-15 levels. The sector therefore needs to move up the value chain and increase productivity if it is to grow over the long term. The change can only be achieved through the attainment of scale through consolidation, the introduction of high levels of innovation, improvement of operational practices, and strong international expansion. If these improvements are made, the Polish process-manufacturing sector should grow at an accelerated rate of 6 or 7 percent annually and by 2025 advance from Europe's sixth-place process manufacturer to third place, overtaking France, Great Britain, and Spain.⁴

⁴ Assuming 2 to 3 percent growth in process-manufacturing industries in France, Great Britain, and Spain and 6 to 7 percent growth in Poland until 2025



6. Basic materials industries

Basic materials industries as a whole command 4 percent of Poland's economic activity as measured in terms of gross value added, compared with 2 percent in the EU-15. The industries are growing in Poland at 5.3 percent annually (compound annual growth rate for 2004 to 2011, gross value added). The sector consists of three key industries: manufacture of basic metals, manufacture of other nonmetallic mineral products, and mining and quarrying. The sector accounts for a very high share of Poland's economy in comparison with EU-15 averages and the productivity gap for mining and quarrying is a whopping 77 percent.

Finding solutions to improve productivity in coal mining is a prerequisite to improve the whole sector.

The mining industry as it stands in Poland

Poland is endowed with some of the largest deposits of natural resources in the world: it is one of the world's leaders in copper and silver and a leader in coal in Europe. The hard coal reserves, however, present considerable situational challenges, all of which heighten the cost of extraction. They are all deep underground (at 600 to 1,200 meters), where levels of methane are often higher, triggering more stringent safety measures. At that depth temperatures are also higher, making working conditions more difficult. Also the seams can be thin, which increases the difficulty of extraction.

The mining industry in Poland is constituted of four key segments: energy coal, coking coal, lignite, and copper. Although the scale of the mining sector has decreased in the last decade, it still employs slightly over 200,000 workers. The mining productivity gap with the EU-15 amounts to 17 percent of Poland's total productivity gap. The biggest contributors to the gap are the largest segments, energy and coking coal. The productivity gap is primarily driven by three key elements: regulatory and technical requirements, low capital and operational efficiency, and challenging geological conditions.

REGULATORY AND TECHNICAL REQUIREMENTS

The mining industry in Poland has a high level of regulatory requirements, which significantly shorten the average effective working time underground and allows for multiple additional financial and nonfinancial worker benefits not found in the mining industries of the United States, Canada, or the Czech Republic. All of these regulatory requirements negatively affect overall costs (Exhibit 25).

Exhibit 25

Regulations in Poland shorten effective working time of mines



1 Depending on working conditions
 2 Depending on tenure
 3 "Trzynastka" or thirteenth month
 4 Overtime work requires 1.5 x more pay
 5 Mining and logging
 6 Average for metal, nonmetal, and coal mining
 7 Despite no legal requirement, in many mines, equipment, clothes, and washing are provided
 8 For Czech Republic, special treatment bonuses (e.g., additional bonus for Christmas or vacation, additional payment to life insurance funds, etc.) are paid by the employer based on collective agreement between labor unions and the employer and not required by any regulatory body or law
 9 Calculation based on working law. Assumed absenteeism 3.6% (average for Czech economy) and overtime 5%
 SOURCE: Energy Information Agency; Mine Safety and Health Administration; Mining Industry Human Resources Council; National Mining Association; Natural Resources Canada; PwC; Regulatory documents on labor and mining in selected countries; Silesian University of Technology; Statistics Canada; McKinsey analysis

LOW CAPITAL AND OPERATIONAL EFFICIENCY

The industry suffers from low process efficiency, low labor productivity, poor energy efficiency, and, at times, low safety standards. Performance-management systems at present do not encourage higher productivity, and, as result, inhibit change. The regulatory environment and past practices, furthermore, have tended to inflate overhead and support functions, increasing the cost base; the share of workers, especially underground miners, is relatively low, at 65 percent of total staff compared with an international benchmark of at least 80 percent.

CHALLENGING GEOLOGICAL CONDITIONS

Nature has blessed Poland with abundant hard-coal deposits but embedded them in relatively challenging geological conditions. They are deep in the ground, requiring mines to reach depths in excess of 1 kilometer; they are also laid into thin seams, increasing the difficulty of extraction. However, the industry is equipped with world-class machinery, so productivity gaps cannot be blamed entirely on nature.

The situation in the Polish mining industry is becoming more difficult, with most large companies reporting losses in recent quarters. Globally, Polish coal is losing its competitive edge.

Turning Polish coal mining around

Poland's mining industry has many advantages, including long experience in mining operations, a large skilled workforce, and important academic support from such institutions as the Akademia Górniczo-Hutnicza and the Silesian University of Technology. Together these advantages mean that the industry has the potential to become an efficient and innovative part of the Polish economy.

Efforts to turn around Polish coal mining would require changes in the following areas.

ADJUSTING THE REGULATORY FRAMEWORK

Here a joint effort will be needed, in which the different stakeholders work together to reach solutions based on facts and rational arguments. Poland's mining regulatory framework needs to shift its standpoint, from protection of labor alone to the protection of the industry as a whole. In practical terms, flexibility and mobility for employees would be improved, resulting in increased effective working time underground. This would help companies increase efficiency, with higher utilization of fixed assets and greater flexibility in assigning mining teams to different zones.

IMPROVING OPERATING EFFICIENCY

Process improvement is made by standardizing procedures and focusing on the following actions: i) improving equipment availability and effectiveness using data analytics (data mining); ii) increasing labor productivity by applying and constantly improving standard operating procedures and steadily increasing automation levels (for example, remote controls); and iii) improving energy and utilities efficiency and raising safety standards (for example, better and more widely deployed protection equipment and air-quality monitoring). At the same time, the cost of external goods and services can be lowered, by monitoring real usage, avoiding over-specification, and streamlining overhead costs. Such changes could result in double-digit productivity improvement under safer working conditions. Additionally, management practices need to change if further efficiency improvements are to be gained. New management methods from efficient industries can be deployed, such as performance- over tenure-based promotion systems.

Many of these measures have been successfully implemented in Poland. Private mines like LW Bogdanka or Silesia effectively use weekend work, have high capital efficiency, and have brought in managers from industries outside mining.

DEVELOPING AN R&D AND INNOVATION HUB

Poland's mining industry will also need to prepare for rising levels of automation and remote-control technology. Automated mining is a major global trend that is lowering costs and raising safety levels across the industry. Poland's mining industry has very strong foundations for world-class R&D capabilities in mining technologies. Significant academic resources, strong companies active in mining equipment, and large demand from domestic mines could form the basis for a growing innovation cluster — a concentration of companies and academic institutions that focus on developing breakthrough technology in the field. This effort, to identify future mining technologies and provide them with the potential of creating significant cost or volume impact, could also foster a healthy export industry. While helping to improve the efficiency of mining operations, such an industry would employ large number of workers.

Combining local underground experience with a highly skilled, yet a relatively cheap engineering workforce can position Poland as a core-capability center in underground technologies. The following actions would be consonant with this approach:

- Further develop underground mining machinery and industry-safety systems (for example detectors, roof supports) by equipment-specialist players, such as Kopex, Famur, MineMaster, and Zanam
- Export engineering capacity by using the talent and skills potential of Akademia Górniczo-Hutnicza in Cracow, and other institutions
- Develop new technologies for less-polluting coal usage, for example, underground gasification, CCS or filtering technologies
- Develop new underground “intelligent mine” technologies by building partnerships between various industry players, including mining companies and mining-equipment manufacturers

Government can play an important role in this effort, by supporting the establishment of an industry cluster, by making funds available for start-up projects, and by promotion of Polish technologies.

OPTIMIZING THE ASSET PORTFOLIO

The domestic cost curve for Polish mines includes three groups of companies. The first group includes mines that are relatively efficient and profitable within current price levels. The second group shows potential for profitability improvement depending on the successful introduction of regulatory, operational-efficiency, and innovation improvements. The last group operates under very difficult geological conditions and has limited potential of becoming profitable in the foreseeable future. The Polish mining industry will be able to improve its productivity and overall financial performance by shutting down exploration in mines (or individual mining zones) that would be unprofitable over the long term, even if all improvement levers were applied to them. At the same time, the industry would increase production in the most effective mines.

For the Polish mining industry, the effect of implementing these improvement efforts would be substantial. With the supporting regulatory changes and skilled management, operating efficiency and profitability could improve by as much as 10 to 20 percent. By developing and introducing innovations, further improvement could be achieved, while the optimization of assets would eliminate unprofitable sites. Given all improvements, the majority of the unprofitable mines could cross the break-even point.

Given the structure of the energy mix in Poland, which includes dependence on coal-fired power plants, the demand for coal will decrease only slightly in the next decade, so there is a market to be served. After restructuring, the Polish coal industry has a good chance to become more price competitive than imports and thus remain economically healthy. The outcome of the transformation will be a smaller but stronger and more innovative industry that is also profitable. Poland's basic materials sector can achieve a successful turnaround, contributing to the country's overall GDP growth.



7. Local industries

In Poland, the local industry as a whole commands 71 percent of the economic activity (as measured by gross value added) and 77 percent of the Polish workforce. The sectors include energy, agriculture (including food and beverage production), retail and wholesale sales, and services such as postal delivery. Polish local industries are growing at a healthy 6 percent annually (compound annual growth rate between 2004 and 2011), compared with 2 percent for the EU-15. The productivity gap with the EU-15 remains substantial, however, at 34 percent overall for agriculture, electricity, transport, construction, food, and retail. The focus in this chapter is on energy and agriculture, two industries where productivity gains are most needed.

Efficient energy for Polish industry

Poland has the sixth-largest energy market in the European Union, measured at 163 terawatt-hours of electricity production in 2013, about one-quarter the level in Germany, Europe's leading consumer of power.¹ The Polish energy sector accounts for around 4 percent of gross value added in the economy (EUR 21 billion purchasing-power standard in 2012), though constituting only 1 percent of employment (164,000). The sector plays a pivotal role in shaping the competitiveness of the economy as a whole, because of the increasing role that electricity prices play in industrial manufacturing.

In Europe's most advanced economies, energy demand, reflecting the economic slowdown, has either stabilized or declined in recent years. In Poland, however, power demand had risen steadily in the past decade, at about 2 percent annually, slowing only in 2013 (to 0.6 percent). In Germany, by comparison, demand has declined for the past three years, and was down nearly 2 percent in 2013.

To secure supplies, promote environmental sustainability, and—most importantly—keep prices down, the Polish energy sector needs to face a range of challenges common to many EU markets: an aging asset base, regulatory uncertainty and lack of market mechanisms providing stable investment conditions, lagging quality and development of transmission and distribution networks, delays and cost overruns in large-scale projects, and inefficiencies in work organization.

AGING ASSET BASE

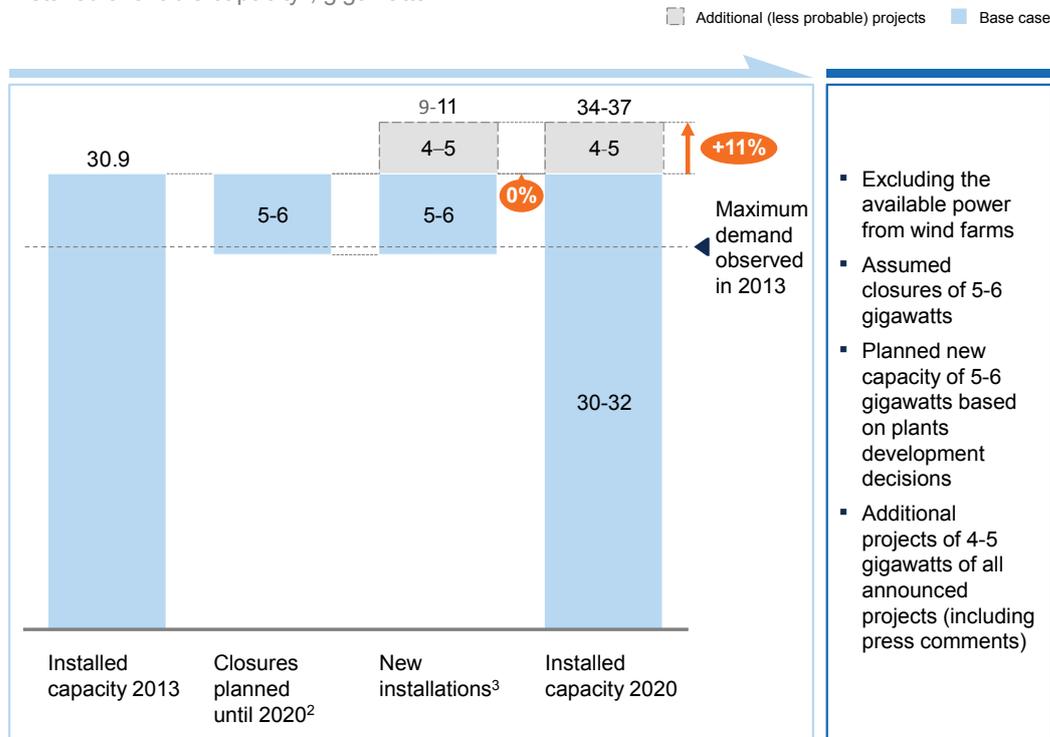
More than 62 percent of installed capacity in Poland is over 30 years old. Although the planned plant closures and openings will not lead to a substantial capacity decrease until 2020, a cost-efficient generation portfolio rejuvenation plan is needed if the system is to have firm margin security for capacity over the long term. Total investment needs to 2020 for baseload-power generation is currently estimated to exceed EUR 10 billion to 12 billion, a scale that has not been matched since the economic transformation (Exhibit 26).

1 Urząd Regulacji Energetyki (Energy Regulatory Office), ure.gov.pl

Exhibit 26

Planned closures and confirmed openings are not expected to cause substantial risk of capacity decrease or blackouts until 2020

Installed available capacity¹, gigawatts



1 Conventional energy (with biomass)

2 Current status excluding the closure of Elektrownia Rybnik

3 Including new blocks in Elektrownia Opole, Kozienice, Jaworzno, Turów, Stalowa Wola, new CHPs, modernization of blocks in Elektrownia Bełchatów

SOURCE: PSE; press releases; McKinsey European Energy Market Model (Plexos)

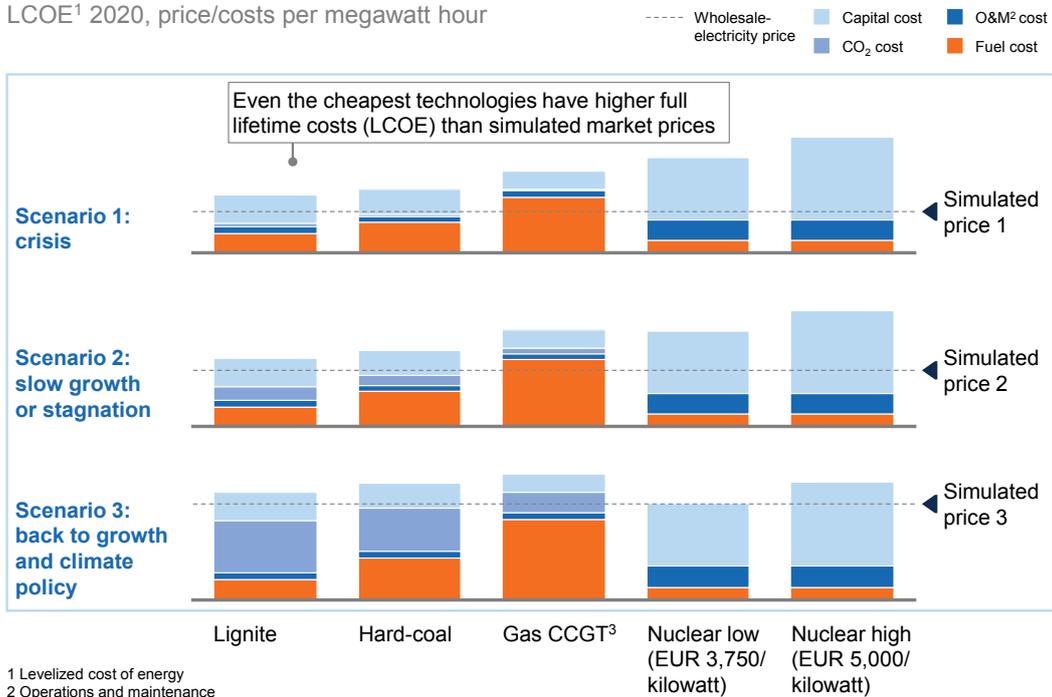
RISING INVESTMENT NEEDS UNDER UNCERTAINTY

The marginal-pricing market mechanism combined with wholesale-prices volatility and expected CO₂ costs raise investment risks. With electricity prices as they are now, additional support is needed to provide stable long-term returns and attract investment in greenfield-generation projects. Another issue is environmental sustainability. EU targets for emissions are based on a carbon price floor of EUR 20 to 30 per ton of CO₂, which would progressively rise until 2030. Given that Poland relies mainly on hard and lignite coal baseload technologies, the targets would likely trigger dramatic increases in the cost of baseload-power generation. Massive new projects, including the Opole, Kozienice, or Jaworzno plants, would face acute investment uncertainty, and the wholesale energy market in Poland would also be affected adversely. These forthcoming EU policy changes make supporting measures in energy all the more urgent (Exhibit 27).

Exhibit 27

Current market mechanisms do not provide sufficient support for majority of baseload investment decisions

LCOE¹ 2020, price/costs per megawatt hour



Another EU energy target seeks to raise the share of renewable energy sources (RES) in total consumption to 19 percent by 2020. To achieve this, Poland needs to continue its dynamic RES growth trajectory, which has been 22 percent annually from 2005 to 2013. To ensure continued RES growth, a stable and cost-optimal support system is needed. Poland will need to install 4 to 6 gigawatts of renewable power over the next six years, depending on the development of the biomass co-firing support plan. The total capital expenditure would be between EUR 5 billion and 9 billion.

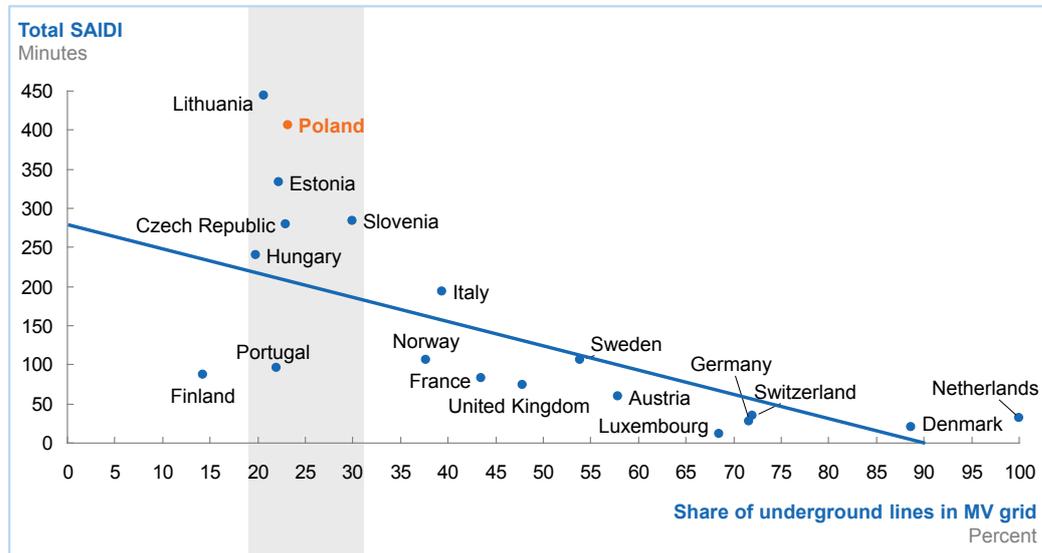
QUALITY GAP AND DEVELOPMENT OF POWER GRIDS

Renewables development requires adequate grid infrastructure to connect new sources and withstand supply-flows volatility. Poland is lagging behind its European peers in power-supply quality, including in new connection times as well as in supply continuity. Polish customers annually suffer an average of 406 minutes of power interruptions per year on the index known as SAIDI (system average interruption duration index). By comparison, Hungary's number is 240, Portugal's is 96, and Germany's is 28. These differences are mainly the result of Poland's lower network density, higher share of overhead lines, and lower levels of network looping and automation combined with a high share of aged infrastructure and a lack of effective operating practices. To close the gap, Polish grid operators intend to spend EUR 8 billion to 10 billion on network investments until the end of 2020. This expenditure implies a massive increase in the volume of new grid projects and thus the need for adequate planning, investment portfolio management, and execution capabilities (Exhibit 28).

Exhibit 28

Poland's power grid is subject to very high levels of interruption compared to other European distribution systems

Correlation between the share of underground MV lines and total SAIDI¹, 2012²



¹ System average interruption duration index (SAIDI); unplanned SAIDI, including catastrophic and three-years average for planned SAIDI
² Data for underground lines: Denmark (2011), Estonia (2010), Germany (2011), Norway (2009), Poland (2010), Sweden (2011)
 SOURCE: Council of European Energy Regulators

DELAYS AND COST OVERRUNS IN LARGE PROJECTS

Often the lowest bids on projects exceed the assumed budgets. The Stalowa Wola plant's tender was canceled in 2014 after the lowest offer exceeded the budget by 166 percent. The Turów power plant required a tender rerun, as the initial offers in 2013 exceeded the plans by 89 percent. Because of the limited scale of investment projects over the past decade, companies are struggling to adopt models for effective investment and control, and often need deadlines to be extended as a result. The liquefied-natural-gas terminal in Świnoujście, for example, was delayed by more than six months at a 15 percent budget overrun.

STRUCTURAL OVEREMPLOYMENT

All major Polish integrated-power groups signed long-term (ten-year) employment guarantees as part of privatization agreements. Given that these will all expire within four years, the country's energy sector will face the largest restructuring opportunity in a decade and a chance to close the gap in labor efficiency.

MEETING THE ENERGY CHALLENGES

The energy sector in Poland has a tall investment agenda. Major needs include the rejuvenation of baseload generation, renewables development, and network replacement. To proceed with such large plans, the sector will need substantial financing capacity but also a well-managed balance sheet. Investment decisions will need to be rigorously evaluated and executed. Efficient operations will be critical to provide the solid financial foundation needed to avoid putting pressure on energy prices and suppressing economic competitiveness.

To succeed on its investment agenda, the energy sector will need to approach its demands with a number of integrated initiatives.

Integrated view on the generation-asset portfolio and investment management

Poland needs to rejuvenate its asset base. Therefore the energy groups could focus on the cost efficiency of their generation investment portfolio. Technology is best selected by assessing the cost efficiency over a lifetime of power production (levelized cost of electricity, or LCOE) as well on the basis of optimizing portfolio risk (for example, hard coal, gas, CO2 price scenarios).

An integrated long-term country perspective is required to optimize the generation-development plans. An optimal portfolio is characterized by a balanced risk profile, secure supplies, and economic efficiency. Factors to consider include the following:

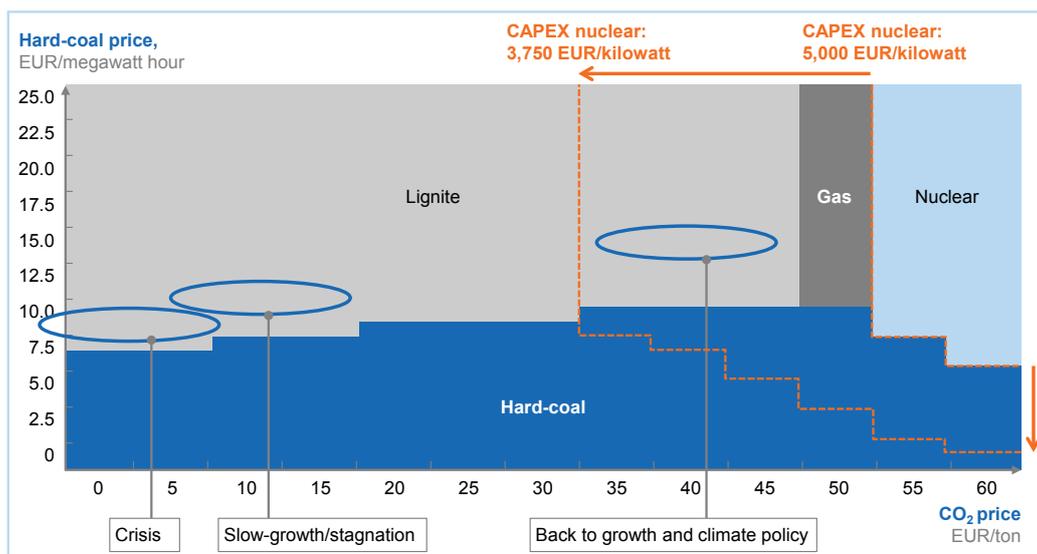
- Lignite remains the most cost-competitive technology for the moment, but its use is constrained by limited availability of new resources, sustainable excavation prospects, and CO2 costs pressure (Exhibit 29)
- Given the uncertain outlook for commodity prices, nuclear and gas are more risky. Exploitation is dependent on the efficiency of a first nuclear investment and the progress of shale gas development
- Hard coal will maintain the pivotal local baseload position. Existing blocks may be replaced with more efficient units if CO2 costs increase; however, their profitability will be highly dependent on the access to cheap hard-coal supplies
- Project delivery will play the critical role in terms of new project preparation as well as efficient management and execution

Exhibit 29

Lignite-power generation remains the most cost optimal compared with hard-coal, gas, and nuclear base-load technologies at current CO₂ prices

2020, comparison of LCOE^{1,2}

← Nuclear power plant assumed CAPEX decreased from 5 to 3.75 thousand EUR/kilowatt



1 Graph shows technologies with the lowest levelized cost of energy under specific price conditions

2 Gas price: 27.5 EUR/megawatt hour

SOURCE: McKinsey European Energy Market Model (Plexos); McKinsey simulations

Efficient market support mechanism and RES subsidies scheme

The commodity markets and the economic situation in Poland is insufficiently conducive for investment in conventional generation. The sector's marginal pricing policies have tended to drive down wholesale prices, creating losses for the operating assets. If left unchecked by

regulatory changes—such as capacity markets and distinctions between new investments and written-off assets—these unfavorable market conditions could erode the value of the entire sector. A comprehensive and transparent energy-market model for Poland could create an environment that preserves and increases value in the sector.

- By minimizing the “system cost” of the power sector, the model would ensure low-cost power and enable thereby increased RES capacity. The support plan would subsidize only the lowest-cost renewable technologies, with the aim of reaching the EU 2020 targets
- The model could stimulate economic growth by promoting technologies that would create jobs in Poland—an especially relevant factor for the optimal selection of generation technologies
- The model would help realize energy security by promoting controllable-price fuel sources

Improvement in operational efficiency along the value chain

Poland lags behind Western Europe in the efficient generation and distribution of power. Most of the discussion has focused on generation, but a number of measures could be taken to close the gap in distribution as well.

- Ensure proper investment allocation and best-in-class operational practices to improve the quality of project planning and delivery
- Reduce the time for new connections through lean operations and process optimization
- Improve service efficiency through the system by using new technology to increase field brigades productivity, reduce failure response times, and enable dynamic dispatching and workforce flexibility

Energy union

- Poland’s energy sector can initiate these reforms within the current market and on a country level. However, Poland will multiply the effect of the changes if it coordinates them with the European Union
- European coordination on the RES support plan and capacity mechanism would help limit system costs: renewable sources can, for example, be built in geographies with the best conditions
- Development of European transmission capacities for electric power and gas would enhance interconnectivity
- European coordination would boost security of supply for major energy sources, such as gas

The current industry structure in Poland is defined by several midscale companies. None of these rank in the top 12 EU power or gas companies. Alone, the Polish companies would find it difficult to implement the needed reforms, especially given the investment requirements of the new generation projects. In light of the desirability of implementing the initiatives with EU involvement, larger and stronger energy groups could better represent Polish interests (and reflect Poland’s true size as a generator and consumer of power). Consolidating several companies, if only in an umbrella organizing group, could empower them to act in the interests of the whole nation, at home and in Brussels.

Becoming a major food supplier for Europe

The agriculture and food industries combined form a key sector of the Polish economy. Together they account for nearly 7 percent of economic activity in Poland (as reflected in gross value added), more than in any EU-15 country. The sector is also growing. In terms of value generated, the sector grew at 9 percent annually between 2008 and 2011, while in the EU-15, growth in this category for this time frame was zero. In productivity, Polish agriculture and food grew at 12 percent during this period, while the EU-15 was seeing 1 percent growth.

Growing urbanization across Europe is raising Poland's profile as a major food supplier for Europe. Poland ranks fourth in the European Union in arable land, after France, Germany, and Spain, and 200 million EU citizens live within 1,000 kilometers of Poland's borders. Poland has more advantages than any other country for becoming Europe's major food production and processing hub (Exhibit 30).

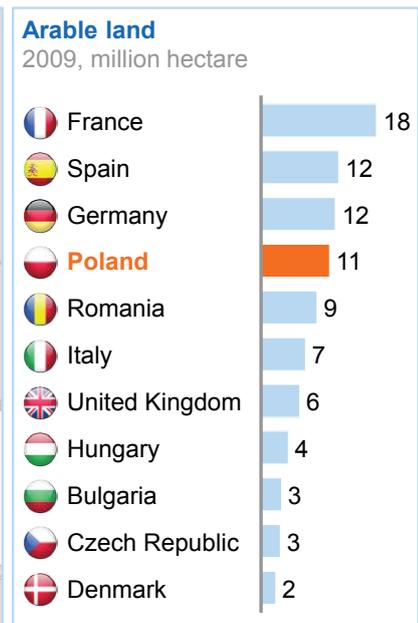
Exhibit 30

Poland is positioned to be a major supplier of food for Western Europe

More than 200 million EU citizens live within 1,000 kilometers of Poland



Poland ranks 4th in the EU in arable land



SOURCE: Eurostat; Food and Agriculture Organization of the United Nations; ViaMichelin; McKinsey analysis

The sector has gone through radical changes over the past 25 years. A productivity gap, when compared with the European Union, closed from 70 percent in 2008 to 59 percent last year, which is obviously still very high. Average yields for principal crops (with the exception of sugar beets, where Poland is a leader) are around 40 percent lower than in comparable countries, such as Germany.

THE NEED FOR LARGER FARMS

Low productivity is primarily driven by fragmented holdings. The average farm size in Poland is approximately 10 hectares, compared with 50 hectares in France and Germany and 90 hectares in the United Kingdom.² Fragmentation is a problem in animal production as well. The

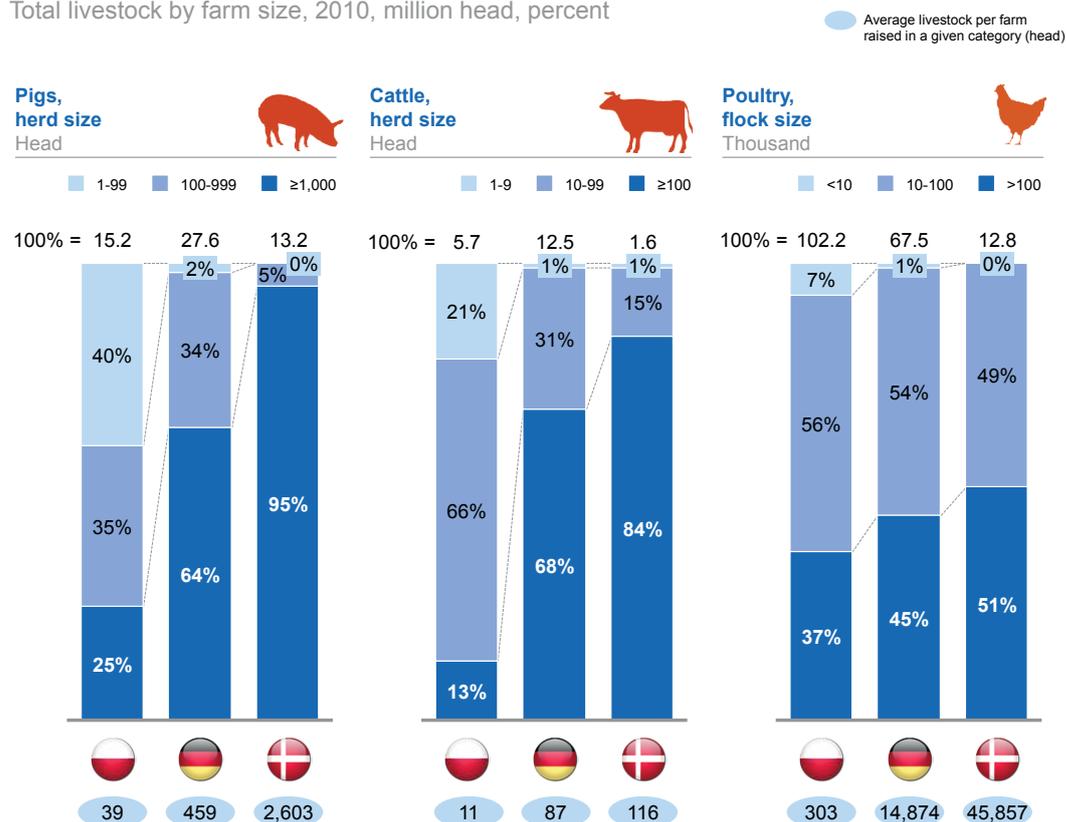
2 Eurostat statistics, 2013, ec.europa.eu/eurostat

average swine herd in Poland in 2010 contained 39 animals, while in Germany the number was 450 and in Denmark, 2,600. A similar situation can be observed in other livestock categories, including cattle and broilers. EU-15 countries have much larger cattle herds, for instance—Danish herds are ten times the size of Poland's. Any significant improvement in productivity would require first increasing the size of the average Polish farm (Exhibit 31).

Exhibit 31

Poland's livestock industry is fragmented in small holdings

Total livestock by farm size, 2010, million head, percent



SOURCE: Eurostat

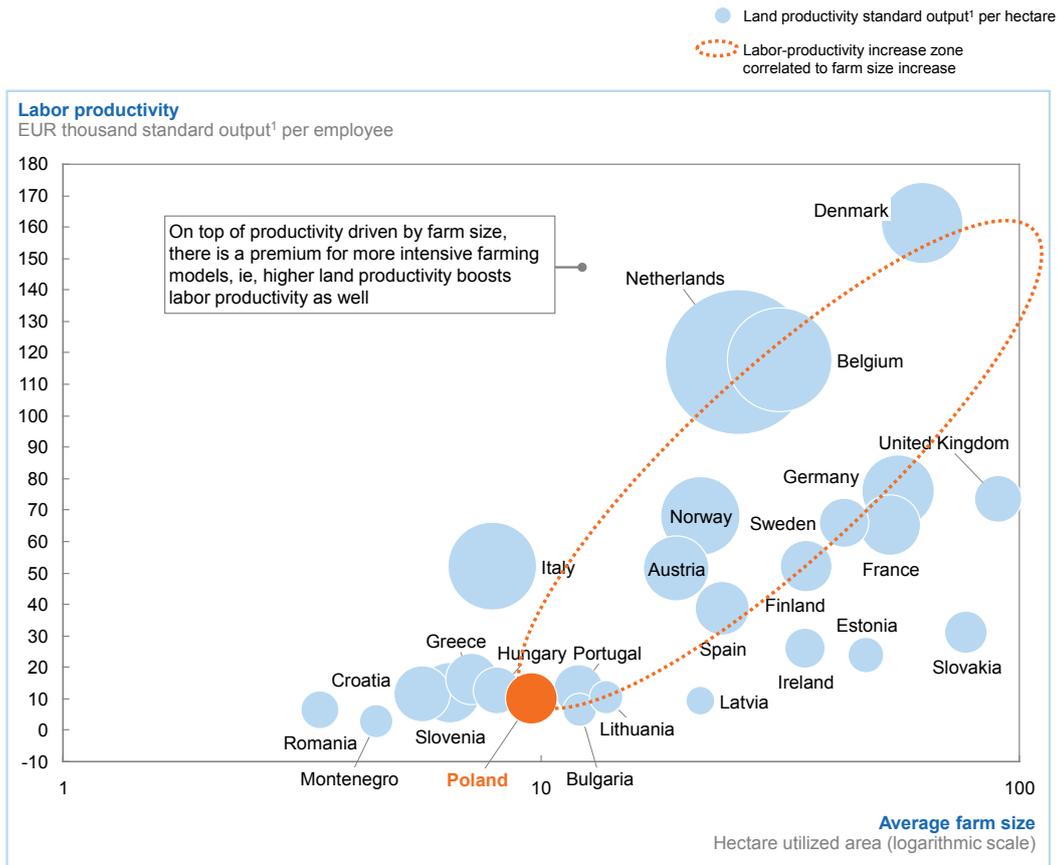
Fragmentation of land in Poland results from historical and cultural conditions and is perpetuated by EU direct payments. The key drivers of fragmentation are as follows:

- Legacy of historical processes.** Land reforms dating back to the 19th century and continuing into the 20th abolished large estates, resulting in atomized holdings in central and southern Poland; only in the north and the west were more sizeable farms retained
- A tradition of splitting holdings.** In the past, at inheritance, land was divided among more heirs; a newer practice is the carving out of parcels to sell to suburban developers
- EU direct subsidies.** These enable owners of small farms to sustain modest living standards from otherwise economically unviable farmland. Tax and social security incentives also encourage owners to hold on to small plots
- Limited regulatory activity.** The Treasury Department's agency for agricultural real estate (Agencja Nieruchomości Rolnych) primarily focuses on selling and leasing Treasury assets rather than actively supporting consolidation

One consequence of fragmentation is that the Polish landscape is oversaturated with farm equipment. The number of tractors grew 20 percent from 2000 to 2009, so that Poland now has 13 tractors for every 100 hectares of arable land, while Denmark has 5. Poland also uses more fertilizer: on average 104 kilograms per hectare in 2009, 20 percent more than is used in Denmark and the United Kingdom.³ Another consequence is lower labor productivity (Exhibit 32).

Exhibit 32

Because of small farm size, labor productivity in Polish agriculture is low



¹ The average monetary value of the agricultural output at farm-gate price, as calculated by Eurostat
 SOURCE: Eurostat

MORE VALUE-ADDING PRODUCTION

Poland's agriculture and food industry is skewed toward low value-added produce. Poland is stronger in raw produce than in processed products. In most of the categories, including sugar, fruits, meat, wheat, and milk, Poland has a higher share of EU production of raw produce than final products—equaling, for example, 43 percent of Germany's overall agricultural gross value added, but only 28 percent of its processed products output.

Denmark's approach to leadership in agriculture

Denmark is an advanced economy with a highly skilled workforce, but it is also an agricultural power in Europe. Having moved into highly capital-intensive modes of production throughout the economy, Denmark has been able to achieve much innovation in food production. Several factors have contributed to Denmark's success.

1. **Clusters.** Denmark created concentrations of agronomic and agricultural institutions that have been making technical and food-science breakthroughs in a variety of areas, from animal husbandry to crop varieties. The Danish agricultural clusters were enabled by the industry's high level of vertical and horizontal integration. The parties involved include multinational firms, such as Arla and DuPont, as well as many smaller firms and start-ups. Dependency among different actors in the system produced synergistic effects. The high integration of the agro-food clusters and competition among firms have created competitive advantages for Denmark.

2. **High quality and effective promotion.**

Danish companies achieve superior quality in their products and decided to promote this to expand internationally. Cooperation on improving quality and control was possible thanks to vertical integration and clustering. This led to access to important markets, including Japan.

3. **Research centers.** According to the Danish Ministry of Foreign Affairs, Denmark has 18,000 researchers working on food-related subjects at such research organizations as the Cattle Research Centre, the Knowledge Centre for Agriculture, and the Danish Technical University (DTU).

The approach seems to be effective. The value of Danish food exports has grown from EUR 10.6 billion in 2000 to EUR 20 billion today. The government expects more growth, with emerging markets rather than the European Union accounting for most of it.

Polish agriculture has been moving in the right direction lately, with value-added food production growing faster than total volume. There is still room for improvement in the shift to a higher share of value-added products. Labor productivity in the food processing industry is still 38 percent below EU-15 levels. Recent technical changes should lead to improvement here: between 2008 and 2012, gross fixed assets in food industry grew by 58 percent.

In food processing, the value of goods produced (GVA) and productivity have grown at a decent pace, 7 percent annually since 2005; however, the pace of export growth was double that number.

BECOMING A FOOD-PROCESSING CHAMPION

As a result of investment, the Polish food-processing industry enjoys very modern production-line infrastructure, especially in dairy, meat, frozen food, and beverages. Facilities are often more advanced than those of EU peers. Kompania Piwowarska and SABMiller, for example, built a new packaging line that uses a clean room, a cutting-edge solution with the highest quality for packaging. It had never before been used in Europe.

Despite these favorable natural conditions and fast-growing investments, Poland is not yet a food-processing champion. There are three main inhibitors of growth:

- **Low investments in intellectual property.** Polish companies do not invest enough in brand creation. Spending on R&D, cooperation among food-processing companies, and an academic environment is not sufficient to elevate the sector⁴
- **Fragmented sector structure.** The sector does not offer a large-enough scale for international expansion
- **Overall lack of international aspiration by Polish companies.** While some companies, such as Maspex and Hortex, have managed to build an international presence, most food processing companies still think locally

From regional player to global champion

The Barilla group is the world's largest producer of pasta, with its 120 shapes and sizes of pasta capturing 40 to 45 percent of the Italian market and nearly 30 percent of the US market. Barilla is also the leading seller of bakery products in Italy, and through the acquisition of Wasa, the world's leading producer of flatbread.

The company was founded in 1877 in Parma, and through most of its history, has been led by the Barilla family. It grew little by little in the first century of its existence, becoming the number-one European pasta maker in the 1980s. The company then launched its international expansion, entering the highly competitive US market in the 1990s. In 20 years, Barilla was able to gain one-quarter of this market, starting from zero.

A number of factors contributed to its success. First, Barilla, recognizing the positive image and ubiquity of Italian food on the American market, launched a large and expensive advertising campaign that highlighted the company's Italian brand identity and authenticity. In addition to spending on traditional methods of marketing, such as commercials and shelf space, Barilla also influenced tastes by sending batches of pasta with new recipes and inviting writers from the food sections of popular dailies and women's magazines to cooking events. Most important, Barilla reduced costs by building a new, cutting-edge pasta factory in Iowa, the American agricultural heartland, which allowed the company to avoid heavy tariffs on imported pasta and level the playing field with domestic competitors.

PRODUCTIVITY SOLUTIONS

Long-term policies aimed at increasing productivity in agriculture would need to address the issue of optimizing land use through consolidation. This initiative could be made a priority in managing Treasury's land holdings. Local government involvement could also promote consolidation, in the manner of France's SAFER agencies. An EU subsidy plan that would encourage small farmers and the nonfarming rural population to consolidate their holdings while maintaining or raising their standard of living could be worked out. Likewise, advantages could be granted within the Polish government's tax and insurance plans to the rural population for helping consolidate subscale plots.

Probably the most promising approach to improving yields on Polish soil will involve the deepening of so-called bottom-up measures. The most important are described below.

Land leases. These have become increasingly popular in Poland, but as of 2010 only around 20 percent of arable land was leased, compared with 40 percent of that in advanced European

4 Andrzej Kowalski and Marek Wigier, "Rozwój sektora rolno-spożywczego w Polsce na tle tendencji światowych" ("Development of the agrifood sector in Poland in comparison with global trends"), Instytut Ekonomiki i Gospodarki Żywnościowej, Państwowy Instytut Badawczy, Warszawa 2008

economies. Leases in Poland are often informal and the market is opaque. Transparent regulation aligned with incentives for owners and users would be called for.

Contract farming. This arrangement allows processing companies to enroll farmers as suppliers, with prices contractually stipulated. The consequent aggregation of supply has been used to great advantage in pork production in Denmark and the United Kingdom and in the production of wine across many countries.

Producer cooperatives. Promoted by the European Union and the Polish government, producer groups enable agricultural producers to integrate horizontally and, while retaining land ownership and a measure of independence, capture some economies of scale. The producer groups enjoy negotiating advantages with processors and receive dedicated subsidies. A clear example in Poland where cooperatives have been successful is with apple producer groups. On average, EUR 290,000 in subsidies have been offered to producers in the first five years of producer group programs, typically for the construction of storage and sorting facilities. Group-owned facilities enable increased utilization of labor (by employing farmhands out of season) and adding value by selling produce in all seasons, not solely during harvest time when prices are lowest.

FOOD PROCESSING SOLUTIONS

Polish food processors need to acquire larger scale. This can be achieved in places through the consolidation of fragmented processors. In one important category, for example, neither of the top two companies has more than 3 percent of the total market and their shares are divided by region. In addition to becoming larger in order to grow, Polish companies will need to change their product offering in the following ways.

Increase product complexity. Move up the value chain with a higher degree of processing and use the competitive advantage of local access to Polish agricultural produce. Integrate vertically to ensure cost advantage and quality by working with producer groups or contract farming.

Introduce innovation. Areas for the introduction of innovation include dedicated and customized dietary food, high-quality minimally processed food, nanotechnology in conservation, filtering, and packaging.

Build Polish brands. The Polish food industry holds a strong position as a supplier and in its relations with European retailers to develop Polish brands. Brands can be built or strengthened in such categories as poultry and dairy, where Poland has a particularly strong position in the EU market. Poland's image as more eco-friendly can also be enhanced, and an organic sector can be developed and branded according to highest EU standards.

Acquire foreign brands. Building Polish brands from scratch in foreign markets could bring results, but that takes time. Sometimes brand presence is better achieved through the acquisition of local brands, as Maspex has done.

Maspex: an international presence through brand acquisition

Maspex is one of the biggest food-processing companies in Central and Eastern Europe. It was founded in 1990 in Wadowice, close to Cracow, beginning with its six cofounders as the workforce. In the past 20 years the company has become one of Poland's great success stories, growing into an international force with 5,000 employees and revenue of EUR 700 million.

Maspex grew through aggressive acquisitions of both production facilities and brands. The company built presence, for example, by

acquiring Salatini and Capollini, brands of Romanian crackers.

Maspex is now a genuinely international company, with factories in Poland, the Czech Republic, Slovakia, Hungary, Romania, and Russia. The firm's products are present not only in Europe but also in Asia, the Middle East, and North America, 50 countries in all. Exports now constitute over one-third of Maspex's revenue.



8. Demographic and labor market shifts

As in much of the developed world, the Polish economy is facing demographic challenges in the years ahead. Unfavorable demographics coupled with low labor productivity and labor-market inefficiencies will pose significant structural difficulties for Poland's growth model. The key source of inefficiencies in today's job market is the relatively low labor force participation rate: only 67 percent of the working-age population is actively engaged in the workforce. Poland's participation rate is significantly lower than Germany's (77.5 percent) and Sweden's (81.1 percent); the EU-15 average is 74 percent.¹ Poland's high unemployment rate, of around 10 percent, compounds the problem: according to official data, only 60 percent of Poles aged 15 to 64 are employed.

The imbalance in the labor market will worsen from a low birthrate and greater longevity—a hallmark demographic crunch seen in the more advanced economies in the 21st century. Since the beginning of the 1990s, Poland's fertility rate—the average number of children born to a woman over her lifetime—has been decreasing, and reached 1.26 in 2013. Recent government actions have sought to increase births, including longer parental leaves and easier access to kindergartens. As a result, during the first half of 2014, births rose by 5,600 over the same period in 2013.²

Yet the Polish population is aging and the workforce is expected to shrink. Seniors (60 and over) are the only age group that will likely grow, while 15- to 59-year olds, key labor force segments, are expected to experience serious shrinkage (Exhibit 33). The old-age dependency ratio, a measure of the share of population older than 65 to the working-age population (15–64), is expected to jump from around 20 percent in 2012 to 30 percent in 2025, assuming no major labor market reforms are implemented. Moreover, the migration balance is negative for Poland—more workers leave than come in. The demographics show no signs of improvement and a shrinking tax base will likely be accompanied by increased demand for social and health services on the part of the elderly. These trends will pose a considerable strain on public funds unless remedial actions are implemented.

1 Ratio of the labor force to the working-age population, ages 15 to 64, Labour force statistics, Organisation for Co-operation and Development, 2013, oe.cd.org

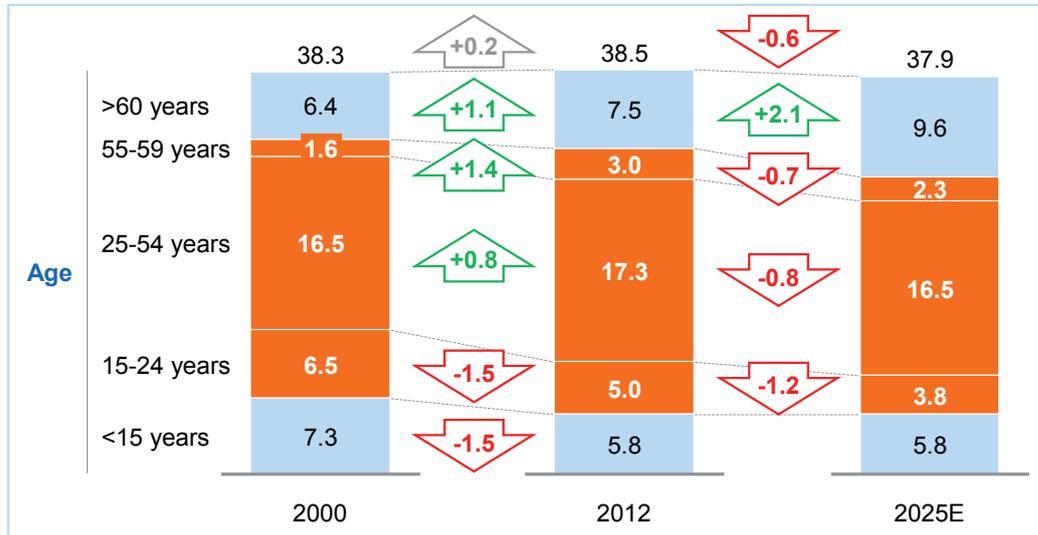
2 Data are from the Polish Central Bureau of Statistics (GUS), stat.gov.pl

Exhibit 33

Poland’s working-age population (15-59) is expected to decrease by 2.7 million by 2025

Population of Poland
Million inhabitants

Change



SOURCE: Polish Bureau of Statistics (GUS) 2002 and 2011 census; Polish Bureau of Statistics (GUS) forecast adjusted for consistency with censuses

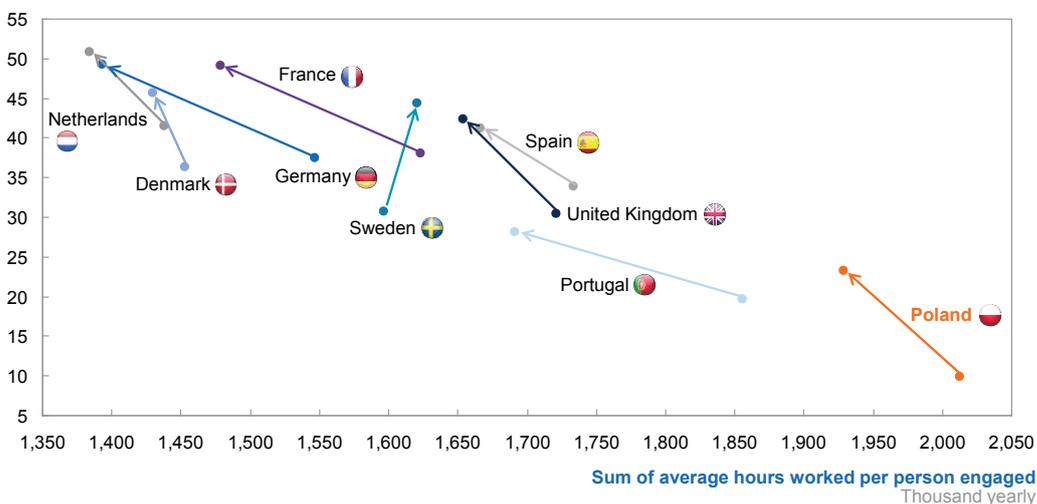
For the Polish economy to continue on its fast-growth trajectory, Poland will want to mitigate the declining size of its prime labor population, and raise the low participation of women, youth, and older workers. As we have seen, increasing the number of hours Poles work is not an option, as Poles already work more than most Europeans (Exhibit 34). As data from the Organisation for Economic Co-operation and Development proves, furthermore, there is actually a negative correlation between productivity level and the amount of hours spent by an employee at work. Average hours worked are likely to fall in Poland, as they have already elsewhere in Europe.

Exhibit 34

GDP growth does not directly correlate to average hours worked, which is already high in Poland

Sum of GDP per hour worked
USD, constant prices, 2005 PPP

Change between 1993-2012



SOURCE: Organisation for Economic Co-operation and Development

Policy measures to counter the negative demographic trends would therefore aim at increasing the labor supply. Unemployment is higher in Poland (around 10 percent) than it is in Western Europe (7.8 percent in Sweden and 5.1 percent in Germany).³ The most effective way to bring down unemployment and increase labor participation is to draw on untapped labor resources, including women, youth, and older workers who are of working age but are prevented from working for various reasons.

Adding 2.4 million people to the workforce

Poland's prime working-age population is identified in this report as the 15- to 59-year-old segments. This population is expected to shrink, from 25.3 million today to 22.6 million in 2025, a reduction of 2.7 million workers. This trend can be stopped, however, or even reversed if targeted policy measures are applied (see Exhibit 4, in the executive summary).

Effective policies to counter the low labor participation rate could considerably improve the labor market balance. The aim of the policies would be to raise the participation rates of women, youth, and older workers.

Women. Increasing the participation of women aged 25 to 54 by four percentage points would close half of the gap with top-rated Sweden and engage an additional 300,000 workers.

Youth and younger workers. Increasing the youth participation rate (ages 15 to 24) by 14 percentage points would close the gap to the EU-15 average and engage an additional 500,000 workers

Older workers. Raising the participation rate for older workers (ages 55–59) by 14 percentage points would close the gap to the EU-15 average; raising the participation rate for workers over 60 years old by seven percentage points would engage 500,000 older workers.

WOMEN

Labor participation for Polish women is low by Europe's standards, at 61 percent (2012). By contrast the EU-15 average is 68 percent and the rate in Sweden is a whopping 80 percent (Exhibit 35). The gap is observed across age groups but is especially prominent in the 25–54 age group, which is the most productive segment. The participation rate for Polish women in this segment is among the lowest in Europe, only slightly ahead of Greece, Hungary, Italy, and Slovakia and Spain.⁴

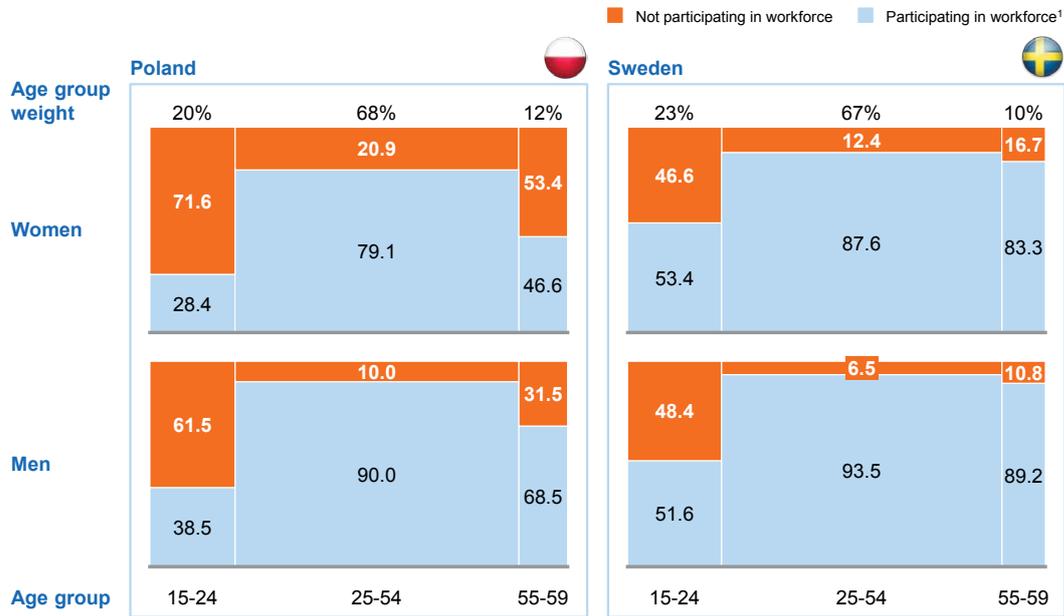
3 Eurostat data, May 2014, ec.europa.eu/eurostat

4 *OECD Economic Surveys: POLAND*, Organisation for Economic Co-operation and Development, March 2014, oecd.org

Exhibit 35

Sweden has significantly higher labor participation rates than does Poland

Percent of population by age group, 2012

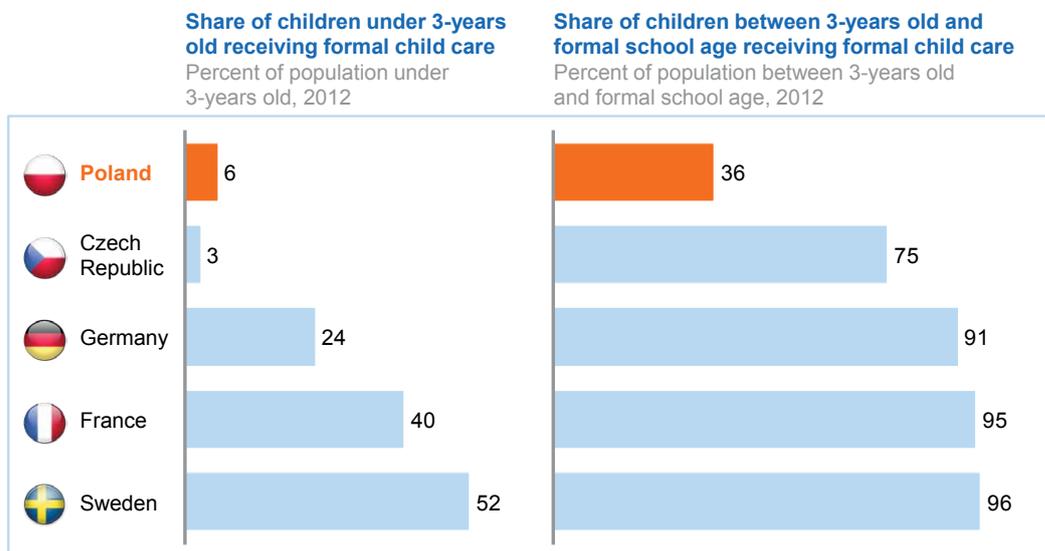


¹ Employed and unemployed
SOURCE: Eurostat; Organisation for Economic Co-operation and Development

Low female participation in the workforce usually correlates with the availability of child-care services. The gap in availability of nurseries between Poland and other reference countries is particularly striking. Only 6 percent of Polish children below 3 years of age are enrolled in some form of child-care institution, while the rate for Germany is 24 percent. In Sweden, parents are subsidized to stay home for the first 18 months of their child’s life; thereafter, most children are enrolled in child-care facilities. The gap is also large for the 3- to 5-year-old segment: only 36 percent of Polish children attend nursery school or kindergarten, compared with 95 percent or more in Germany and Sweden (Exhibit 36).

Exhibit 36

To increase the participation of women in the workforce, formal child-care support is needed



SOURCE: Eurostat

The Polish government has pledged that by 2017, public kindergarten will be made available to all children over the age of 3. This is an excellent development that will go a long way toward enabling more Polish women to participate in the labor force. A further step would be the promotion of nurseries and facilities for very young children, since the high cost of private care prevents many women from going to work.

While not exactly congruous, the examples of Denmark, Sweden, and the Netherlands can help Poland set its bearings for raising the numbers of women participating in the labor force. These countries succeeded in bringing women into the workplace by making day care more available. In Denmark, over 80 percent of infants and over 90 percent of 3- to 5-year olds are in regular child care. Consequently, Denmark has one of the highest employment rates in Europe for women aged 25–54 and one of the highest labor market participation rates for women (85 percent) in the OECD. In the short term, Poland would not be able to afford the same program that is available in Denmark, but it also cannot afford to ignore solutions that will bring more Polish women into the workplace.

Another path to explore are creative solutions that would allow a part-time career to be combined with family responsibilities. Polish laws address such arrangements, but they are rarely used. To make the choice more common, incentives for employers could be introduced. In the Netherlands a system of incentives both for employers and employees have helped roughly 60 percent of women work part time. As a result, the total labor market participation of women increased to 73 percent in 2010, from 32 percent in 1981.

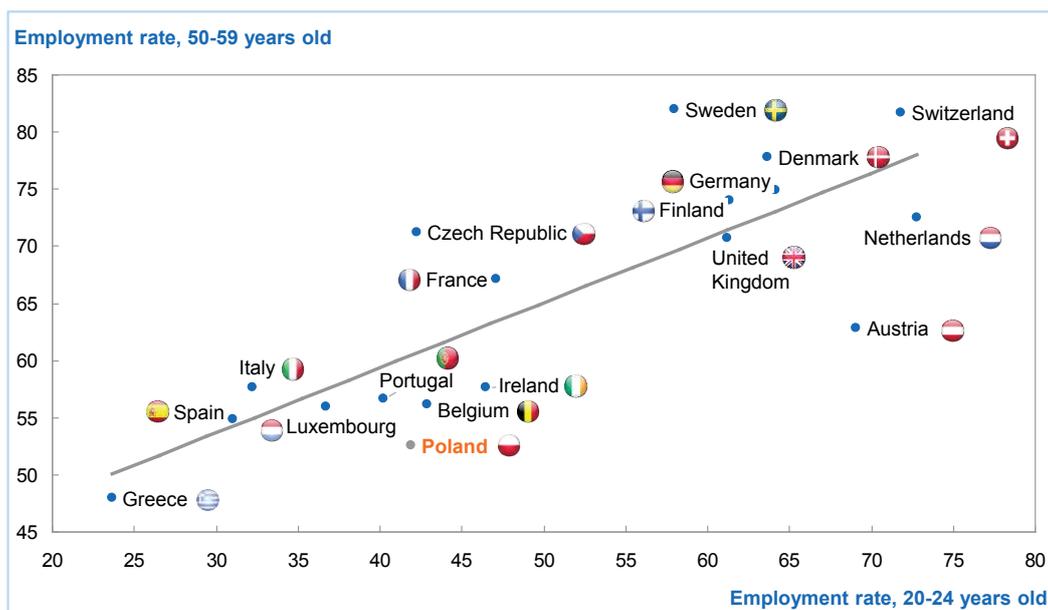
YOUTH AND YOUNGER WORKERS

Two other groups where labor market participation is relatively low are youth and younger workers (15 to 24) and older workers (55 to 64) (Exhibit 37).

Exhibit 37

Poland's labor participation rates are lower than in peer countries for the 20-24 and 55-59 age segments

2012, percent



SOURCE: Organisation for Economic Co-operation and Development

Low labor participation in the 20-to-24 age group is linked with the dynamic increase in higher education since 2005. The reforms in the education system led to an increase in the number of university graduates, a clear success for Poland. At the same time, policy makers have turned their attention away from vocational education. The quality of the vocational training plays a role in low youth labor force participation. Employers now find it hardest to recruit qualified blue-collar workers (Exhibit 38).

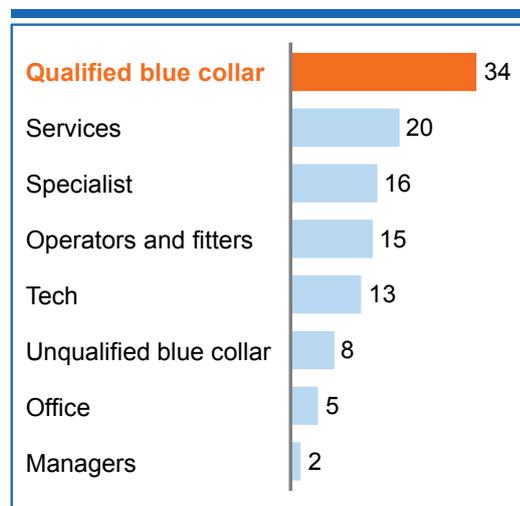
Exhibit 38

Almost 80% of employers had problems finding suitable candidates in 2013, especially for skilled blue-collar jobs

Percent of employers experiencing difficulty in finding suitable candidates to work



Occupations with the greatest difficulty in finding proper candidates to work, 2013



SOURCE: Badanie Kapitału Ludzkiego (Human Capital Research), 2013

Youth participation in the labor force has been problematic throughout the EU. Germany has sought to improve the situation through a dual vocational training system, which combines an academic education with hands-on professional training, guidance, and subsidies for young people looking for employment.

Among young people in Poland, the problem is serious, if not as dire as in Spain or Italy. Poland has 27 percent youth unemployment (the 15–24 year-old segment), while Spain's figure is 55 percent and Italy's is 40 percent. By comparison, the OECD average is 19 percent, while German youth unemployment is only 8 percent. Clearly Europe needs to take a close look at what Germany has been doing. Looking forward, vocational education programs based on the real market needs and economic forecasts will be needed in Poland.

Learning from the German experience, actions focused both on employer and employee to increase participation in vocational training could achieve results in a Polish context. An efficient approach would be to allow students to supplement their studies with training at the workplace. The success of such arrangements depends on the cooperation of academic and vocational schools, student willingness, and the involvement of employers.

The cooperation between schools and employers especially makes vocational schools attractive for potential students. Students are often not interested in vocational schools for the very reason that they foresee being unemployed after graduation. Cooperation between schools and employers would change this reality. Some 70 percent of young people in Germany secure a permanent job during their apprenticeships or other post-secondary training or within three months of graduation. Another way to encourage students to spend time in

vocational schools is to offer recognized professional certificates for graduates. To ease the financial burden of educational expenses, furthermore, scholarships can be introduced to promote building skills in areas most sought after by employers.

OLDER WORKERS

As with youth and younger workers, Poland's older workers have high unemployment. Among older women, low labor force participation is often caused by a low availability of child-care institutions, as older women are often taking care of their grandchildren as their daughters go to work.⁵ Another reason for fewer older workers is that some have taken advantage of early retirement options. Despite major changes in the early retirement law in 2008, early retirement is still an option for more than 600,000 employees. Another cause is that older workers can find it difficult to secure a job because of a perceived capability gap, longer learning curves, or supposed absenteeism.

In the Netherlands and the United Kingdom, efforts have been launched to increase employment for workers in the older segment. In the Netherlands, this group has an obligation to look for work after age 57½; the Dutch pension system already requires a minimum of 40 years of employment for full benefits. The United Kingdom experimented with training grants for older workers, as well as a tax-free wage top-up of GBP 60 per week for program participants working full time. Based on the experience in the Netherlands and the United Kingdom, Poland could develop measures in three areas.

- Remove early exit options for some workers (where worker safety is not a concern). Financial incentives to early retirement could be removed and a dedicated system of job-market advice and subsidies made available to older workers
- Address capability concerns with lifelong learning programs or with training tailored to the needs of older workers
- Improve the healthcare system so that it more effectively maintains the health of the employees, increases participation, and reduces sickness

New employment opportunities

Unemployment in Poland (around 10 percent) is still relatively high compared with Germany (5 percent), Austria (5 percent), and the Czech Republic (7 percent), but slightly below EU-15 (11 percent).⁶ In Germany the Hartz reforms were undertaken as part of a political initiative in the first decade of 2000's. The reforms were a systematic approach to improving the German labor market, and provide guidance on tackling unemployment. The unemployment measures included long-term training, wage subsidies, start-up subsidies, short-term training, and placement vouchers. The first three of them proved to be very effective.⁷

- Long-term training. Training can be particularly effective when it is of sufficient duration to transform a person's skills and when it results in a well-recognized certificate. In Germany, training that met both these conditions led to an increase in employment of 5 to 10 percent

5 Eurostat data indicate that across the EU, many women are prevented from entering the workforce full time or at all because of family responsibilities (child care or elder care); the number of men exiting the workforce for these reasons is insignificant; *Female Labour Market Participation*, Eurostat, ec.europa.eu/eurostat

6 Organisation for Economic Co-operation and Development statistics, 2013, oecd.org

7 *Evaluation of measures to implement the proposals of the Hartz Commission*, Federal Ministry of Labour and Social Affairs (BMAS), June 2006, bmas.de

- Wage subsidies. Partial wage subsidies are granted to employers that hire the long-term unemployed. In one study, wage subsidies were shown to increase employment to 70 percent in one group after 20 months in the program—40 percent higher employment than those outside the program
- Start-up subsidies. These can be granted to entrepreneurs in need of funding. The average subsidy in the German program is around EUR 10,000. Start-up subsidies have been highly successful: two years after initiation, 70 percent of formerly unemployed participants are still self-employed entrepreneurs. Some have even been able to hire others

Poland already has been approaching unemployment with tools similar to those used in Germany, with training and subsidies for entrepreneurs and for companies that hire the unemployed. Improvement in Poland can be expected with further experience, as training becomes better matched with changing labor needs and the certificates participants are granted become better recognized. Likewise, a system to monitor the effectiveness of interventions and adjust the portfolio of actions could emerge over time.

Migration policy

An effective migration policy is also necessary to sustain the growth of the Polish economy. The aim would be twofold: to encourage Polish nationals who emigrated to return and to increase immigration. Immigration needs to be coupled with an effective assimilation policy.

RE-EMIGRATION

In the previous decade, 1.5 million Poles emigrated to other EU countries. One million more departed before Poland became part of the EU. Together, the two groups add up to 2.5 million Poles living abroad, most of them working. The majority now reside in the United Kingdom, Germany, and Ireland but maintain strong links with Poland.⁸ The key reason they left was for jobs and higher salaries. Their return is highly dependent on the belief that their future will be secure in Poland, and that attractive job opportunities await. Additional impetus for their return would come from offering a better quality of life. This means better formal childcare and healthcare systems and a general alignment with EU social protections. As a practical matter, the reduction of administrative barriers to returning will also help a great deal.⁹ At the same time, a marketing campaign to attract Polish émigrés and support their return (including financial help) can be potential decision drivers.

If Poland were able to attract the 16 percent of the émigré population with the strongest ties to the country (family, property, etc.), the returning workforce would number 400,000.

IMMIGRATION

In 2012, approximately 200,000 foreigners were working in Poland temporarily; potentially double that number could be attracted to settle here by 2025. In fact, foreign workers are already serving Polish companies in large numbers. These workers typically do not take jobs away from Poles, but rather fill capability gaps—for example, in positions requiring specific technical or IT skills, and in positions requiring proficiency in certain languages.

8 “Kierunek + 48. Powroty do domu” (Country code +48.Homecoming), Polish Community Association, Warsaw, 2013, p. 10

9 “Reversing the brain drain: Poland tries to woo its young back home,” *Der Spiegel*, September 21, 2007, spiegel.de

Potential emigrants, who might be most interested in working in Poland, include Belarusians and Ukrainians, due to relatively low salaries in their countries and cultural proximity. Cultural proximity is also an important factor for potential employers. University graduates and technical experts could be recruited from these countries.



Conclusion

The outstanding growth of the Polish economy over the past 25 years has brought Poland to a developmental threshold. The country faces a choice for the next decade: to accept a business-as-usual scenario with limited growth of 2 percent-plus annually, or to adopt an aspirational scenario, with growth of more than 4 percent annually. Choosing one over the other would lead to vastly different outcomes. By taking the first path, the country would remain a regionally focused middle-income economy. By taking the second, Poland would become a main growth engine of Europe, competing successfully in a global market; the country would also experience major improvements in living standards, reaching levels of countries such as Spain, Slovenia, or even Italy in terms of GDP per capita in PPP.

To achieve this trajectory, however, important changes and investments are needed. The country's economic success so far has given the society the appetite to expend the effort needed to move into even higher levels of prosperity. In laying out an aspirational growth path, therefore, *Poland 2025* has described the areas of change that will have to be addressed to meet the steeper requirements of further progress.

Attention has been given to improving productivity growth in each sector of the economy, expanding Poland's high-potential sectors and accelerating smart development in high tech. As was explained in the dedicated chapters, different levels of expanded capital investment will be needed by sector, with focused efforts to realign resources and move operations up the value chain. In many sectors, significant modernization will be needed to bring Polish businesses to globally cost-competitive levels.

The aspirational scenario presented in *Poland 2025* can only be met by countering challenging demographics with a serious and many-sided effort to turn the tide on a stagnating labor force growth and offset the effects of aging populations. Here, the fate of the country's near-term economic status rests on its ability to mobilize women, youth, and older workers. Aligning labor skills with industry needs is also a growth prerequisite.

Related changes include aligning educational curricula with the needs of the expanding economy, extending the reach of Polish exports beyond Europe, and continually improving the overall business environment. Poland will also need to continue to improve infrastructure, simplify regulations that create barriers to growth, invest in education, and build more innovation capacity.

None of the goals set in the aspirational scenario in *Poland 2025* are unrealistic, but to achieve them, Poland will need a concerted nationwide improvement effort, with the joint participation of the key stakeholders: business, government, and academia. The challenges are many, but so are the country's strengths, deriving from its large and educated population, its geographic location, and its enviable macroeconomic stability. By designing a plan to grow according to these strengths, Poland is poised to become, in the next decade, one of Europe's strongest engines of growth as well as a dynamic force in the global marketplace.

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