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Lean Russia

Sustaining economic growth through improved productivity

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McKinsey Global Institute

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Lean Russia: Sustaining economic growth through improved productivity

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The study

Leveraging productivity is a key driver to Russia's sustained economic growth. This study, conducted by the McKinsey Global Institute (MGI) and McKinsey & Company's Moscow office, explores the significant productivity gains that Russia can achieve. The analysis suggests priorities and approaches the government and business can take to capture this opportunity. By doing so, Russia will ensure sustainable economic growth and increased competitiveness.

This study primarily focuses on labor productivity, which we calculate as output per employee or, for the economy as a whole, GDP per employee.

McKinsey identifies, quantifies, and ranks the opportunities for productivity gains in five sectors that are the key to Russia's economic development: residential construction, retail banking, retail, electric power, and the steel industry. The analysis compares the productivity—the efficient use of labor and capital—in these sectors with that of benchmark countries and uses a bottom-up approach to quantify productivity gaps.

The study employs proven methodology used in multiple productivity studies around the world by MGI and leverages the knowledge and experience of McKinsey's team of professionals in Russia.

We would like to acknowledge the specific contribution of McKinsey consultants and partners—Ruslan Alikhanov, Avetik Chalabyan, Valentin Gavrilov, Odd Christopher Hansen, Maria Kaloshkina, Roman Podkorytov, Dmitry Popov, Sergey Shelukhin, Alex Sukharevsky, Stephan Solzhenitsyn, Denis Tafintsev, and Viacheslav Vladimirov. Diana Farrell and Martin Baily also deserve special recognition.

Preface

What a difference a decade makes. When the McKinsey Global Institute (MGI) published its first study of Russian productivity in 1999, the country had just ended the long economic decline following the collapse of the Soviet Union. The country had defaulted in August 1998, and the ruble had plummeted. Russia's GDP had fallen by more than 40 percent in eight years, and capacity utilization had plunged to less than 50 percent.

Prior to the current global economic crisis, Russia appeared to have undergone substantial economic transformation since the late 1990s. Russian GDP grew at an average 7 percent annually between 1998 and 2007, vaulting Russia from 72nd to 53rd in the world in terms of wealth. Wages increased dramatically, driving up disposable income by 26 percent per year in nominal terms.

However, the global crisis has called into question many of the assumptions made about the sustainability of Russia's economic development since 1999. Much of the economic growth over the past decade was relatively "easy"—the economy was expanding by using existing capacity that had been underutilized during the previous downturn. Future growth will need to come from higher productivity—making more and better use of available labor and capital resources. A *lean* Russia is the best path to sustained economic growth and long-term competitiveness.

Transforming Russia into a lean economy will require the resolve and dedication of government and industry leaders alike. It will require common-sense approaches, such as reorienting some business processes, and substantial initiatives including rethinking investment strategies in certain sectors, such as the electric power industry. It will also require better regulation and increased efficiency in the public sector, including leaner and more efficient government at all levels and improved productivity in state-owned companies.

Increasing productivity, as the current economic crisis indicates, is no longer a nicety but a necessity for recapturing and sustaining economic growth in Russia. *Lean Russia: Sustaining economic growth through improved productivity* provides insight into the reasons for Russia's current low productivity as well as practical solutions for achieving a new growth paradigm of increased efficiency and productivity.

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Moscow, April 2009

Executive summary

The level of labor productivity is not only an economic problem, but also one of the most important social and values issues... We need a system of interconnected and long-term measures, first of all, we need to build a new model of production organization.[1]

D. A. Medvedev

The main problem for the Russian economy today is its extreme inefficiency. Labor productivity remains at an extraordinarily low level … The main sectors of the Russian economy should achieve at least a fourfold increase in this indicator within 12 years.[2]

V. V. Putin

Labor and capital productivity are critical to economic growth. Yet productivity in Russia remains low. The average productivity of the sectors analyzed in this report is only 26 percent of that in the United States. That is why Russia's political leaders have identified increasing productivity as a crucial element if the government is to meet its ambitious target of doubling the country's per capita GDP by 2020. To achieve this goal, Russia would need to increase its labor productivity by some 6 percent each year.

The productivity imperative has become even more important because of the impact of the global financial crisis on Russia. The reversal of the favorable external conditions that were the main drivers of Russia's growth demonstrates that the economy continues to suffer from underlying weaknesses, compromising the economy's ability to fund growth, at least in the short term.

This study examines the productivity of five sectors critical to Russia's economy and finds three key shortcomings common to all:

1. **Inefficient business processes** account for 30 to 80 percent of the productivity gap with the United States depending on the sector. The greatest opportunity to increase productivity is to redesign processes and implement best-practice lean operations.
2. **Obsolete capacity and production methods** are mostly evident in the electricity and steel sectors. Almost 40 percent of Russian thermal generation is considered obsolete, and 16 percent of steel plants use outdated open-hearth furnaces. Across the sectors, obsolete capacity and production methods account for 20 to 60 percent of productivity gaps.
3. **Structural differences** in the Russian economy are a less significant factor, accounting for 5 to 15 percent of the gap. Such structural differences include smaller loans and deposits in retail banks due to Russia's lower income levels, and traditionally low demand for high value-added products in steel.

1 April 8, 2009, President of RF Dmitry Medvedev's speech at the meeting with representatives of Russian Union of Industrialists and Entrepreneurs.

2 Speech delivered by Vladimir Putin on February 8, 2009, to an expanded session of the State Council on "Russia's Development Strategy to 2020."

Policy makers and companies need to act together to tackle the drivers of low productivity by implementing the following initiatives:

Increase competitive intensity. The variation in productivity from industry to industry largely reflects the level of competition within each sector. Retail and steel, which have the highest productivity among sectors studied, are the most competitive of the five, with no government-owned enterprises. Electric power is at the other end of the spectrum—it was a monopoly until recently, and competition in electricity generation was introduced only in 2008. Policy makers should eliminate regulatory and administrative barriers and create a level playing field across industries.

Dramatically improve business processes. Russian regulatory procedures and processes are often overly complicated and time-consuming, and exert unnecessary control over some functions. This creates a barrier to the creation of leaner business processes. At the same time, Russian companies suffer from low levels of automation, technology, and project management skills, as well as an overabundance of unnecessary functions and processes. Policy makers should focus on eliminating unnecessary regulations. Business leaders should implement best-practice lean processes, build world-class leadership, and strengthen performance management.

Improve professional education and training. Despite high literacy rates and excellent technical education, a lack of project management, leadership and specialty skills is evident in some of the sectors studied. Adjusting curriculums to global best-practice standards as well as increasing the practical component in relevant courses would improve skill levels throughout the economy.

Launch labor mobility and social-protection programs. Labor mobility is essential for reallocating labor as productivity improves. Today a range of infrastructure, housing, legal, and cultural barriers hinder labor mobility. Federal and local government and businesses can facilitate the reallocation of labor by, for example, focusing on regional economic development initiatives that create new jobs. Enhanced job placement services and improved social programs will also aid in the mobility of the country's labor resources.

Minimize expected decline in workforce. Russia's high death rate in the working-age population could be reduced significantly even in the relative short term if appropriate government action is taken. Policies aimed at improving health care, supporting targeted immigration, and increasing the number of youth, women, and pensioners in the workforce could limit the expected decline in the workforce.

Implement an integrated approach to urban and regional planning. A lack of effective planning increases the uncertainty and risks of development projects in all of the sectors studied. Developing and ensuring effective implementation of general plans for cities and regions, as well as creating a unified database of land plots, would minimize time required to obtain permits and approvals and hence increase productivity.

Develop a viable financial system. A comprehensive financial infrastructure, including, for example, the creation of credible rating agencies, and more developed financial instruments, along with stimulating long-term savings and restructuring the banking system, would enable Russia to pool domestic and capital resources more effectively as well as increase the efficiency of their allocation.

Russia today needs a new growth paradigm based on increased efficiency and productivity. Today's economic crisis provides both a compelling opportunity and much-needed incentive to finally address Russia's productivity challenge for the benefit of long-term economic sustainability.

Why is productivity the key for economic growth?

The productivity level at which labor and capital are put to work is the primary driver of per capita GDP and the wealth of any given country. Study after study has proved that productivity increase is the single largest factor explaining sustained economic growth and accumulation of a country's wealth. In effect, every time a company increases its productivity, it generates an economic surplus, which it can then distribute to consumers in the form of better products and/or lower prices. The company can also distribute this surplus to employees in the form of higher salaries, or to investors if increased profits are reinvested.

In its simplest form, wealth—measured as per capita GDP—can be understood as labor participation times labor productivity. Labor participation is the number of people employed as a share of the total population. Labor productivity is the amount of value-added output produced per employee. The amount of labor—in terms of employees or person-hours—differs from country to country and can vary over time. But differences are usually rather small. For example, in Russia hours worked per employee are almost the same as—or perhaps even a bit more than—in the United States. But for each person employed or person-hour worked, the Russian economy produces only a third of that of the US economy. This clearly illustrates that increasing productivity—output per hour worked and output per ruble of capital invested—is the key to achieving sustained economic growth.

Lean Russia: Sustaining economic growth through improved productivity

- Improved productivity and positive demographic factors were responsible for Russia's economic performance over the past decade.
- The sources of Russia's recent economic prosperity were close to being depleted even before the onset of the current crisis.
- A new productivity-based growth paradigm is required to fulfill Russia's ambitious economic aspirations.

During the past decade, the Russian economy has experienced dramatic growth. When McKinsey launched this analysis in summer 2008, Russia appeared to be a different country than when the first MGI study on Russia's productivity, *Unlocking Economic Growth in Russia*, was published in 1999.[3]

GDP grew at an average of 7 percent a year between 1998 and 2007.[4] This has vaulted Russia from 72nd in the world in terms of wealth in constant terms to 53rd in 2007. Wages increased dramatically, driving up average disposable income by 26 percent per year in nominal terms.

Labor productivity was by far the most important component of Russia's economic renaissance from 1998 to 2007 (Exhibit 1). Labor productivity grew an average of 6 percent per year over this period, accounting for two-thirds of the expansion in per capita GDP.

In this decade, Russia's productivity has grown from only 18 percent of the US level in the ten sectors studied in the 1999 report to an average of 26 percent in 2007 in the five sectors examined in this analysis.[5] If we rank the sectors analyzed from the highest to the lowest as a percentage of the productivity of their US counterparts, Russian labor productivity stands at 33 percent of the US level in steel; 31 percent in retail; 23 percent in retail banking; 21 percent in residential construction; and 15 percent in electric power (Exhibit 2).

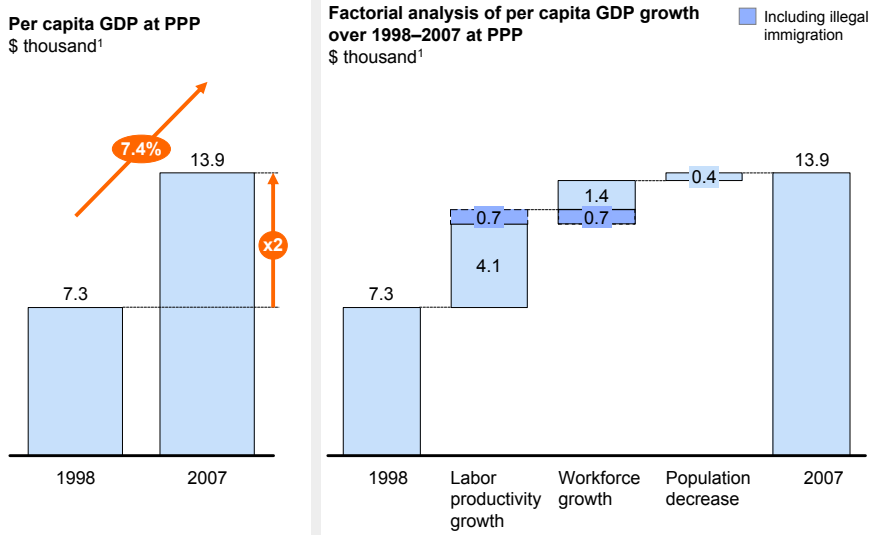
3 The Russian version had a similar title: *Russian Economy - Growth is Possible*. The sectors covered in the 1999 report were food retailing, general merchandise retailing, hotels, software, residential construction, oil, steel, dairy, confectionary, and cement.

4 Growth figures are price adjusted, hence eliminating at least the direct effect of growing commodity prices. GDP is calculated using the 2005 price index.

5 A similar benchmarking of labor productivity based upon official, macro-level data suggests that Russian productivity was 30 percent of the US level in 2007. The discrepancy with our bottom-up estimates is due to the exclusion of relatively high value-added sectors, such as oil and mineral extraction, and differences in accounting techniques, as our estimates are bottom-up and based mostly upon physical indicators.

Exhibit 1

Russia's economy has been growing rapidly over the last decade

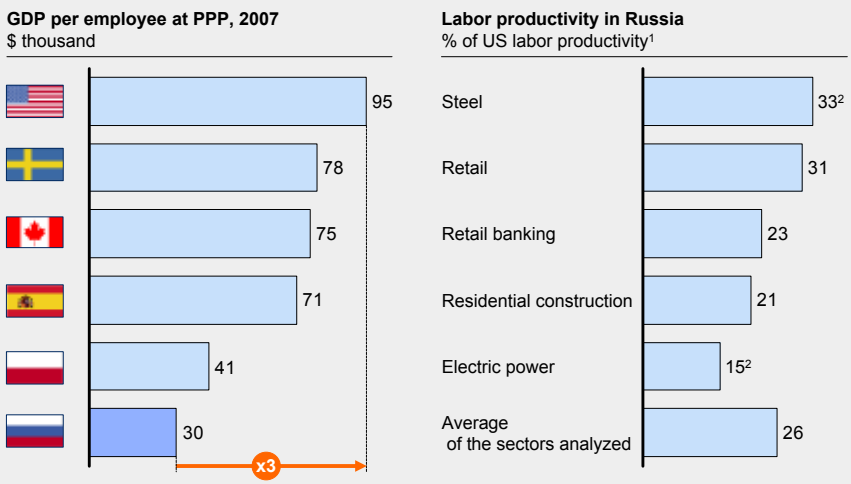


1 2005 real prices

SOURCE: Global Insight; Ministry for Economic Development of the Russian Federation; McKinsey analysis

Exhibit 2

Labor productivity in Russia is low



1 US data are valid for the following dates: retail, 2007; steel, 2007; retail banking, 2006; residential construction, 2002; and electric power, 2006
2 Total factor productivity in electric power is 80 percent; in steel, it is 54 percent

SOURCE: Global Insight; Economist Intelligence Unit; IMF; Rosstat; McKinsey analysis

Overall, the increase leaves labor productivity 1.7 times higher than it was ten years ago, a significant improvement particularly given the fact that US productivity was growing at that same time. The vast majority of improvements in Russia's labor productivity were due to increased utilization of existing capacity.

Increases in Russia's workforce accounted for almost one-third of growth in per capita GDP in real terms over the past decade. Between 1998 and 2007, Russia's workforce grew by an estimated 13 percent due to falling unemployment, increases in the working-age population, and a major influx of immigrant labor.

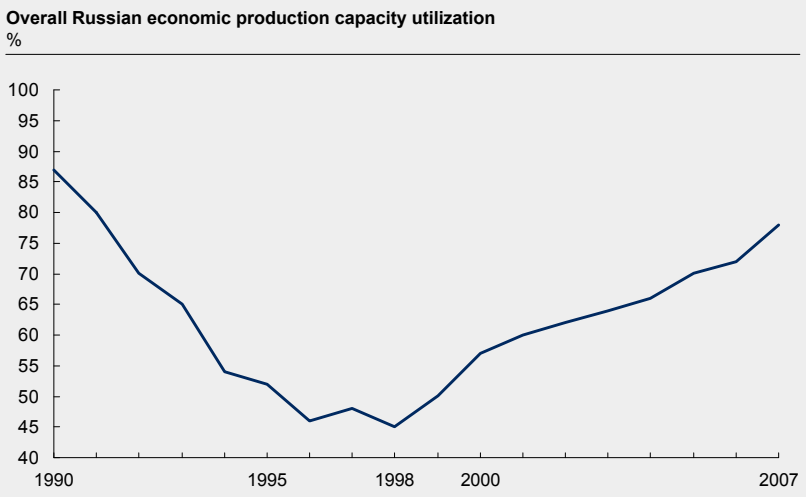
A NEW PARADIGM OF ECONOMIC GROWTH

Even before the current global economic crisis, these factors were no longer sufficient for Russia's continued economic growth. Russia had largely used up any excess capacity in the economy and demographic trends were reversing.

Capacity utilization, which was 45 percent in 1998, was approaching an estimated 80 percent in 2007 (Exhibit 3). In both steel and electricity, for instance, output grew by 70 and 25 percent respectively from 1998 to 2007, while neither industry added much new capacity. At the same time, the economy was not creating significant new capacity, indicating that serious bottlenecks were forming in the economy.

Exhibit 3

Capacity utilization has risen sharply since 1999



SOURCE: Rosstat; The Institute of the Economy in Transition; Renaissance Capital

The working age of Russians as a share of total population has already peaked and is now set to decline. In fact, Russia's labor force could shrink by as much as 10 million people by 2020 (see "Russian demographics and the labor force").

Russian demographics and the labor force

The country's population has been decreasing since the collapse of the Soviet Union, dropping by some 6 million since 1991. The sharp decline in Russia's population has not, however, translated into a smaller workforce because of a large inflow of legal and illegal immigration and an increase in the working-age population. The amount of labor employed grew by an estimated 13 percent, or as many as 9 million people (some 3 million due to demography), during the economic boom from 1998 to 2007.

The demographic drivers are now reversing, and the working-age population may decline by as much as 10 million people by 2020. Unless there is a change of policy, Russia could face a labor shortage. The main characteristics of the Russian demographic situation are:

High death rate. While Russia's birthrate is in line with Western European levels, the male death rate (up to 2005) is higher than levels in sub-Saharan Africa, while the death rate among women is double that typically found in Europe. Up to one-third of male deaths and 18 percent of female deaths each year are alcohol-related. An additional 15 to 16 percent of deaths are tobacco-related. Today, alcohol and tobacco are among the least expensive and most accessible products in Russia. Russia also has a high rate of violent deaths, including one of the highest suicide rates in the world, and a high prevalence of diseases related to dangerous workplace conditions.

Increasing immigration. Over the past decade, the Russian labor market has benefited from an influx of immigrants, mostly from neighboring post-Soviet economies. The government estimates that 6 million migrant workers were employed in 2007, although the actual figure is probably higher.

Relatively low pension age. At 60 years for men and 55 years for women, Russia has one of the lowest pension eligibility ages in Europe, matched only by that of Turkey.

Low labor participation by young people and women. Russia's labor participation rate (those currently employed or seeking work) of 71 percent is relatively high compared with other countries, but global best practices suggest that the rate could be higher if more young people and women were to join the workforce.

Immediately before the crisis, the Russian government established an ambitious goal to double per capita GDP by 2020. To reach that target, Russia would need to increase labor productivity by 6 percent per year—and double it overall. No large country has increased per capita GDP from $14,000 to $30,000 in less than 20 years. At the same time, Russia has the advantage of being able to adapt and replicate best practice from other countries that have successfully boosted their productivity (see “The economic crisis is an opportunity and imperative for productivityimprovements”).

What would doubling of labor productivity mean in key industry sectors? In retail banking, Russian productivity levels would be slightly above those in Poland, and would require that electronic payments increase by 150 percent and that half of all payments be performed outside of a bank branch. In residential construction, Russia would have to close half of its productivity gap with Canada and Sweden. In retail, the share of modern formats would have to increase fivefold.

The economic crisis is an opportunity and imperative for productivity improvements

The global financial crisis, which began with the collapse in the US subprime mortgage market in 2008 and turned into a global credit crunch and recession, has had a significant impact on Russia. The financial crisis hit the country in the form of capital outflows, liquidity problems, stock market declines, and rapidly decreasing commodity prices, which finance about 35 percent of the government budget. The country's industrial output fell by 16 percent in January 2009 compared with January 2008. The Ministry for Economic Development of the Russian Federation projects GDP to decline by 2.2 percent in 2009 and inflation to rise to 13 to 14 percent.[6] Following the decline in industrial output, the utilization of production capacities also fell dramatically. In the steel sector, for example, utilization is at approximately 50 percent, the level it was at in 1998.

To speed up recovery from the economic downturn, Russia needs to take a long-term strategic approach to increase the economy's competitiveness and efficiency. The current crisis creates an even stronger rationale for addressing Russia's productivity—the country cannot afford the luxury of inefficiency and waste, as it could in the past decade of rapid economic growth and sustained international demand. At the same time, the crisis offers Russia an opportunity to put in place fundamental policies and practices essential to sustainable long-term growth.

Responding to the crisis, the Russian government has rightly focused on liquidity, economic stimulus, and employment. However, the country would also benefit from implementing policies aimed at increasing productivity and efficiency throughout the economy—policies that would spur both short-term economic recovery and long-term sustainable economic growth.

6 Ministry for Economic Development of the Russian Federation, March 2009

BETTER USE OF LABOR RESOURCES TO INCREASE PRODUCTIVITY

Russia is concerned that improving labor productivity would lead to large-scale unemployment. Our analysis, however, finds that this concern is not justified in the long-term. The challenge that Russia faces is that of facilitating labor mobility, both among geographic regions and between sectors. Other benchmark countries that boosted their per capita GDP to the same extent as Russia now faces also experienced a shift of employment between sectors, particularly into financial, business, and trade services.

Our sectoral analysis underscores this conclusion. Retail and retail banking need to attract additional personnel as well as reallocate personnel more efficiently within their sectors. Meanwhile, steel and electric power both have excess employment and, even assuming their capacity expands, they can redirect some of their labor to other sectors. Residential construction will be a major employer, especially considering the highly ambitious output goals for 2020. However, it is uncertain whether that sector will require more labor, given the large percentage of unofficial workers in the sector.

Drivers of low productivity

The study identified the following key drivers of low productivity in Russia:

- Lack of operational excellence
- Inefficient, burdensome regulations and standards
- Outdated capacities and production methods
- Lack of effective urban development planning
- Misalignment of professional skills
- Underdeveloped financial system

The productivity gap with benchmark countries is largely a result of low incentives to make productivity improvements. Structural differences in Russia's economy also have an impact on productivity in the sectors studied.

LACK OF OPERATIONAL EXCELLENCE

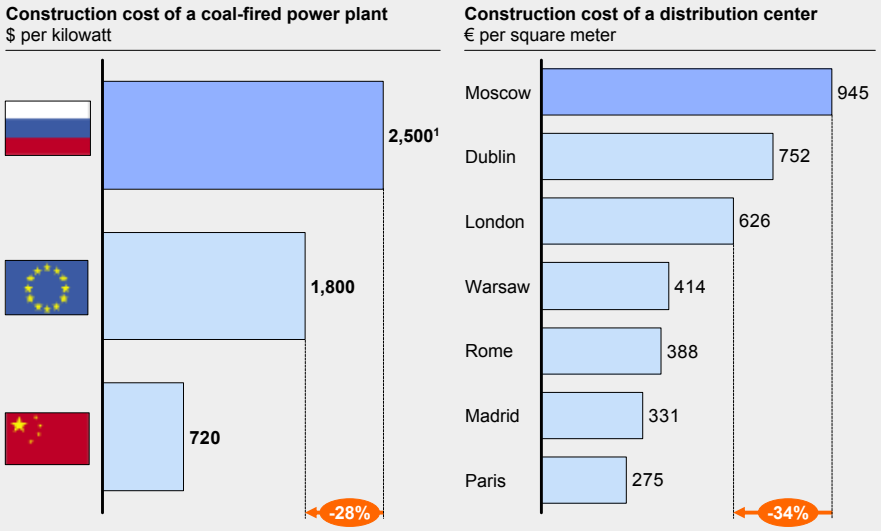
Inefficient business processes account for a large share of the productivity gap in all five sectors studied. For example, in retail banking, centralizing back-office functions is the key to increased productivity.[7] Yet the majority of Russian banks have not centralized back-office and administrative functions, credit sanctioning, or collection.

Inefficiencies in project management and purchasing also make capital investment in Russia significantly more expensive per unit than similar projects in other countries. The construction of a coal-powered electricity plant can cost 25 to 40 percent more than in the United States and Europe and 3.5 times as much as in China (Exhibit 4). These inefficiencies, if they continue, will compromise Russia's capital productivity and competiveness; facilitate the persistence of obsolete, less-productive capacity; and have an indirect effect on labor productivity.

7 See Turkey: *Making the productivity and growth breakthrough*, McKinsey Global Institute, February 2003 (http://www.mckinsey.com/mgi/publications/turkey/index.asp).

Exhibit 4

Capital investments in Russia are more expensive than similar projects in other countries



1 Project estimates of several energy companies, 2008

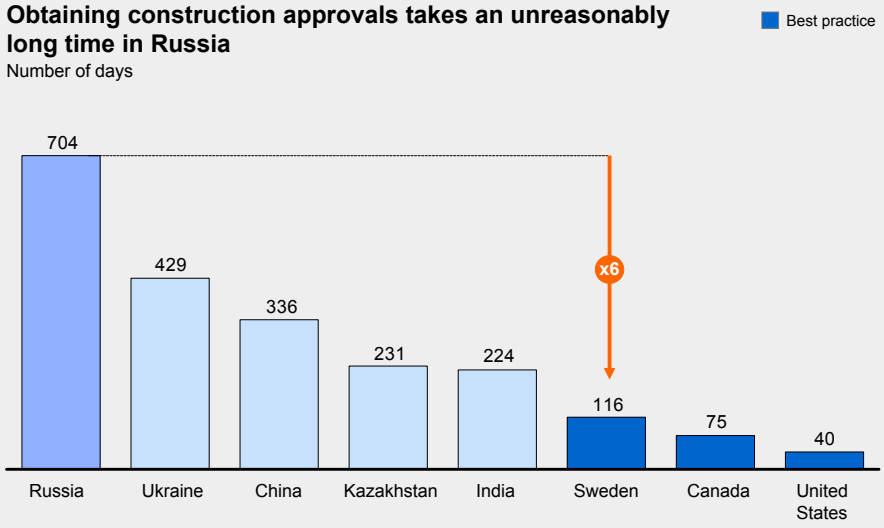
SOURCE: Renaissance Capital, steel business briefing; Economist intelligence unit; companies' data; experts interviews, Ministry for Economic Development of the Russian Federation; McKinsey

INEFFICIENT, BURDENSOME REGULATIONS AND STANDARDS

Russian regulatory procedure and processes are often overly complicated and time-consuming, and exert unnecessary control on some functions. This creates a barrier to leaner business processes. The World Bank, for instance, found that it takes six times as long to obtain necessary construction approvals in Russia as it does in Sweden, and about double the time it takes in developing economies (Exhibit 5).[8]

Exhibit 5

Obtaining construction approvals takes an unreasonably long time in Russia



1 The World Bank's research gives examples of permits needed for construction of a two-storey warehouse. The resulting estimates correspond to the interview data on construction of multifamily houses in Russia

SOURCE: Dealing with construction permits; World Bank, 2008; expert interviews; McKinsey analysis

8 *Dealing with construction permits 2008*, World Bank.

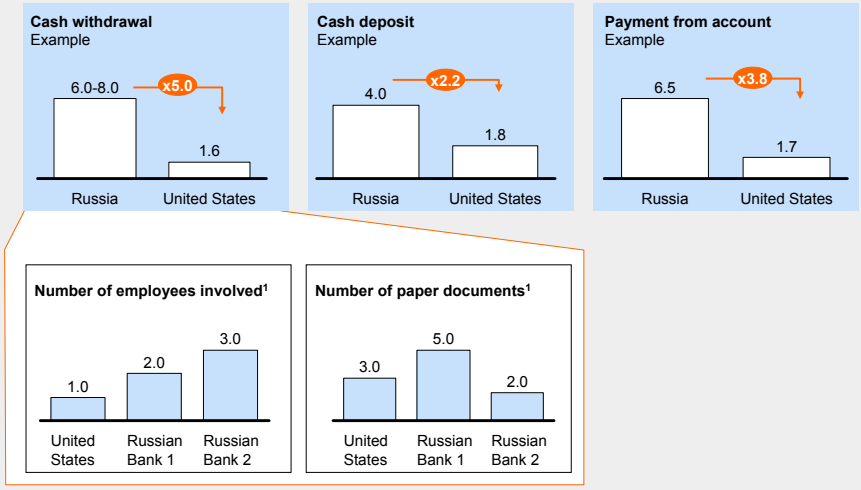
Another example is in retail banking. While only one teller is involved in processing cash deposits in the United States, Russian regulations require at least two employees—one teller and one cashier. In some banks, even more employees are required to monitor and approve cash deposits. As a result, even in best-practice Russian banks, such simple transactions take two to five times as long as in the United States (Exhibit 6).

Regulatory standards, which have not been revised for decades and do not reflect modern conditions, also hinder productivity. Regulatory standards for maintenance in the electric power industry are one such example.

Exhibit 6

Processing transactions take much longer in Russia than in the United States

Minutes



1 Based on data from large Russian and American banks

SOURCE: Information supplied by client; McKinsey analysis

OBSOLETE CAPACITY AND PRODUCTION METHODS

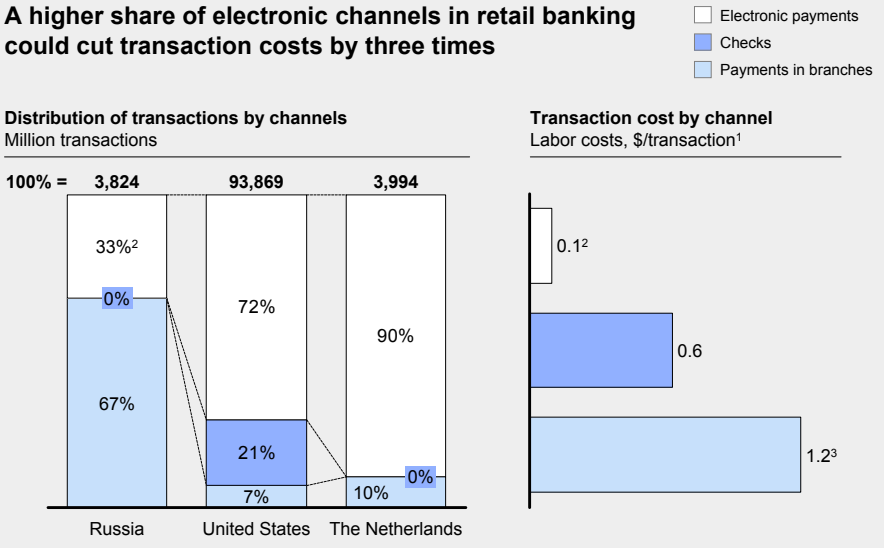
MGI's 1999 study found that much of Russia's production capacity, which was seriously outdated due to almost 20 years of underinvestment, was primarily responsible for low productivity. The same holds true today. Almost 40 percent of Russia's thermal electric stations, for example, are more than 40 years old. This compares with 28 percent in the United States, 12 percent in Japan, and only 3 percent in China. More than 16 percent of Russia's liquid-steel production is still produced using outdated open-hearth furnaces, which are half as efficient as basic-oxygen furnaces in terms of person-hours per tonne produced. In other steel-manufacturing countries, open-hearth furnaces have virtually disappeared.

In retail, modern outlets have made substantial inroads thanks both to government action and consumer preference. Nonetheless, the penetration of modern formats in Russia remains low, accounting for only about 35 percent of total food sales compared with more than 70 percent in Western countries. The low penetration of modern formats accounts for 44 percent of Russia's productivity gap with the United States.

Russian retail banking is another example of outdated methods of production. Transacting payments electronically via ATMs, Internet banking, and payments in stores using debit and credit cards is 12 times more labor-efficient than handling these transactions manually in a bank branch. Yet 67 percent of payments in Russia occur in bank branches, compared with 10 percent in the Netherlands and 7 percent in the United States (Exhibit 7). This is not due to a lack of electronic payments infrastructure. Russia has roughly the same number of ATMs per capita as other European countries, and the number of electronic payments has been increasing. Rather, the persistent use of bank branches reflects the complexity of using electronic channels, combined with a cultural hangover from Russia's cash economy. The low use of electronic transactions accounts for 25 percent of Russia's labor productivity gap with US banks.

Exhibit 7

A higher share of electronic channels in retail banking could cut transaction costs by three times



1 United States benchmarks from 2007
2 Including transactions through ATMs, the Internet, and other automated payment channels
3 Including transactions in banks' and post office branches

SOURCE: McKinsey analysis

Innovation, productivity, and Russia's economic development

Innovation is at the center of Russia's economic policy discourse. Indeed, Russia's growth targets were initially dubbed the "innovation scenario." So what exactly is innovation, and what is its relation to productivity?

There are two types of innovation. Technological innovation improves productivity by introducing new equipment or production technologies through either adaptation of existing technologies or invention. Managerial innovation increases productivity by introducing new business processes or managerial practices with limited involvement of equipment and technologies, except for IT.

Russia has established, as an economic priority, a goal to be one of the world's technological leaders. This aspiration, however, is likely to have more impact on the country's prestige than on its sustainable economic growth. Even a doubling of Russia's share of high-tech industries by 2020 would not make them major engines of economic development. High-tech is important, of course, but its capacity to generate jobs is limited.

Innovation based on new technology tends to follow three stages: introduction (implementation of a new product or process by an innovating company); diffusion (adoption of the innovation by others); and scaling (ongoing productivity improvements as the scale of usage increases). Anecdotal evidence suggests that Russia faces its greatest challenges in the second and third stages. And it is not the lack of innovative ideas coming from Russia's research centers. The challenge, instead, is the slow rate of diffusion of the more efficient and higher value-added innovations among Russian businesses.

Based on our sector case analyses, the highest potential impact on Russia would be to speed up the rate at which best practices are adopted. It is also the most cost-effective approach. The inefficient organization of business processes is a key factor explaining productivity gaps throughout all five sectors. In steel and electric power, for example, productivity can be increased by replacing outdated and subscale capacity with non-revolutionary production technologies. Indeed, this "catch-up" effect is the only way Russia can make the transition to higher productivity in a decade rather than the 25 years it has taken in other large countries.

This is not to say that Russia should put aside its pursuit of innovation based upon the invention of new technologies, but rather that development policies should recognize that at least 90 percent of productivity improvements will come through more mundane innovations. The pursuit of productivity development through managerial innovation and the import of higher-productivity technologies are not mutually exclusive from the creation of new technological solutions. Ensuring faster diffusion and scaling will also increase the benefits from Russia's future innovations.

LACK OF EFFECTIVE PLANNING

Russia today lacks a comprehensive system of urban and regional master planning, including planning for the development of infrastructure—a prerequisite for efficient economic development. The law requires municipalities to have urban development master plans, but only one-third of Russian cities have approved such plans. Moreover, planning responsibilities are often split among different agencies, leading to a lack of coordination between urban development and infrastructure planning. The lack of planning increases the uncertainty and risks of development projects, prolongs the time required to obtain permits and approvals, lengthens land rezoning procedures, and deters the creation of public-private partnerships in urban and infrastructure development.

MISALIGNMENT OF PROFESSIONAL SKILLS

Russia has high literacy rates and excellent technical education. As a result, its labor force is generally higher skilled. However, the 1999 MGI report found that a shortage of management skills was acting as a secondary cause of lower productivity. Ten years of management training—on the job and off, and inside Russia and overseas—has improved the situation significantly, but the latest study still finds skill shortages in some sectors and job categories.

By far the largest gap, evident in all five sectors studied, appears to be in project management skills. This is due largely to insufficient recent experience in managing large capital projects, reflecting 20 years of underinvestment. There is also a lack of plant design and construction—and only a nascent engineering procurement construction contractor market—in the electric power sector, whose capacity has expanded by only a limited amount over the past 18 years. In steel, even recent graduates tended to lack the necessary project-management, teamwork, and leadership skills as well as foreign-language capabilities to oversee technological modernization projects.[9]

Upgrading outdated educational programs will help to address this shortfall. Many students in design management in residential construction, for instance, still use equipment dating to the 1950s and follow an outdated curriculum on topics such as designing to cost.

UNDERDEVELOPED FINANCIAL SYSTEM

Between 1998 and 2007, Russia invested only 19 percent of GDP in fixed assets, considerably less than the share in both developed and developing countries. In 1999, MGI estimated that Russia could double its living standards, even while maintaining relatively low investment levels. The picture in 2007 is quite different.

Whereas the economy had plenty of spare capacity in the late 1990s, just before the crisis the economy was nearing a situation in which bottlenecks were developing in key sectors such as power generation and steel. Aware of this likelihood, the Russian government and private companies announced ambitious investment plans, many of which have been downsized or put on hold as a result of the financial crisis. The fact remains that if Russia is to meet its development goals by 2020, the country will need average annual investment levels of 25 to 30 percent of GDP.

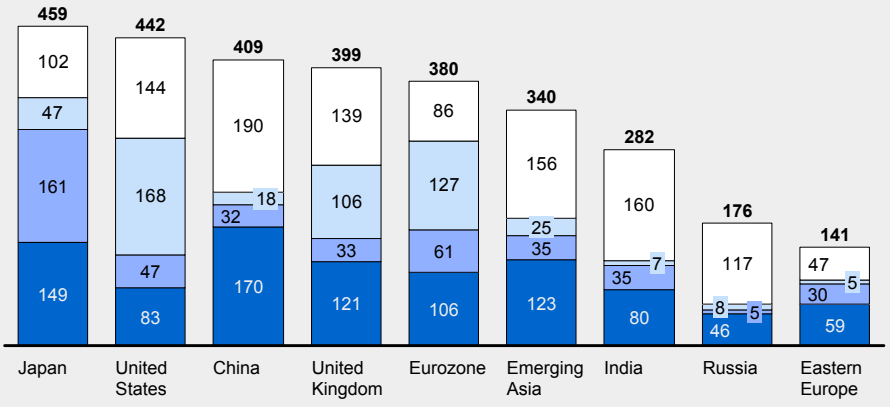
9 Dmitry Livanov, *The Deficit of Qualified Personnel in Metallurgy*, Sixth Metallurgical Summit in Moscow, 2006.

Russia's significant underdevelopment in financial markets, however, will make achieving this a challenge. Prior to the crisis, Russia's financial stock's share of GDP had grown significantly but still lagged behind that of developed countries and major developing economies (Exhibit 8). Underdevelopment is particularly noticeable in debt markets; long-term assets are practically nonexistent.

Exhibit 8

Russia's financial stock lags behind that of other developing economies

Value of financial assets as a percentage of GDP, 2007
Variable exchange rates; %



Note: Figures may not sum due to rounding

SOURCE: McKinsey Global Financial Stock Database; Global Insight

Although foreign capital flows to Russia were growing steadily prior to the financial crisis, Russia had still received a relatively small portion of global foreign direct investment flows between 1998 and 2007 (an average of 6 percent per year). Moreover, the country and its banking system are considered to be among the riskiest in the world. Although Russian savings have been boosted by government surpluses and the creation of a stabilization fund, most of these savings have bypassed the domestic financial system.

A LACK OF INCENTIVE FOR PRODUCTIVITY IMPROVEMENT

The overwhelming reason that Russia's productivity gap with benchmark countries persists is a lack of incentive to achieve improvements. Over the past decade, two major factors have contributed to this inertia—favorable market conditions, which have deterred many businesses from making necessary changes, and underdeveloped competition in key sectors.

Favorable market conditions. Because of the unprecedented growth of the past decade, many companies have been able to focus on expansion rather than efficiency. Russian retail, for instance, has grown at an annual rate of 24 percent, and retail banking has grown even faster with risk-adjusted annual revenue growth of 66 percent between 2000 and 2006. In such times of economic growth, the impact of productivity improvements is marginal compared with fast-growing revenue. Therefore there has been little impetus for companies to improve their efficiency.

Moreover, historically Russia has enjoyed cheap labor and other costs. Prior to the financial crisis, labor costs had started to rise and some companies began to pay attention to optimizing efficiency. The crisis will most likely have a twofold effect: while it may slow the increase in labor and other costs and therefore the incentive toward higher efficiency, it will probably also stimulate competition in all sectors.

Underdeveloped competition. The 1999 MGI report found a lack of a level playing field in certain sectors, which inversely correlated to productivity. This situation persists today.

Selective regulation and enforcement, and the favorable treatment of (quasi-) monopolistic players, lead to a situation in which competition among market players hinges not on their performance but on their access to officials to provide approvals and government funds. The Russian government has taken notable steps to address the lack of competition in certain sectors—the privatization and liberalization of electricity generation being a prime example. Given the current crisis, in which direct or indirect government ownership is poised to grow, such competition issues bear especially close observation.

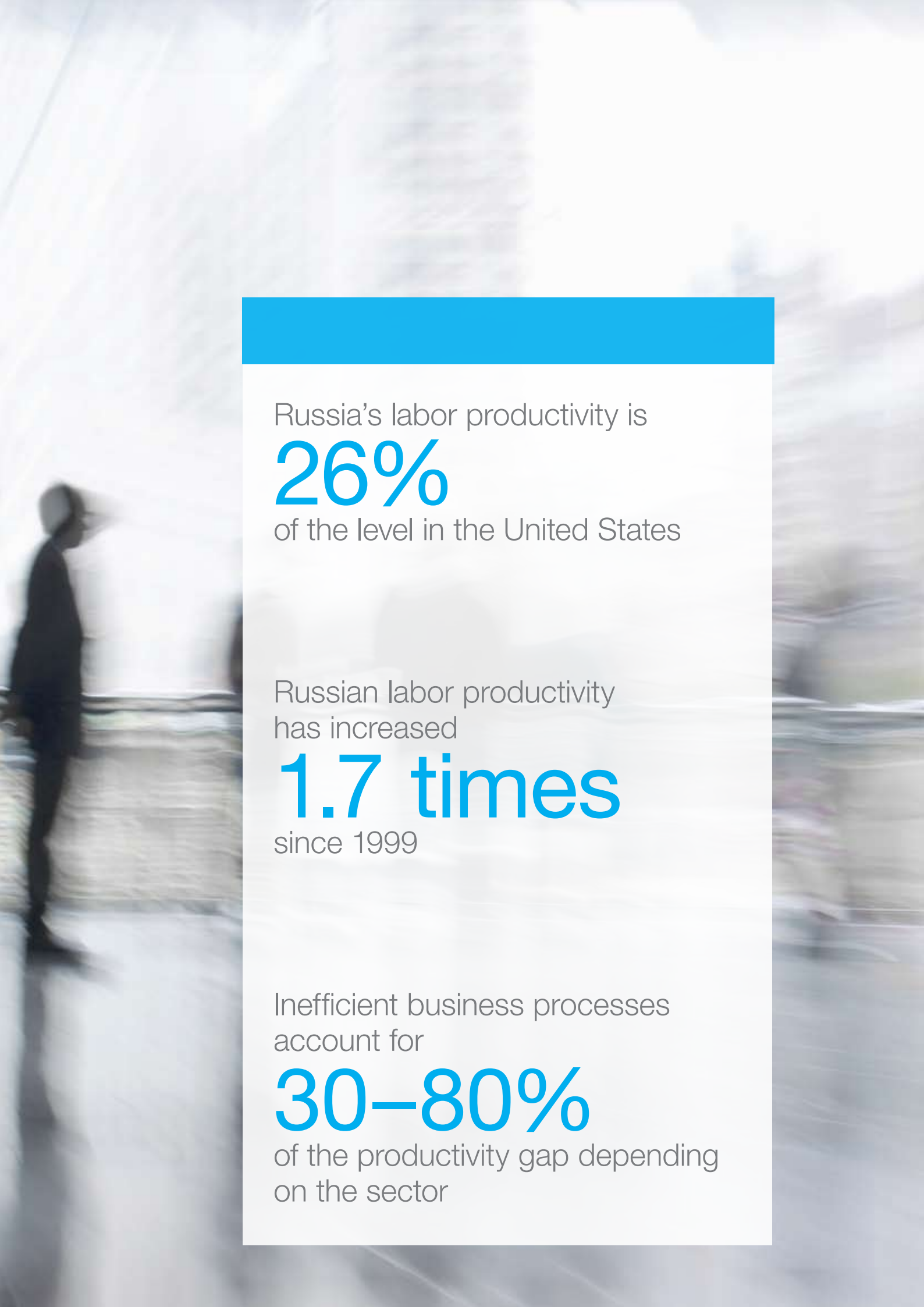
Among the sectors analyzed in this study, residential construction is an object lesson in how the uneven application of regulatory procedures and standards can distort competition. In this sector, the main drivers of competition are privileged access to land for building, timely approvals for the connection of natural monopolies, and the ability to secure construction approvals. The result is that Russia has higher margins in residential construction than in benchmark countries and yet its productivity remains low, as does its adherence to international best practices.

STRUCTURAL DIFFERENCES IN THE RUSSIAN ECONOMY

Another reason for Russia's low productivity relates to structural differences between Russia's economy and those of benchmark countries. One example is that Russia has a relatively large share of less labor-efficient high-rise apartment complexes as opposed to single-family homes, despite having sufficient land on which to build. In 2007, high-rise apartment complexes accounted for 68 percent of housing construction in Russia, compared with 51 percent in Sweden and 11 percent in the United States. Sweden's residential-construction productivity is three times as high as Russia's, and the United States' is almost five times as high.

Consumer preference for multifamily housing reflects old Soviet traditions as well as a lack of developed infrastructure to support large-scale development of single-family communities. This difference accounts for 6 percent of the gap with the United States in residential construction. The Russian government has recognized this issue, and the development of single-family housing is a key initiative of the country's housing-development strategy.

Another example of a structural difference in Russia's economy is the smaller size of deposits and loans in retail banking. This largely reflects the lower income levels in Russia compared with those in other countries. Over time, as the wealth of the population increases and Russian financial markets develop, this difference should disappear. Currently, this gap accounts for 12 percent of the productivity difference with the United States.



Russia's labor productivity is

26%

of the level in the United States

Russian labor productivity has increased

1.7 times

since 1999

Inefficient business processes account for

30–80%

of the productivity gap depending on the sector

Government initiatives for a lean Russia

To facilitate productivity improvements, Russian policy makers should:

- Increase competition by eliminating administrative barriers
- Implement an integrated approach to urban and regional development
- Facilitate labor mobility
- Implement measures aimed at expanding the workforce
- Change the system of professional education and retraining to fit the economy's current needs
- Promote the development of the financial system

INCREASE COMPETITION

As discussed, administrative overload and regulatory inefficiencies hinder competition in many sectors of the economy and this, in turn, acts as a disincentive for companies to increase productivity. Therefore, the first and most important priority for policy makers should be to increase competition by eliminating administrative and regulatory barriers and to create a level playing field across sectors. Policy makers can:

- **Conduct a comprehensive review of industrial legislation** to ensure that it is effective and immune to corruption. In the residential construction sector, for example, more transparent approval processes should be established and all necessary steps, deadlines, and responsibilities of authorities should be clearly identified.
- **Ensure that companies have equal access to public services infrastructure.** This involves establishing clear and transparent rules assuring equal access to infrastructure and public services in all sectors and regions.
- **Develop industrial policy provisions for key sectors to help boost their competitiveness and efficiency.** Such a policy in the retail banking sector, for example, should focus on removing excessive regulations and raising capital and risk management requirements to international benchmarks.
- **Increase the productivity of public entities** by shifting the management focus to one that puts efficiency at its core (see "The imperative of increased public sector productivity").

Eliminating barriers to competition and levelling the playing field would create favorable conditions for both domestic and international best practice. This in turn would increase incentives for improving productivity and would introduce international best practices into the market.

The imperative for increased public sector productivity

Russia's public sector is the single largest employer in the economy—as in almost all countries in the world—and therefore the public service productivity is vital to any overall boost in the economy's efficiency. Inefficient public services have indirect effects throughout the economy.

Even though measuring productivity is much more difficult in the public sector than in the private sector, one thing is certain—public sector productivity lags far behind that of the private sector. One McKinsey study found that US government productivity has grown at one-third the rate of the private sector historically.

The current global economic crisis has further increased the burden of the public sector on societies and economies as governments around the world intervene in the economy, a trend that will probably continue for some time given the extent of the state interventions witnessed. The crisis is likely to place further strain on municipal, regional, and federal budgets just when they need additional resources to fund public services. Increased productivity will not erase the government's serious fiscal challenges, but it can significantly improve the health of public finances. More broadly, many of the productivity improvements identified in this study require greater public sector efficiency.

Two worthwhile actions that Russia could take are to establish and publish productivity measures in the public sector, which would provide a transparent indicator of progress, and to institute incentive systems for state managers to make productivity gains.

AN INTEGRATED APPROACH TO URBAN AND REGIONAL PLANNING

As discussed, the lack of effective planning increases the uncertainty and risk associated with development projects and prolongs the time required to obtain permits and approvals. Policy makers need to take an integrated approach to urban and regional development by:

- **Developing general plans for development of cities and regions based on approved standards** designed in accordance with global best practices. This would allow for a reduction in the number of and time required for approvals and enable coordinated implementation of development projects, including those related to infrastructure.
- **General plans should take account and plan for the geographic distribution of new housing** linked to development of economic zones and coordinating development of housing with physical and social infrastructure. They should also clearly define implementation stages.
- **Implementing planned projects by conducting land auctions and using public-private partnership mechanisms.** Land auctions could ensure greater transparency and competition than competitive investment proposals. Implementation of regional development plans could benefit from oversight by a working group headed by a senior government official and supported by a special project management office.
- **Creating a unified database of land plots.** A central database containing all the necessary information—including plot ownership, usage status, and usage restrictions—should be created.

LABOR MOBILITY AND SOCIAL-PROTECTION PROGRAMS

There is evidence that some Russian companies are attempting to hold on to labor by cutting or even withholding salaries—the same pattern of behavior observed during the economic downturn in the 1990s and the Russian financial crisis in 1999. However, this study finds that the productivity imperative requires a long-term, strategic approach that involves replacing suboptimal capacity and reallocating excess labor to other areas of the economy.

Labor mobility is essential for reallocating labor as productivity improves and the bottleneck of local labor shortages is eliminated. Today, a range of infrastructure, housing, legal, and cultural barriers hinder labor mobility.

There are a number of ways that federal and local government can ease the transition to higher productivity and facilitate the reallocation of labor. An example is the successful restructuring of European steel and automotive industries (see “Case study: The restructuring of Europe’s steel and automotive industries”). Such initiatives, tailored to the Russian economy, could contribute significantly to improved productivity.

Case study: The restructuring of Europe's steel and automotive industries

The restructuring of the European steel and automotive industries in the past two decades provides some guidance to Russia on how to achieve an effective transition to higher productivity. Between 1986 and 1996, 12 European Union (EU) countries decreased steel sector employment by 200,000 employees, a number that is roughly equivalent to the estimated over-employment in the Russian steel industry today. Likewise, a shift in automotive production to lower-cost countries led Volkswagen to shed 20 percent of its employees in its Wolfsburg headquarters in the 1990s. Virtually overnight, unemployment in the city soared to 18 percent. But five years later, courtesy of a joint venture between Volkswagen and the municipal government, more than 11,000 new jobs were created and the city's unemployment rate halved.

In both cases, the following initiatives were at the core of efforts to handle these industry restructurings:

- **Early retirement.** In the steel restructuring case, early retirement was offered to employees over 50, with the majority of the funding coming from national governments. This quickly removed redundant labor from the industry. However, it proved to be expensive for the governments, and many factories lost their most experienced personnel. It also skewed the overall industry age structure.
- **Enhanced job placement services.** In both examples, job placement services assisted with labor reallocation. France created a nationwide database of vacancies as a result of the steel restructuring. Other areas affected by steel restructuring created labor pools that could be outsourced to other companies, with steel companies picking up one-third of the cost of retraining former employees. In Wolfsburg, a jobs agency was created to provide a flexible labor pool for peak demand shifts and to help retrain workers.
- **Regional development and job creation.** To help create new businesses as well as to attract new companies to the city, Wolfsburg set up an innovation campus supporting start-ups as well as an automotive supplier park. The city also developed itself as an entertainment cluster to help develop and diversify employment.

A COMPREHENSIVE PROGRAM TO INCREASE RUSSIA'S WORKFORCE

We believe that there are four initiatives that Russia could take to meet the challenge of the expected decline in the labor force by 2020. Combined actions could, in the best-case scenario, maintain current levels of labor or, in the worst case, limit the decline to 3 million employees. In order of their potential impact, these initiatives are:

Cut death rate and improve primary care. Russia's high death rate among working-age men and women could be reduced significantly even in the relative short term with appropriate government action. Experience elsewhere, including in Scandinavia and Poland, shows that campaigns to restrict access to alcohol (e.g., tougher age laws and restricted selling times) have cut alcohol-related deaths in a matter of years. Anti-tobacco campaigns take longer to have an impact, but smoking restrictions in other countries have reduced incidence of cancer and deaths from smoking-related sicknesses. In recognition of this, Russia signed a UN anti-smoking accord and is considering relevant changes to legislation on tobacco. Such measures, together with improvements in workplace safety, could reduce both the death rate and illnesses that affect work quality. If all of these measures are successfully implemented, Russia could benefit from an additional labor pool of 2 million to 3 million.

Support targeted immigration. More effective legal immigration policies that target needed skill sets and establish more efficient registration processes could provide Russia with an additional labor pool of more than 3 million.

Increase the pension age. Raising the pension age and removing obstacles to continued employment for workers eligible to collect a pension, coupled with health care reforms, would help to keep experienced and qualified workers in the labor force. These measures have the potential to increase the labor force significantly. However, providing an exact estimate is difficult because many pensioners already remain in the labor market, due to low pensions.

Increase labor participation by youth and women. Based on experience in other countries, greater part-time, flexible employment would significantly increase the number of women and young people in the labor market. Even a modest increase in their employment would add 1 million to the labor force.

IMPROVED PROFESSIONAL EDUCATION AND RETRAINING

Adjusting curriculums to global best-practice standards, as well as increasing the practical component in relevant courses, would improve skill levels throughout the Russian economy and contribute to productivity improvement.

Developing short-term (6- to 12-month) specialty courses and providing effective training programs would allow for efficient re-qualification of workers with training in the most critical skills.

A VIABLE FINANCIAL SYSTEM

Previous MGI research has shown that developing a viable financial market has significant economic payoffs.[10] Some of the actions to pursue in this area are to:

Develop a comprehensive financial infrastructure, including creation of a central depository and credible rating agencies. This would enable Russia to pool domestic capital resources more effectively and increase the efficiency of their allocation. Creating a central depository, for example, would simplify clearing, decrease transaction costs, and help stimulate the development of financial markets. Consolidation of commodity and stock exchanges may also prove to be beneficial in the long-term.

Stimulate long-term savings. Consistently implementing economic policies aimed at improving macroeconomic stability and decreasing economic risks would contribute to growth of long-term savings. In addition, special tax incentives should be established for long-term savings and investments, especially pensions. Introduction of prudential supervision practices, requirements to prepare financial statements according to International Financial Reporting Standards, and development of self-regulatory organizations would contribute to better investor protection and enhance willingness to save in the long-term. At the same time, allowing Russian investors (especially pension and investment funds) to invest in new asset classes (such as foreign assets) would provide more opportunities for profitable capital deployment.

Facilitate the development of markets for existing and new financial instruments. Simplification and redesign of security registration, and issue and listing procedures (including those related to foreign issuers) in accordance with global best practices would promote usage of financial markets and development of new segments. In addition, the release of present constraints and covenants on the issue of different types of securities would promote the development of existing financial markets segments.[11]

Restructure the banking system. Raising capital requirements and risk-management standards in the banking sector would prompt industry consolidation and improve financial sector stability and efficiency.

10 See Putting China's capital to work: *The value of financial system reform*, McKinsey Global Institute, May 2006 (http://www.mckinsey.com/mgi/reports/pdfs/china_capital/MGI_chinacapital_execsum.pdf). This report found that the development in China of a vibrant corporate bond market and a shift to a mix of bonds and bank loans would cut companies' funding costs by $14 billion a year. Increasing the operating efficiency of financial institutions and improving the mix of financing vehicles would boost GDP by $62 billion a year. Reforms to increase investment efficiency would raise GDP by up to an additional $259 billion.

11 For example, according to Russian Civil Code, the amount of corporate bonds a company could issue is limited to the amount of its authorized capital or third-party guarantee.

Business initiatives to increase productivity

To benefit from significant productivity improvements, business leaders should:

- Improve operational effectiveness by implementing best-practice lean operations
- Develop capital project management capabilities
- Build more effective organizations with strong leadership, world-class skills and strong performance management
- Strengthen sector professional organizations to facilitate productivity dialogue

BEST-PRACTICE LEAN OPERATIONS

Lean operations improve operational performance, and eliminate inefficiencies and bottlenecks. Investment in labor-saving tools and equipment as well as information and other technologies would further add to business efficiency. Russia has a low level of labor automation and mechanization, which, if increased, could substantially improve the country's productivity.

Making a full transition to lean operations requires a fundamental change in businesses' mindsets and practices. For example, moving toward lean operations is more than taking short-term action to reduce staff. It requires a reexamination of businesses to eliminate functions and processes that do not add value, improve quality, and to put in place mechanisms for continuous improvement, leveraging the creativity of front-line people.

Finally, businesses should develop strong and effective performance management, including a set of performance indicators that provide effective monitoring of performance and early warnings of potential negative trends. Key performance indicators should also measure the quality of services provided.

IMPROVED PROJECT MANAGEMENT SKILLS

Companies should focus on developing best-practice project management capabilities in-house by leveraging modern education and training programs, hiring experienced managers with best-practice experience, and establishing joint ventures with international companies.

Some industries could cut capital expenditure costs significantly if companies standardized projects, applied best-practice procurement techniques, and acted against the fraud and kickback practices that remain widespread in Russia today.

EFFECTIVE PERFORMANCE MANAGEMENT AND STRONG LEADERSHIP

To succeed in this area, Russian companies should:

Create streamlined organizations with strong leadership. Many Russian organizations lack end-to-end responsibility for key customer segments or important processes. Management also needs to spend time with operating staff to drive performance initiatives forward continuously.

Fundamentally upgrade critical functional skills. This implies improving lean operations skills, procurement skills, and large project management skills. Training and professional development programs should be improved.

STRONG SECTOR PROFESSIONAL ORGANIZATIONS

Sector professional organizations can play an important role in improving Russia's productivity. These organizations can develop industry-wide productivity benchmarking initiatives and mechanisms for sharing best practices and innovations. They can also represent the interests of their particular sectors as programs are designed to handle restructuring and labor reallocation. Widely accepted sector standards could help associations launch a productive dialogue with authorities on regulatory reforms.

* * *

Russia's economy has made enormous strides since the financial implosion just a decade ago that severely compromised the country's development. Now the challenge is to continue to build on the progress that Russia has achieved. The government has set ambitious economic development goals, but these are not achievable without a commitment to improve Russia's productivity.

With government and business acting in tandem, Russia needs to tackle the root causes of low productivity. Businesses need to launch common-sense actions such as optimizing their business processes. Government has an array of pragmatic and achievable tools with which it can increase the effectiveness of the regulatory and competitive environment, but it also needs to address complex macro-level issues such as how to reallocate labor in the economy at a critical time of transition.

The global financial crisis has prompted many to question whether Russia can achieve its economic growth goals. However, while the crisis will result in many short-term challenges, it also offers long-term opportunities. Russia's government and businesses should use today's economic challenges as a platform to realize productivity improvements that will be vital to the economy's long-term future, even while addressing the social issues inherent at a time of economic restructuring.

Reinforcing the economic renaissance Russia has achieved over the past decade will require a new growth paradigm. *Lean Russia* is ultimately the only route to sustained economic growth in Russia.

The study

Leveraging productivity is a key driver to Russia's sustained economic growth. This study, conducted by the McKinsey Global Institute (MGI) and McKinsey & Company's Moscow office, explores the significant productivity gains that Russia can achieve and suggests priorities and approaches the government and business can take to capture this opportunity to ensure sustainable economic growth and increased competitiveness.

This study primarily focuses on labor productivity which we calculate as output per employee or, for the economy as a whole, GDP per employee.

McKinsey identifies, quantifies, and ranks the opportunities for productivity gains in five sectors that are key to Russia's economic development: retail, steel, retail banking, residential construction, and electrical power. The analysis compares the productivity—the efficient use of labor and capital—in these sectors with that of benchmark countries and uses a bottom-up approach to quantify productivity gaps.

The study employs proven methodology used in multiple productivity studies around the world by MGI and leverages the knowledge and experience of McKinsey's team of professionals in Russia.

We would like to acknowledge the specific contribution of McKinsey consultants and partners – Daria Bakatina, Vadim Pokotilo and Jaana Remes.

McKinsey Global Institute

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Lean Russia: The productivity of the steel industry

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Executive summary

Steelmaking plays a major role in Russia's economy and faces many of the challenges that are common to the economy's metals industry as a whole. That is why McKinsey has opted to include the steel sector in its new analysis of Russia's productivity. Because the McKinsey Global Institute (MGI) included steel in its 1999 study of Russia's productivity, revisiting this sector allows us to track how its productivity has developed in the intervening years.

This new analysis finds that:

- The Russian steel industry has performed strongly over the past decade. However, the global economic downturn and long-term steel demand projections are making the goal of boosting the sector's productivity an increasingly high industry priority.
- The main opportunities to improve productivity lie in tackling the steel industry's obsolete capacity and inefficient business processes.
- The Russian steel industry can address the productivity challenge successfully with support from the government:
  - Government and industry can collaborate to ensure the efficiency of new investments by encouraging comprehensive long-term development planning in the sector.
  - The government can launch geographical and sectoral labor-mobility programs to alleviate the impact of the release of surplus employees, establish professional training courses, and improve the alignment of skills with the needs of the industry.
- Industry should launch lean operations initiatives and invest in IT and automation to optimize business processes.
- Industry could optimize the product mix by investing in steel rolling capacity and in R&D capabilities for new products and applications.

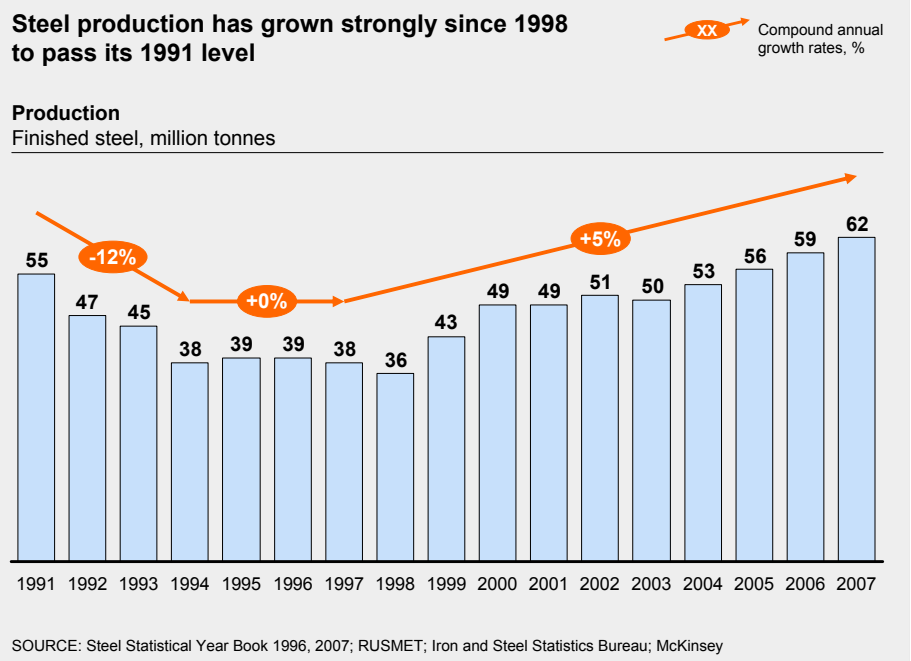
The Russian steel industry has performed strongly over the past decade

Russia has traditionally had a strong, globally competitive steel industry. The sector represents a significant part of the Russian economy, accounting for approximately 3 percent of GDP and 6 percent of exports. It directly employs some 400,000 people in steel mills. If we include related industries, such as coal mining and iron ore mining, the number of employees rises to over 1 million.

THE RUSSIAN STEEL SECTOR HAS POSTED A DECADE OF RAPID GROWTH

The steel industry has undergone dramatic changes in its fortunes over the past 20 years. After the breakup of the Soviet Union in 1990, the output of the steel industry fell by almost half. Production stabilized in 1994 and, since 1998, the industry has enjoyed a decade of robust growth of around 5 percent per year (Exhibit 1). A rise in domestic demand has underpinned the industry's growth, even though Russia still exports some 40 percent of its production.

Exhibit 1



SOURCE: Steel Statistical Year Book 1996, 2007; RUSMET; Iron and Steel Statistics Bureau; McKinsey

With global steel demand booming, prices more than doubled from 1998 to 2007. Low input costs, along with competitively priced raw materials from captive sources of iron ore and coking coal, have historically been a source of competitive advantage for the Russian steel sector. This combination of low input costs, a fast-growing market, and booming prices has provided no real impetus for steelmakers to increase productivity.

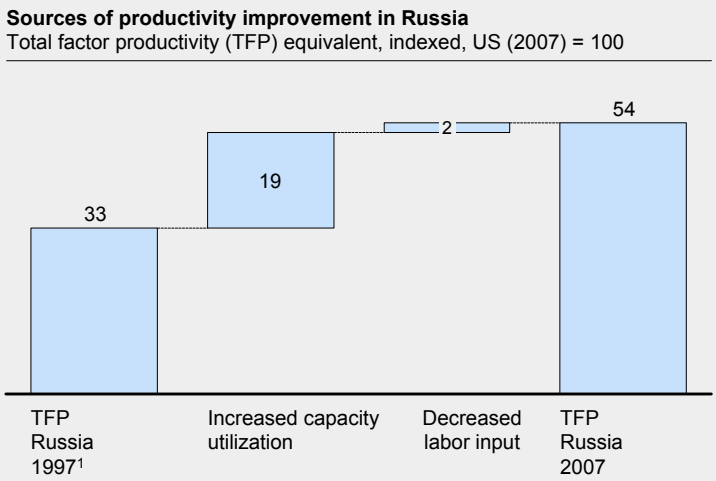
PRODUCTIVITY HAS IMPROVED DESPITE LITTLE STRUCTURAL CHANGE

In 2007, total factor productivity (TFP) in the Russian steel sector was 54 percent of that in the United States. Although still relatively low in absolute terms, this represents a substantial increase in recent years. In 1999, TFP was only 33 percent of the 2007 US level. Thus the Russian steel sector today is 64 percent more productive than it was a decade ago.

However, almost 80 percent of the industry's productivity growth has come from increasing capacity utilization rather than from improving the efficiency of its operations (Exhibit 2). In 1998, capacity utilization stood at just 50 percent but, by 2007 it was almost 80 percent and close to it's theoretical maximum.

Exhibit 2

Over the last decade, productivity in steel has improved significantly, largely due to the use of free capacity



1 Recalculated from original MGI report to allow comparison with 2007 benchmarks.

SOURCE: McKinsey

The productivity challenge is increasingly an industry priority

Even before the global financial crisis and economic downturn, the Russian steel industry faced significant challenges to its future development. The most important items on industry leaders' agendas were expanding productive capacity to meet growing demand for steel and maintaining competitiveness in the face of rising costs. Now, the industry must address new issues related to the economic downturn such as falling prices and demand and pressure to cut costs. All of this makes the productivity challenge an even higher priority for the industry.

DOMESTIC DEMAND FOR STEEL WILL REMAIN STRONG IN THE MEDIUM TO LONG-TERM

We expect domestic demand to drive growth in the Russian steel sector for the foreseeable future. A country's steel intensity (i.e., kilograms of steel consumed per capita) normally depends on its level of economic development. Steel intensity therefore increases along with GDP. However, after attaining a certain level of economic development, most countries move to a more service-oriented economy. Steel intensity then plateaus or even declines over time. We expect Russia's steel intensity to peak between 2015 and 2020 depending on how the country's economy develops. This would lead to long-term, steady-state demand of 65 million to 70 million tonnes of rolled steel per year.

Infrastructure projects in Russia, which are urgently required to overcome several years of underinvestment, are likely to be the main drivers of future steel demand. We also expect residential and commercial construction—another major consumer of steel—to pick up in the medium term after the downturn ends.

THE INDUSTRY HAS SIGNIFICANT PLANNED INVESTMENTS AND OPERATING COSTS ARE EXPECTED TO RISE

Before the downturn, industry players had announced ambitious plans to build significant new capacity. However, companies have had to postpone most of their investment projects planned for 2009 in response to the economic situation. For the future, it is crucial that industry players take into account forecasts of steel demand when planning new investments and to avoid creating overcapacity.

Efficient investment should be cost-effective too. There is evidence that Russian construction costs in different industries are significantly higher than international benchmarks. For example, the estimated costs of building a coal-fired power plant in Russia are 25 to 40 percent higher than in Europe and in the United States. Russia's infrastructure construction costs typically exceed European benchmarks by 20 to 30 percent. For instance, it costs about 30 percent more to build a distribution center in Moscow than in London.

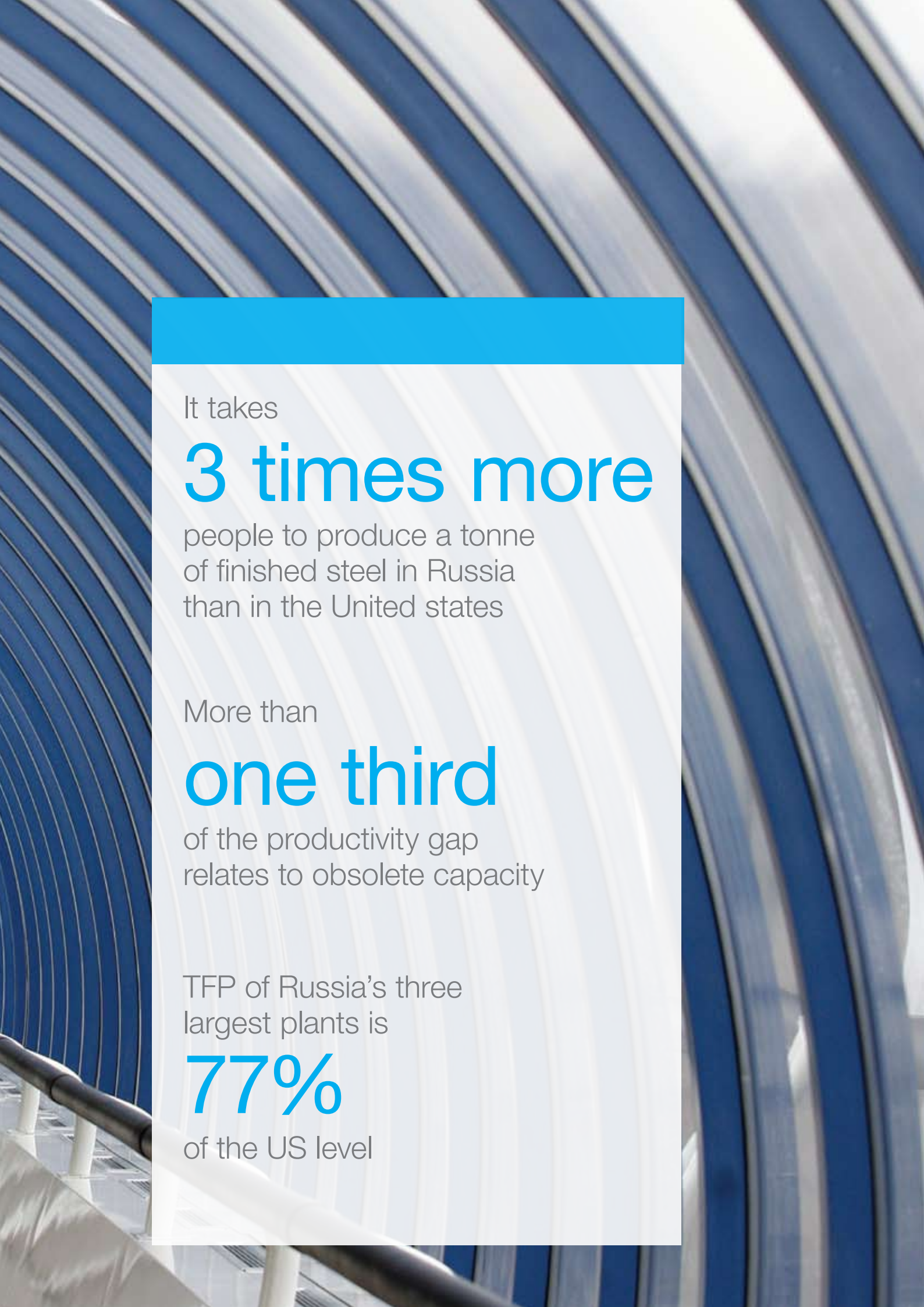
In addition, the costs of other inputs such as labor, electricity, and gas are on the rise. In the three years before the financial crisis, labor costs were growing at an annual rate of more than 20 percent. The steel industry therefore needs to find

ways to preserve its cost advantage. In this context, opportunities to improve productivity have become priority items on the executive agenda.

THE DOWNTURN UNDERLINES THE NEED TO ADDRESS THE PRODUCTIVITY CHALLENGE

The global economic downturn has brought both new issues and opportunities. The most pressing issue for steelmakers is that demand is likely to be weak in export markets where Russian producers face growing competition particularly from Chinese players. Russian steelmakers largely produce low- to medium-quality products that they typically sell on spot markets. Producers have felt an immediate impact from the global fall in prices and from de-stocking. They will need to respond by cutting production.

At the same time, the downturn represents an opportunity for steel companies to accelerate the decommissioning of unviable plants. Many of these survived through the 1990s thanks to "hidden" government subsidies (e.g., allowing arrears to build up or striking advantageous barter deals) and the post-1998 market boom.



It takes

3 times more

people to produce a tonne of finished steel in Russia than in the United states

More than

one third

of the productivity gap relates to obsolete capacity

TFP of Russia's three largest plants is

77%

of the US level

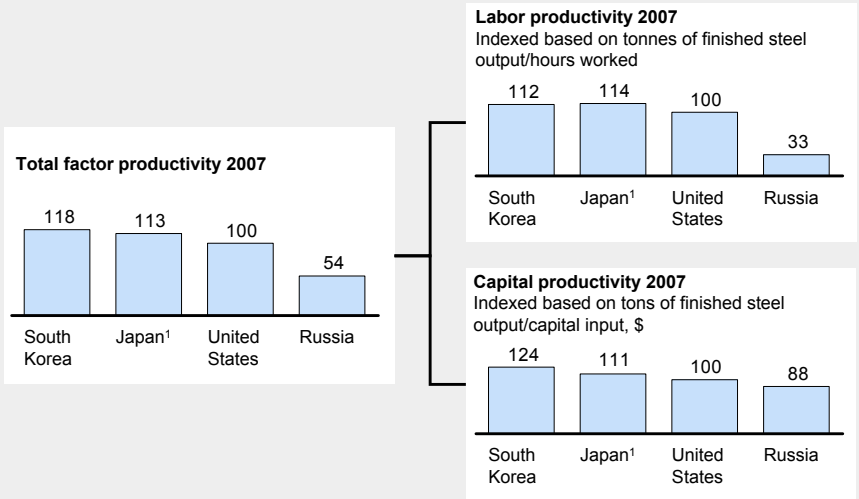
The main productivity opportunities are in tackling obsolete capacity and inefficient business processes

The Russian steel industry still has a significant opportunity to improve productivity. As stated above, current TFP in Russia is only 54 percent of that in the United States in 2007. The productivity gap with other benchmark countries, such as South Korea and Japan, is even wider (Exhibit 3).

Exhibit 3

Total factor productivity in Russian steel remains low compared with international benchmarks

Indexed, US (2007) = 100



1 2006.

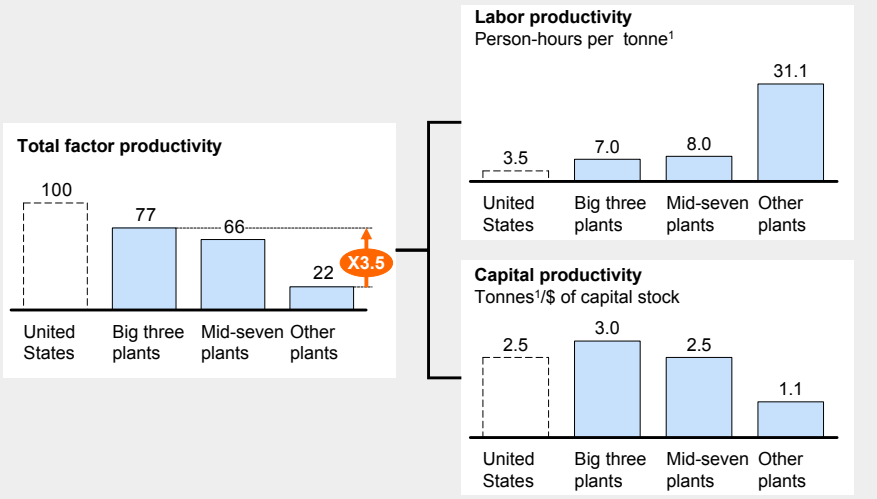
SOURCE: Steel Institute VDeH; McKinsey

The aggregate picture, however, hides the wide differences between various Russian steel industry players. Some of the sector's top performers approach their US counterparts in terms of productivity. The productivity of Russia's three biggest steel plants, for instance, is 3.5 times as high as that of a "long tail" of smaller players. More important, the capital productivity of the "big three" is actually higher than the average US level (Exhibit 4).

Exhibit 4

Aggregate productivity figures mask large efficiency gaps between Russian producers UNADJUSTED OUTPUT

Indexed, US (2007) = 100



1 Rolled steel.

SOURCE: Steel Institute VDeH; McKinsey

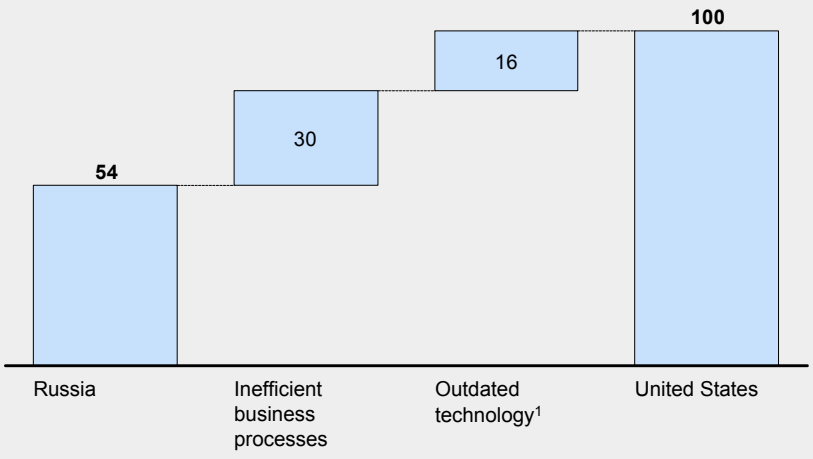
The long tail of smaller plants constitutes 14 percent of total steel production in Russia and 40 percent of total person-hours. Solely closing these plants and maintaining the others unchanged would boost TFP dramatically in the Russian steel sector to 72 percent of the 2007 US level.

The two most important drivers of low productivity in Russia's steel industry are outdated technology, and inefficient business processes (Exhibit 5).

Exhibit 5

The most important drivers of productivity gaps in Russian steel relate to business processes and technology

Index, US (2007) = 100%



1 Assuming OHF replacement by BOF with productivity at the US level.

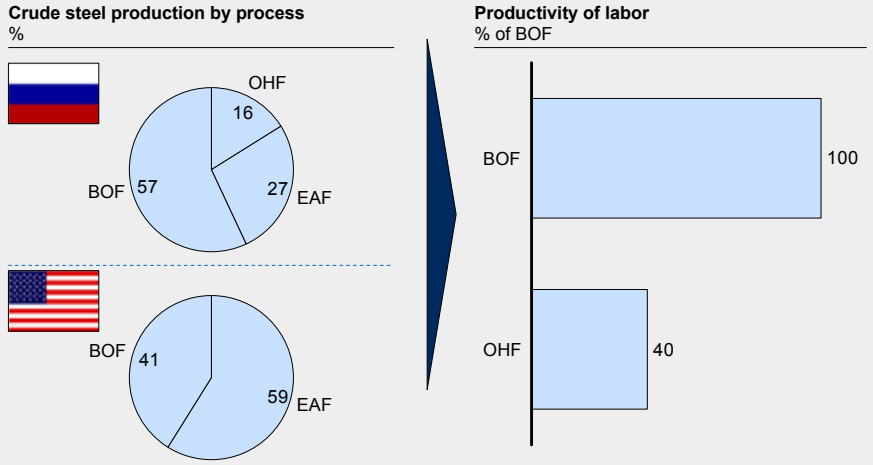
SOURCE: McKinsey

1. OUTDATED TECHNOLOGY ACCOUNT FOR MORE THAN ONE THIRD OF THE PRODUCTIVITY GAP

Russia's steel industry technology is outdated in two key respects. First, Russia produces 16 percent of its steel at open-hearth furnace (OHF) facilities. OHFs are more than 50 percent less labor efficient than basic oxygen furnaces (BOFs). Steelmakers in the United States and Western Europe no longer use OHFs (Exhibit 6). Thus, replacing these obsolete facilities alone would allow the Russian steel sector to close part of its productivity gap with the United States.

Exhibit 6

The replacement of OHF by BOF could increase steel's labor productivity ROUGH ESTIMATE



SOURCE: IISI; expert interviews; McKinsey

2. INEFFICIENT BUSINESS PROCESSES ACCOUNT FOR THE REMAINING TWO THIRDS OF THE GAP

Based on our experience and the opinions of industry experts, inefficient business processes, relating mainly to auxiliary and administrative personnel, are a major drag on productivity in the Russian steel industry. On average, the proportion of administrative personnel in the total staff of Russian steel companies is 60 to 100 percent higher than in best-practice companies. While the leading international companies' administrative overhead constitutes 14 to 16 percent of total staff, it is 22 to 29 percent in Russian companies.[1] For instance, we found the following issues in one form or another at a majority of the steel plants we examined:

- **Poor work organization** such as the duplication of tasks in different departments, inefficient workload planning (especially in maintenance and logistics), and a large number of middle management positions. For example, adjacent workshops might run duplicate quality-control tests, or inefficient maintenance planning and execution might lead to the overstaffing of maintenance personnel. Suboptimal organization is partly the result of outdated norms, which preserve inefficient work processes.
- **Low level of IT and automation** largely in support operations and in, for example, the continued use of manually operated cranes. Most Western European companies use automated equipment.

1 Figures based on company data, McKinsey's Overhead Benchmarking Initiative database, and the J. F. King database.

- **Middle management constitutes a significant share of the total workforce.** In many Russian companies, there are too many levels of management and too little span of control over the employees.

OUTPUT DIFFERENCES AFFECT THE STEEL INDUSTRY'S PRODUCTIVITY

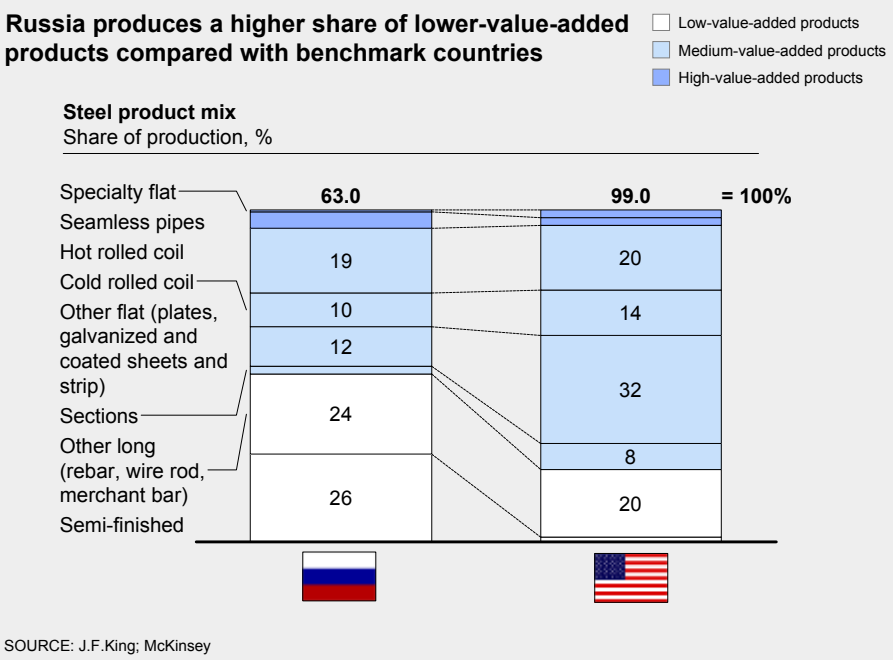
Russian steel plants produce a higher share of low-value-added products compared with international benchmarks. For example, the revenue generated per tonne of steel produced in Russia is $720, compared with a global average of $800 per tonne. In addition, Russian steel production is less efficient with regard to input factors; Russian plants use on average 5 percent more pig iron and 12 percent more electricity, for instance, than plants in our benchmark countries.

To adjust for these disparities in product mix and production efficiency, we used "equivalent tonnes" in our comparative analysis (see the methodology section). Using this measure, we estimate that productivity in the Russian steel sector is actually 42 percent (not 54 percent) of that in the United States.

In 2007, some 26 percent of total Russian steel output consisted of semi-finished products compared with only 2 percent in the United States. The main reason for this disparity is a lack of sufficient rolling capacity in Russia. Medium-value products such as hot rolled coil and cold rolled coil also account for a significantly smaller share of the product mix in Russia—43 percent compared with 74 percent in the United States (Exhibit 7).

Exhibit 7

Russia produces a higher share of lower-value-added products compared with benchmark countries



SOURCE: J.F.King; McKinsey

As the demand for high-value-added steel products increases, the product mix in Russia will move closer to that of our benchmarks and the impact of output differences on productivity will diminish.

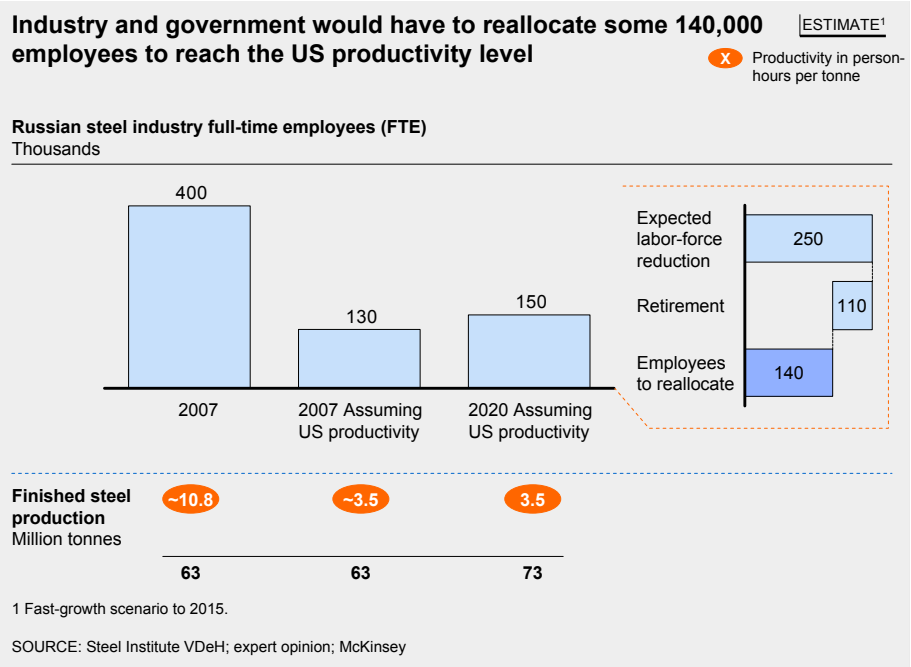
HURDLES TO PRODUCTIVITY GROWTH IN THE INDUSTRY REMAIN

There are three main reasons that the industry has been slow to address the productivity gap: a lack of incentives to initiate improvements, concerns about the social impact of improvement initiatives, and a shortage of skilled project managers in Russia.

1. The rapid growth of the global and domestic steel market, together with the relatively low cost of input factors in recent years, has made even subscale and outdated plants profitable. For this reason, there is little or no incentive for steelmakers to improve their operational efficiency. The picture, however, is changing. The downturn has severely affected the global steel market. In addition, costs are set to rise in the medium to long-term, in particular for electricity, transport, and labor. Tackling the issue of low productivity therefore has a more compelling economic rationale in Russia.

2. Productivity improvement initiatives will likely lead to the release of surplus employees. Boosting sector productivity to the 2007 US level would result in approximately 140,000 workers (not including those scheduled for retirement) being released to other sectors of the Russian economy by 2020 (Exhibit 8). Such a large-scale reallocation of labor would undoubtedly pose a significant challenge for Russia. It is particularly important to handle such a process without causing undue social upheaval, especially for so-called town-forming plants in which 10 to 20 percent of all of the steel industry's employees work.[2] Government and industry players would need to develop appropriate responses to this challenge (e.g., efficient outplacement services and support for labor mobility) to enable productivity growth.

Exhibit 8



3. Russia has a deficit of highly skilled project managers. This limits the potential of the steel industry to implement operational improvement initiatives and to run capacity expansion projects effectively. In addition, Russian steel companies need to develop their human resources systems to ensure far more effective workforce management and skills development.

2 "Town-forming" plants are those employing more than 20 percent of workers in a town.

Russian steelmakers can address the productivity challenge successfully with government support

Industry players should lead the productivity improvement efforts in the sector. The government can provide valuable support for steel companies' initiatives. Both parties can collaborate through existing industry associations. The immediate priority areas for productivity improvement are the optimization of business processes, a reduction in the industry headcount, and the facilitation of the flows of labor. In the longer term, increasing the value added of the industry product mix would also help to close the productivity gap with benchmark countries. Additionally, the steel industry should consider sustainable capacity development and a streamlined investment process to avoid overinvestment and improve the efficiency of its investments.

OPTIMIZE BUSINESS PROCESSES AND REDUCE HEADCOUNT TO IMPROVE OPERATIONS EFFICIENCY

Business process optimization is the sector's top priority because it represents the biggest improvement opportunity and requires limited investments. Private players could implement the regular measurement and reporting of efficiency-focused performance indicators, conduct regular internal and external benchmarking efforts, and launch *lean* operations improvement projects. Companies also need to consider enhancing their investments in automation and IT tools.

In maintenance, for example, companies can usually achieve improvements in at least two areas by (1) changing the priorities of preventive maintenance to lower the number of equipment crashes and emergency repairs, and (2) increasing the interchangeability of maintenance staff by training workers to execute the tasks of, say, welders or electricians. Initiatives in these areas could reduce the time required to perform maintenance tasks and increase the utilization of maintenance workers, which would allow for headcount reduction in this function.

Improving the skills and competencies of workers in the steel sector, especially in project management and the application of lean techniques, is another important opportunity. With the support of the government, industry universities could upgrade their educational programs to focus on more practical aspects, rather than just theory. They could also organize courses for adult employees to boost the technical and managerial expertise of steelworkers. In turn, steel companies could improve their employee educational programs and strive to increase the prestige of professions related to the steel industry to attract new talent.

FACILITATE LABOR FLOWS

MGI identified low labor mobility in its 1999 productivity report as one of the main barriers to higher productivity. Today, a number of infrastructure, housing, legal, and cultural barriers still restrict labor mobility.

Policy makers and companies will need to address jointly the social issues arising from a potential reduction in the industry's headcount. The authorities could try

to develop a comprehensive view of the employment trends in different regions and main industries with insights into scarce professions and other employment needs. Official mechanisms for the reallocation of workers to new jobs in other sectors and regions would supplement this. Industry players could actively support the actions of the government by launching retraining programs for freed-up workers. Such retraining programs would need to focus on the skills required by Russia's growing industries (see below for detail).

INCREASE THE VALUE ADDED OF THE INDUSTRY PRODUCT MIX

A relatively high share of Russia's total imports is high-value-added products—almost twice as high as the share in the European Union (EU) and China, and almost four times as high as the share in Brazil. To satisfy growing domestic demand for high-value-added products and to replace some of the imports with domestic production, Russian steel companies need to invest in steel rolling capacity and R&D and to reach out to domestic consumers.

International benchmarks suggest that steel companies should spend 0.3 to 1.5 percent of their revenue on R&D. However, experts estimate that Russian steel companies spend only around 0.1 percent of their revenue on R&D. Investments in R&D should aim at improving the quality of Russia's steel products and production processes. Industry research centers shared by several companies might be a good way to optimize investments and leverage scarce technical specialists. The government could participate in this process by providing financial support at the initial stages of investments.

Establishing a dialogue with consumers would help raise awareness of high-value-added steel products produced domestically and find market opportunities for new steel products. One example of this is a program called ULSAB (ultra-light steel auto body), launched in the 1990s by a consortium of steelmakers from 18 countries to develop new steel products for the car industry. In Russia, companies might direct their efforts toward finding new solutions for affordable housing construction or developing solutions for new players in the automotive industry. The government could also stimulate the development of industries that consume high-value-added products. One further opportunity to increase domestic steel consumption would be to launch targeted information programs for business consumers about new applications of steel.

ENSURE SUSTAINABLE CAPACITY DEVELOPMENT AND STREAMLINE THE INVESTMENT PROCESS

In the long-term, aligning the industry's investment plans is critical to ensure sustainable capacity development and to prevent the buildup of excess capacity. The government, together with industry associations, could encourage a comprehensive long-term sector development planning process. This would facilitate dialogue between the steel industry and related industries (e.g., power generation and infrastructure) and ensure that capacity development is better balanced across the sectors.

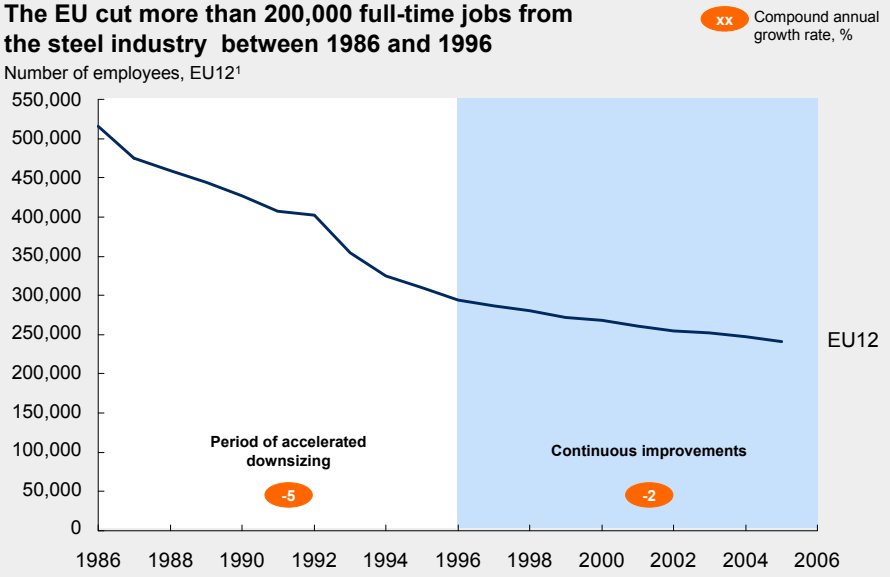
Russia can opt to implement European practices in facilitating labor flows

For the purposes of facilitating labor flows, Russia might take some valuable lessons from actions applied in the EU. Such initiatives could make a useful contribution if tailored to the specific Russian context.

The reallocation of labor resources in the EU in the 1980s and 1990s is similar in scale to the challenge that Russia faces today if its steel sector is to close the productivity gap with the United States. For instance, between 1986 and 1996, the 12 member states of the EU reduced employment in the steel sector by more than 200,000 (Exhibit 9). This moved European steel companies up to leading positions in the global steel industry in terms of productivity.

Exhibit 9

The EU cut more than 200,000 full-time jobs from the steel industry between 1986 and 1996



1 EU12 consists of Belgium, Denmark, France, Republic of Ireland, Italy, Germany, Greece, Luxembourg, the Netherlands, Portugal, Spain, and the United Kingdom.

SOURCE: Steel Institute VDeH

As the European steel industry restructured and moved to a higher level of productivity, the EU applied four main levers to reallocate redundant labor: early retirement; job creation; employee retraining programs; and the outsourcing or subcontracting of services.

The European Commission cooperated with national governments in an initiative that mandated the closure of plants and consolidated the industry. Governments targeted plants for closure according to their position in the global steel production cost curve. At the same time, governments subsidized early retirement from age 50 onward while companies offered incentives for early retirement.

European governments also provided large-scale support for job creation and the placement of redundant workers in new industries. In France, for instance, such development programs created 60,000 new jobs in three to four years. This matched the number of jobs lost during this period in the steel industry.

At the same time, companies pursued a strategy of outsourcing some functions, such as maintenance, to subcontractors. This saved costs by reducing the benefits paid to full-time employees. Companies also rented out labor to other companies.

In general, the solutions implemented in the EU seem applicable to the Russian steel industry. In the drive toward higher productivity, steelmakers should first estimate their potential to improve productivity and reduce the number of excess employees. Then, together with the government, they could begin to develop a timeline for staff reductions and start-up schemes to help workers find new employment.

* * *

The Russian steel industry has made remarkable progress since its partial collapse after the Soviet Union broke up. Both its output and productivity have grown significantly. However, after the Russian economy recovers from the impact of the current global financial crisis, the Russian steel sector will need to close the productivity gap with international benchmarks to maintain its competitiveness in the face of rising input costs. We believe that with adequate support from the government, the industry can address the productivity challenge successfully.

Appendix 1: Methodology for calculating productivity

This appendix describes the methodology and main limitations of McKinsey's productivity calculations for the steel sector.

INDUSTRY DEFINITION

We defined the steel sector as all steel plants, excluding mining activities usually included in the activity Russians term "black metallurgy." In estimating labor input, we made efforts to correct for subcontracted maintenance labor.

METHODOLOGY

We calculated productivity in the steel sector as TFP, combining labor and capital productivity and using a Cobb-Douglas production function with equal weights. We defined labor and capital productivity as output per labor input and capital input, respectively.

Output is the total annual tonnage of finished steel produced in the country.

Labor input is the total number of hours worked, which we calculate by multiplying the number of hours worked per employee in the steel industry (from official statistics) by the total number of steelworkers. We made efforts to adjust labor input in the United States for outsourcing by estimating the number of hours that workers of service providers spent on steel company projects.

We estimated capital input as the value of the main production equipment used in steel melting and the rolling of steel products. We based our bottom-up estimate of the capital stock on databases of steelmaking and rolling equipment, but we did not include supporting infrastructure. We valued capital using benchmark replacement costs, which were similar across countries. For OHF, we used the replacement price for a BOF. Thus, capital input is comparable across countries and reflects the effectiveness of equipment usage in monetary terms.

In our analyses of the "big three," the "mid-seven," and "other" steel plants (ranked according to annual production figures), we calculated productivity based on total annual tonnage of finished steel produced.

Additionally, we estimated productivity taking into account differences in product mix and production efficiency. For this, we calculated "equivalent tonnes" for each country. We derived "equivalent tonnes" by adjusting the total annual tonnage of finished steel produced by the product mix of each country. For the product mix, we divided raw output into product segments with each segment adjusted for its value-added content.

As in our 1999 study, we adjusted the "equivalent tonnes" for the underlying efficiency of BOFs, EAFs, and OHFs. In this way, we account for the inefficiency inherent in Russia's continued use of OHFs. Lastly, we adjusted output for the differences in the benchmark usage of raw materials and energy in Russia and in the United States, based on McKinsey's many years of working on steel production improvement programs.

LIMITATIONS

McKinsey's methodology is subject to limitations, and future work will aim to enhance the methodology of output measures and increase the accuracy of labor input figures.

Appendix 2: Sources

RUSSIAN

Source	Data
Rosstat	Employment in Russian steel sector; product breakdown of finished steel production
"Concept of long-term economic development," the Ministry of Economic Development	Forecast of steel production, forecast of gas prices and salaries
Steel companies data	Companies' employment, investment plans of companies
RUSMET	Forecast of steel production in Russia
Metal Courier	Plants' steel production and steel product prices
Press search	Company investment announcements
McKinsey/MGI 1999 report	Product value-add coefficients

INTERNATIONAL

Source	Data
International Iron and Steel Institute	Steel production; export, import and steel consumption by country; production technology breakdown
American Iron and Steel Institute	Steel production; export, import and steel consumption by country; production technology breakdown
National statistical agencies	Employment in different countries
McKinsey Basic Materials Practice	Steel CAPEX cost benchmarks
German Steel Institute (VDEh)	Equipment and capacity databases for various countries
Iron and Steel Statistics Bureau	Russian plants equipment and capacity information

The study

Leveraging productivity is a key driver to Russia's sustained economic growth. This study, conducted by the McKinsey Global Institute (MGI) and McKinsey & Company's Moscow office, explores the significant productivity gains that Russia can achieve and suggests priorities and approaches the government and business can take to capture this opportunity to ensure sustainable economic growth and increased competitiveness.

This study primarily focuses on labor productivity which we calculate as output per employee or, for the economy as a whole, GDP per employee.

McKinsey identifies, quantifies, and ranks the opportunities for productivity gains in five sectors that are key to Russia's economic development: retail, steel, retail banking, residential construction, and electrical power. The analysis compares the productivity—the efficient use of labor and capital—in these sectors with that of benchmark countries and uses a bottom-up approach to quantify productivity gaps.

The study employs proven methodology used in multiple productivity studies around the world by MGI and leverages the knowledge and experience of McKinsey's team of professionals in Russia.

We would like to acknowledge the specific contribution of McKinsey consultants and partners – Daria Bakatina, Nathan Hermann, Kevin Krogmann and Jaana Remes.

McKinsey Global Institute

April 2009

Lean Russia: The productivity of retail

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Vitaly Klintsov
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Alex Sukharevsky

Executive summary

The Russian retail sector has experienced dynamic growth since 1999, achieving a sixfold increase in turnover in real terms. The retail trade employs around 7 million people and, together with wholesale trade, accounts for some 10 percent of GDP.

Labor productivity in Russian retail has more than doubled in the past decade—the best performance of the five sectors analyzed by McKinsey. Largely thanks to the expansion of modern formats, productivity has increased from 15 percent of US productivity in 1999 to 31 percent of the US level today, while at the same time creating 5 million jobs in the sector.[1] The low share of modern formats in total retail trade volumes accounts for three-quarters of Russia's productivity gap, while suboptimal processes account for the remainder.

Modern formats, which are three times as productive as traditional formats, make up only 35 percent of retail sales and 11 percent of employment in the sector. The expansion of modern formats holds the key to retail's future growth and productivity improvement.

In the near term, the current global economic crisis may slow Russia's consumption growth and the pace of expansion of modern formats. However, this testing environment creates unique opportunities for well-capitalized players to acquire attractive sites at low cost, to strengthen relationships with suppliers and consumers, and to improve the operations efficiency of existing stores and operations. These measures would make the sector better placed to grow once the economy recovers.

There are four key measures that would drive productivity improvement in the sector:

1. **Streamline regulations to accelerate the design and construction of new commercial real-estate projects** by enforcing rules to have in place approved territorial and infrastructure development plans, and by eliminating redundant approvals and selectively revising construction standards.
2. **Improve the quality and capacity of road and utilities infrastructure** to further accelerate the development of commercial real estate. In addition, better road and transport infrastructure would reduce retailers' logistics costs and inventory levels.
3. **Improve the operations efficiency of existing stores and operations** by centralizing administrative functions, optimizing staffing levels in stores, improving the quality of demand and product mix, optimizing distribution centers, and reducing shrinkage levels.
4. **Seize opportunities presented by the crisis** to strengthen the long-term health of the sector by consolidating smaller and worse-performing players, acquiring sites at lower cost, and strengthening relationships with consumers and suppliers.

1 For the purposes of comparing 15 percent in 1999 and 31 percent in 2007, we use US productivity in 2007 as 100 percent. US 1999 productivity is 67 percent of US productivity in 2007.

Russian retail has had an exceptional performance in the past decade

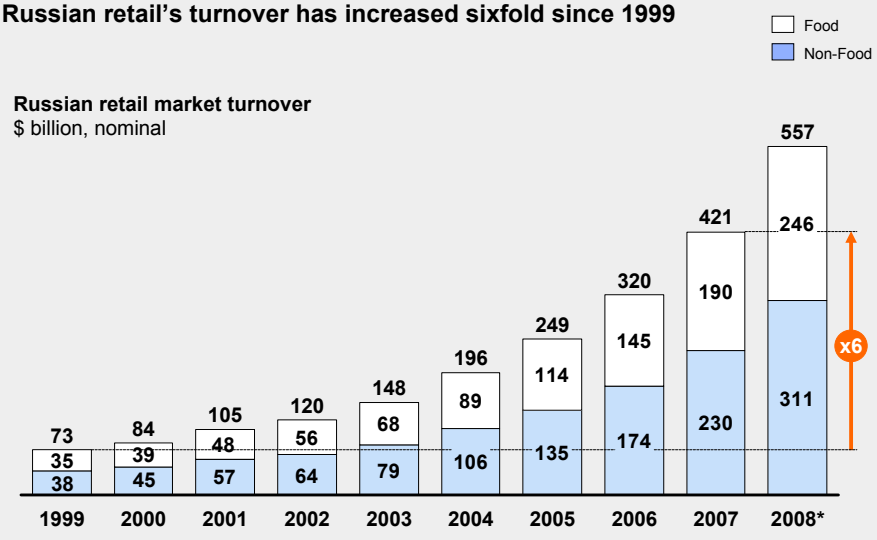
The retail sector accounts for a significant part of the Russian economy. It employs about 10 percent of the total Russian labor force and, together with wholesale, accounts for some 10 percent of GDP. We selected this sector for examination because retail is typically a major job creator in both developed and developing economies and because we could track its development in Russia in the past decade, having studied it in our last report on Russian productivity, published in 1999.

RISING DISPOSABLE INCOMES HAVE BEEN FUELLING DYNAMIC SECTOR GROWTH

Since 1999, retail turnover has increased sixfold from about $73 billion to $421 billion, mainly due to the steady increase in disposable incomes from about $800 per capita to $6,700 (Exhibit 1). Russian consumers have embraced modern retail. In major cities with hypermarkets, consumers cite strong preference for modern stores that provide better value for money, a wider product range, and additional benefits (Exhibit 2). In line with fast growth in retail as a whole, employment in the sector has grown 140 percent with 5 million workers joining retail and wholesale since 1997.

Exhibit 1

Russian retail's turnover has increased sixfold since 1999



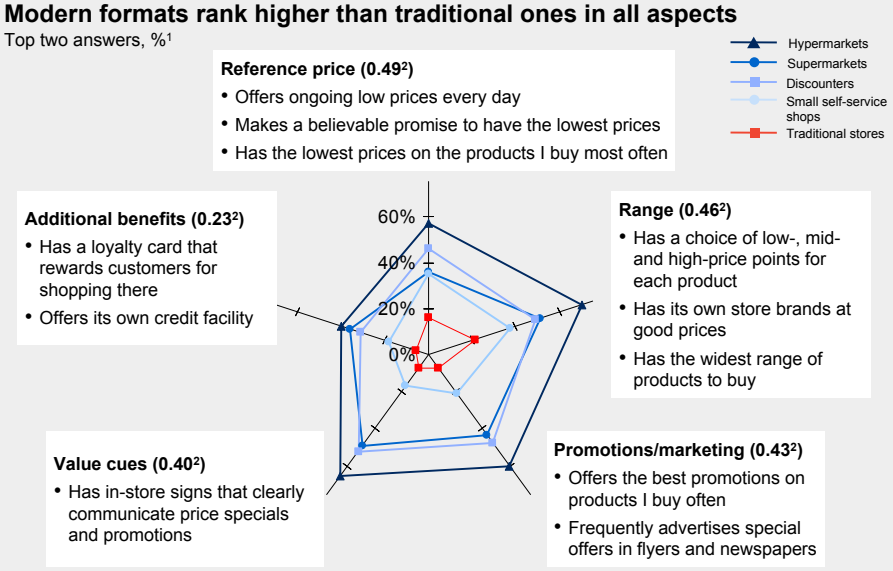
1 Precrisis estimate.
Note: Numbers may not sum due to rounding.

SOURCE: Rosstat; Renaissance Capital estimates; UniCredit estimates; X5 Group; Economist Intelligence Unit; McKinsey analysis

Exhibit 2

Modern formats rank higher than traditional ones in all aspects

Top two answers, %[1]



1 Weighted average of format performance with relative importance.
2 Values in brackets against five pricing dimensions indicate relative importance in driving value.

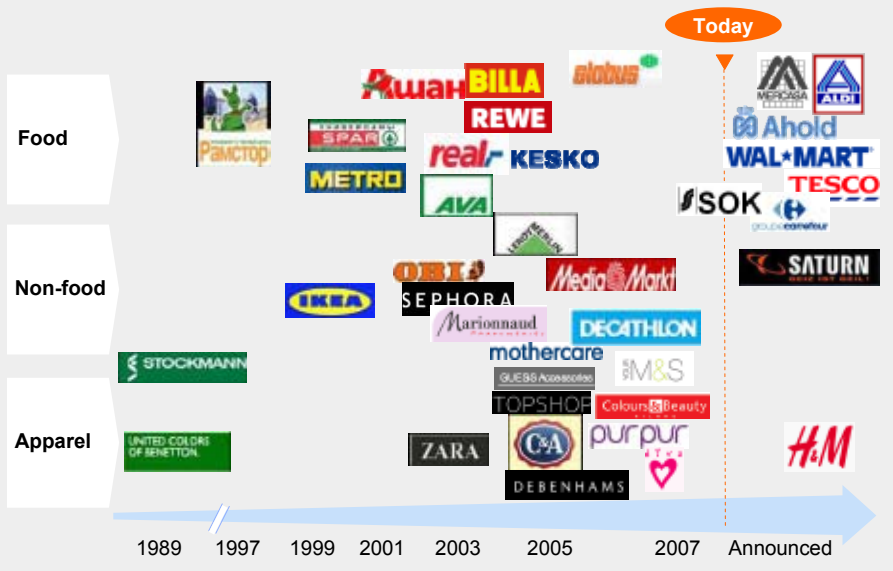
SOURCE: HTWS 2 Research

A HIGHLY COMPETITIVE ENVIRONMENT IS CONTRIBUTING TO GROWTH AND MODERNIZATION

A dynamic competitive landscape has emerged in the past decade in the Russian retail sector, and this has contributed positively to sector growth. A growing number of Russian and international players compete to acquire and develop retail trade space and to offer consumers new value propositions, including a broader product range, convenience, service, and more attractive prices. Since the retail sector was opened to foreign competitors in 1999, many international players have entered the market (Exhibit 3). A number of successful Russian retail chains have also emerged and are able to compete successfully with global players across many key categories and formats. While the sector remains highly fragmented, leading players have expanded far faster than the sector as a whole and have captured market share nationally (Exhibit 4).

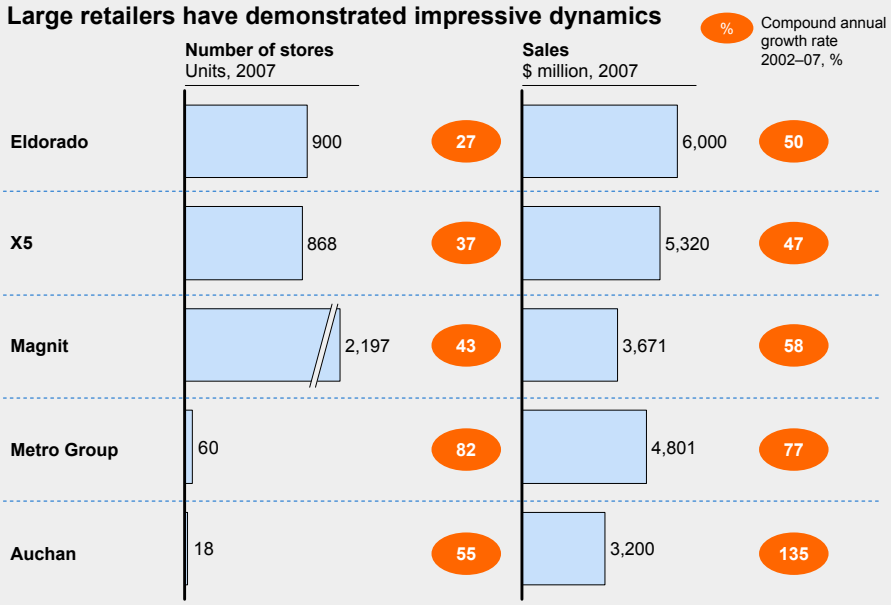
Exhibit 3

Many international players have entered the Russian market



SOURCE: Press reviews; interviews

Exhibit 4

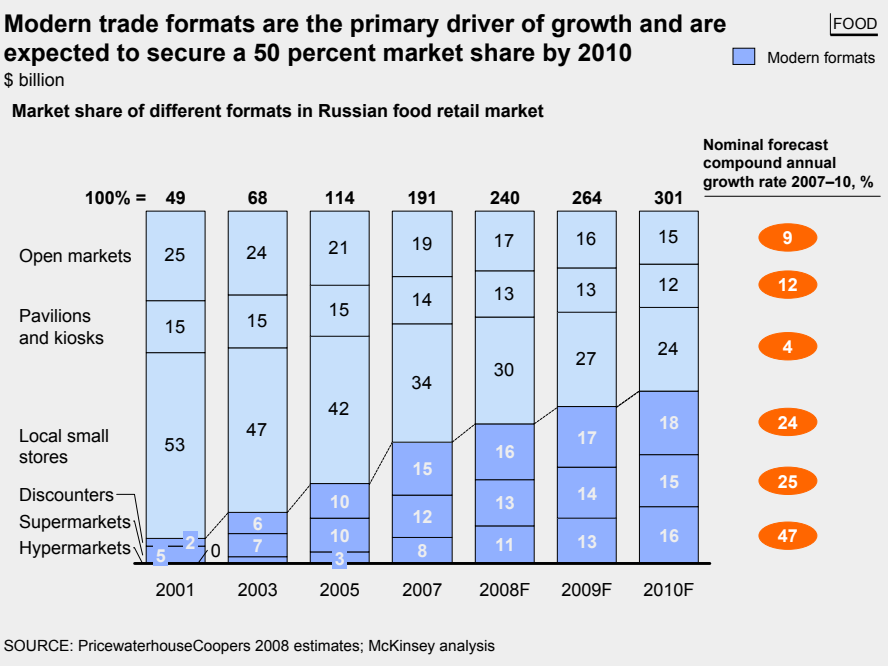


SOURCE: Company data; press search; McKinsey analysis

THERE ARE MANY YEARS OF GROWTH AHEAD FOR MODERN RETAILERS IN RUSSIA

Before the onset of the global financial crisis, experts projected double-digit nominal growth rates for the Russian retail sector (Exhibit 5). Relative to precrisis income levels, the modern retail infrastructure is still highly underdeveloped, even in major cities. Retail space per capita is two to three times lower in Moscow and other major cities such as Ekaterinburg, Novosibirsk, and St. Petersburg than in major European cities.

Exhibit 5



SOURCE: PricewaterhouseCoopers 2008 estimates; McKinsey analysis

THE FINANCIAL CRISIS CREATES A UNIQUE OPPORTUNITY FOR IMPROVING THE LONG-TERM HEALTH OF THE SECTOR

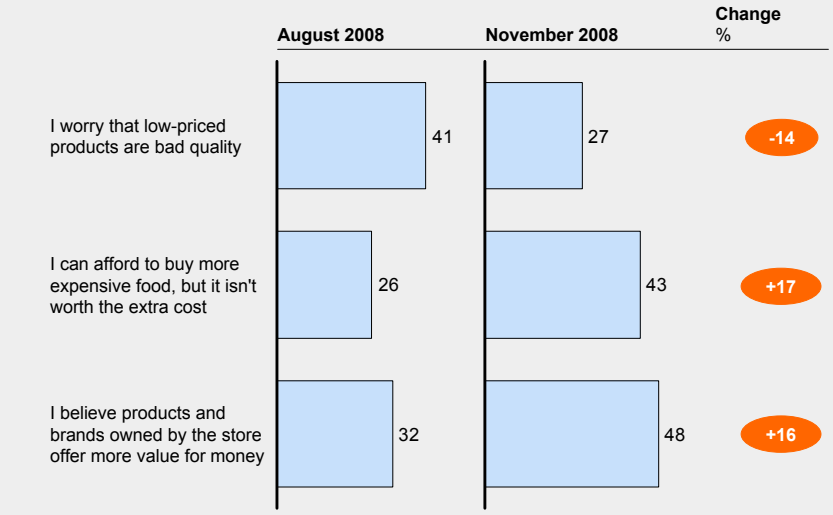
The current financial and economic crisis may decelerate the sector's growth in the short term. A number of leading retailers and distributors were caught unawares when the crisis erupted and experienced difficulties in refinancing their obligations. It is inevitable that some of the less effective players will struggle and eventually exit the market.

However, in the longer term, the crisis may actually bring about a much healthier industry structure, with the best operators strengthening their positions with consumers and suppliers and seizing the opportunity to acquire sites at a lower cost. Our recent research suggests that consumers are becoming far more price sensitive (Exhibit 6). This is likely to further accelerate the shift to modern formats and larger market shares for the most competitive players.

Exhibit 6

Consumer research shows that customers are becoming more price sensitive

Tier 1 global consumers % agree/strongly agree, top two answers



SOURCE: HTWS 2008; HTWS 2008 Boosters

During the economic squeeze, some chains may consider slowing down their store expansion plans. If so, management attention should focus on operational improvement to become lean and fit to scale-up once the economy recovers.

Modern formats are

3 times

more productive than traditional ones

11%

—current share of modern formats in employment in Russian food retail

The productivity of Russian retail is

31%

of the US level

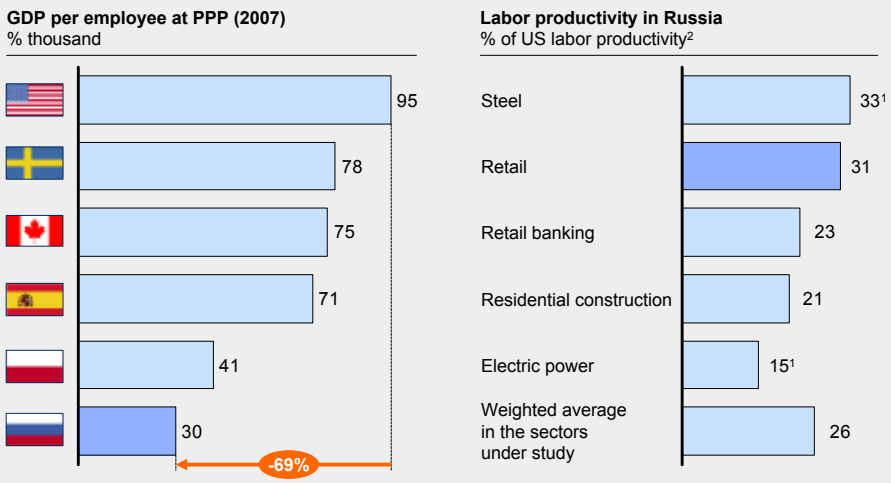
The sector's productivity has doubled in the past decade but more gains are within reach

RETAIL IS A CLEAR SUCCESS STORY IN THE CONTEXT OF RUSSIA'S ECONOMY

Labor productivity in the Russian retail sector has doubled over the past decade. In fact, retail currently has one of the highest productivity levels of the five sectors analyzed by McKinsey (Exhibit 7).

Exhibit 7

Retail is one of the most productive among the studied sectors



1 Total factor productivity in electric power amounts to 80 percent and 54 percent in steel.
2 We use data for United States productivity for the following years; retail, 2007; steel, 2007; retail banking, 2006; residential construction, 2002; electricity, 2006.

SOURCE: Global Insight; Economist Intelligence Unit; IMF; Rosstat; McKinsey analysis

There are several reasons for this robust performance. It is clear that Russia has addressed, at least in part, many of the barriers to development that McKinsey identified in 1999. For example, improved macroeconomic and political stability has allowed for lower capital costs; the more uniform enforcement of taxation has established a more level playing field; and international competitors have been allowed to enter the Russian retail market and expand, fostering healthy competition and the transfer of best practices. Local producers have been able to develop their own products, replacing imports to a significant extent.

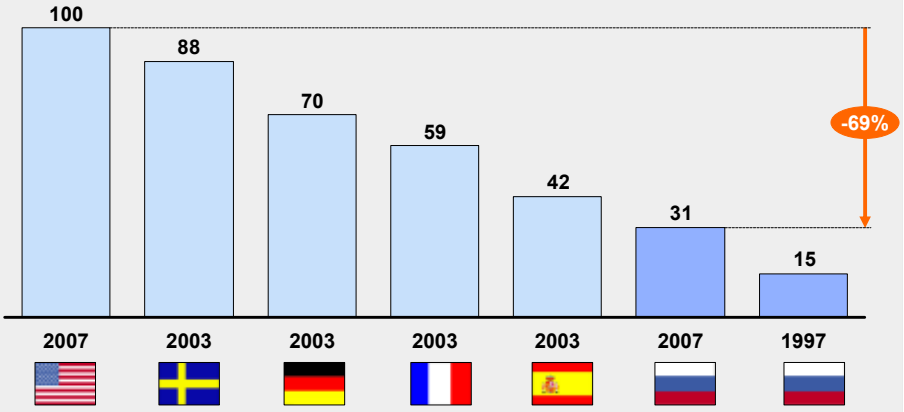
DESPITE MAJOR IMPROVEMENTS, RUSSIAN RETAIL PRODUCTIVITY REMAINS LOW

In 2007, labor productivity in the Russian retail sector stood at 31 percent of the US level. However, despite major improvement since 1999, productivity still lags behind European and US benchmarks by a significant margin (Exhibit 8).

Exhibit 8

Despite major progress since 1999, Russian retail productivity still lags behind international benchmarks

Indexed to the US level of the respective year
% (US 2007 = 100)



SOURCE: Rosstat; Euromonitor; Statistics Department of the US Department of Labor; National Institute of Statistics and Economic Studies, France; company data; McKinsey Global Institute; McKinsey analysis

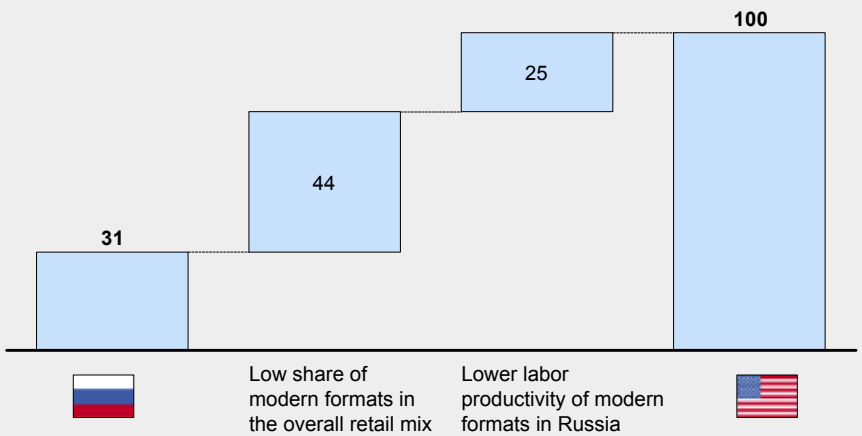
Two fundamental issues account for the majority of labor productivity differences (Exhibit 9):

1. A lower share of modern formats in the total mix of retail space
2. Lower operating efficiency of modern formats in Russia than in other markets

Exhibit 9

McKinsey has identified two main sources of low productivity in retail

Productivity
Index, US = 100%, 2007



SOURCE: McKinsey analysis

RUSSIA HAS A LOWER SHARE OF MODERN FORMATS IN THE OVERALL RETAIL MIX

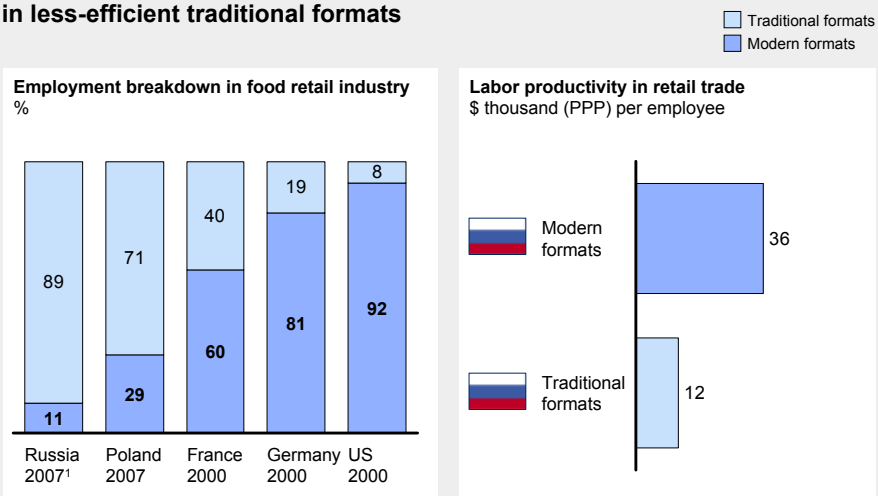
The most important driver of lower productivity in Russian retail, accounting for 44 percentage points of the productivity gap, is a comparatively low share of modern formats in the overall sector mix.

While the penetration of modern formats in Russia has grown rapidly since 1997, it is still lower than in the United States and in most European countries. In Russia, modern formats account for no more than 35 percent of retail turnover compared with 82 percent in France and 86 percent in Germany. At the same time, modern-format food retailers employ only 11 percent of the sector's workers compared with their counterparts in the United States, which employ 92 percent, and Germany where the figure is 81 percent (Exhibit 10).

By our estimates, labor productivity in Russian modern formats is nearly three times that of traditional ones (kiosks, specialist food outlets called "gastronoms", markets, etc.), equating to respective gross profits per employee of $36,000 compared with $12,000 in traditional outlets. The difference stems mainly from modern formats' better location and range and their lower use of labor per square meter of retail space.

Exhibit 10

The majority of those working in Russian retail are employed in less-efficient traditional formats



1 2007 McKinsey estimate.

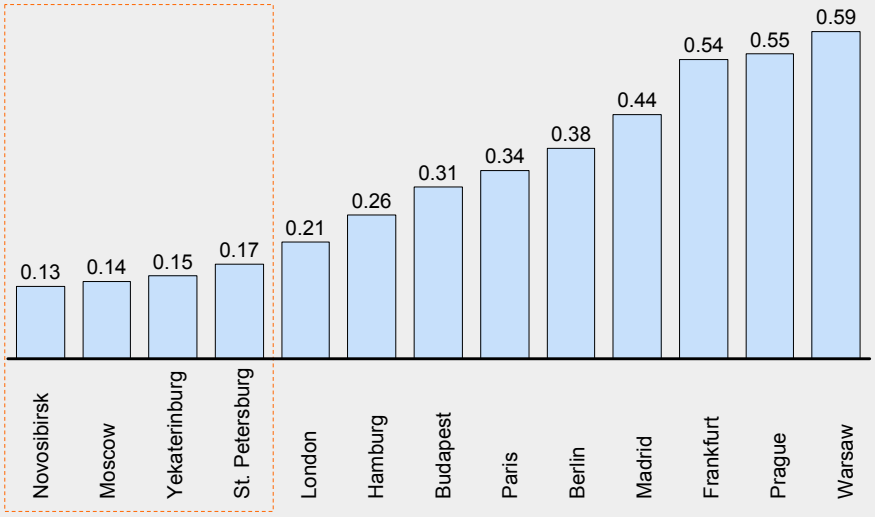
SOURCE: Rosstat; Euromonitor; national statistical bureaus; EHI Retail institute; Institut für Handelsforschung; US Bureau of Economic Analysis; US Bureau of Labor Statistics; ING Rynek Spożywczy 2007; GfK; company data; McKinsey Global Institute; McKinsey analysis

The most often cited obstacle to the growth of modern retailers is a shortage of low-cost, quality retail space that can accommodate both the large traffic flows and standard big-box formats characteristic of modern retail. However, various other challenges exist, namely Russia's poor road infrastructure and its severe shortage of reliable supply chains:

- **Shortage of suitable sites.** Good-quality retail space is two to three times lower in Russia's biggest cities (between 0.13 and 0.17 square meters per capita) than in comparable European cities (0.21 in London, 0.34 in Paris, and 0.55 in Prague) (Exhibit 11).

Exhibit 11

Russia lacks quality retail space
Square meters per citizen



SOURCE: Jones Lang LaSalle; Business Analytica; McKinsey analysis

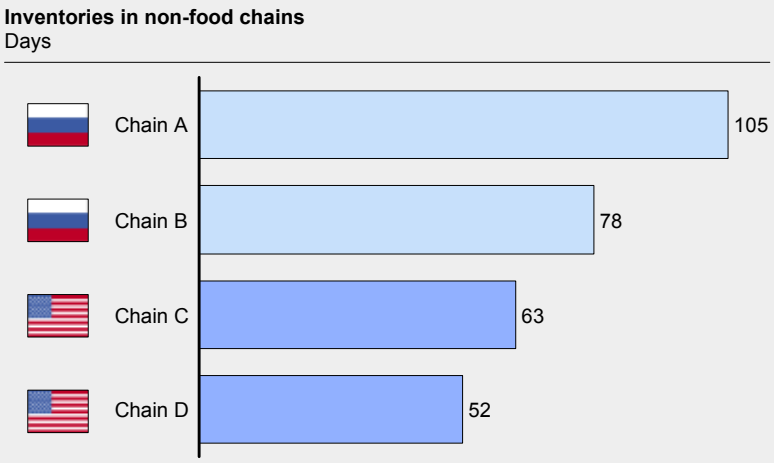
- **Long and unpredictable commercial real estate development cycle.** Poor regulation impedes commercial real estate development in Russia. Procedures to approve land zoning changes, obtain construction permits, building technical approvals and utility connections are nontransparent and cause delays. Though the Russian City-building Code requires master plans to be available in all cities, the majority of Russian cities lack them. This increases the risk and uncertainty associated with development projects, requiring investors to go through lengthy, complicated, and opaque (re)zoning procedures, whose timing and outcomes are uncertain. Uncertainty also typically surrounds the issue of infrastructure: when, where, and what infrastructure will be developed adjacent to commercial sites. Typically, resolving these issues can take years as various jurisdictions may be involved.

- **Poor transportation infrastructure.** Russia's existing network of roads is congested and underdeveloped. Compared with Canada, for example, the density of roads per capita in Russia is five times lower at 6 kilometers per 1,000 persons, compared with 31 kilometers in Canada. The poor road infrastructure lessens opportunities for logistics optimization, leading to higher transportation costs and longer delivery times.

- **Difficulties in building a reliable supply chain.** Third-party logistics providers tend to be small and regional. Distributors are also regional and focused on a narrow range of brands and categories. Thus, retailers need to work with hundreds of distributors and trucking companies to cover the country, making delays, damages, losses, and running out of stock frequent occurrences. Third-party warehousing space is quite limited and costly. These factors add to logistics and shrinkage costs, and require retailers to maintain higher levels of inventories (Exhibit 12). Overall these structural challenges slow the pace of expansion of leading modern-format retailers.

Exhibit 12

Russian retailers maintain higher inventories than US peers



SOURCE: Company reports; McKinsey analysis

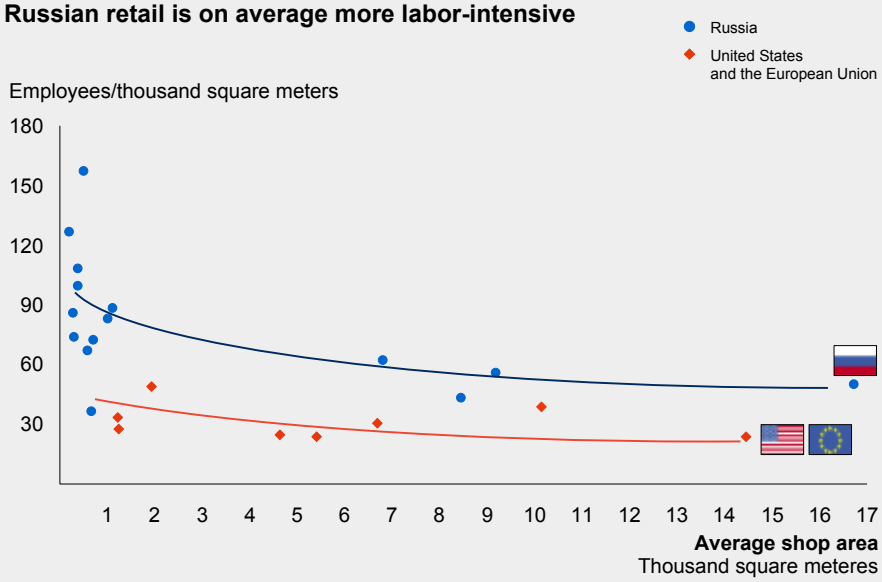
RUSSIA'S MODERN RETAIL FORMATS HAVE LOWER LABOR PRODUCTIVITY

Our analysis has also identified significant productivity shortcomings among Russia's modern-format retailers and even between stores belonging to the same retail chain. This difference accounts for some 25 percent of the productivity gap with the United States.

Russian modern-format stores employ on average nearly three times as many people per square meter of retail space as similar stores in the United States. This appears to be consistent across all types of modern formats and true for both Russian and international retailers operating in Russia (Exhibit 13). The impact of this significant labor burden for the moment appears to be offset partially by much higher revenue per square meter, most likely due to the considerably lower penetration of modern formats. On a gross profit margin basis, Russian modern retailers generate roughly $36,000 per employee compared with $46,000 by their US peers (Exhibit 14).

Exhibit 13

Russian retail is on average more labor-intensive

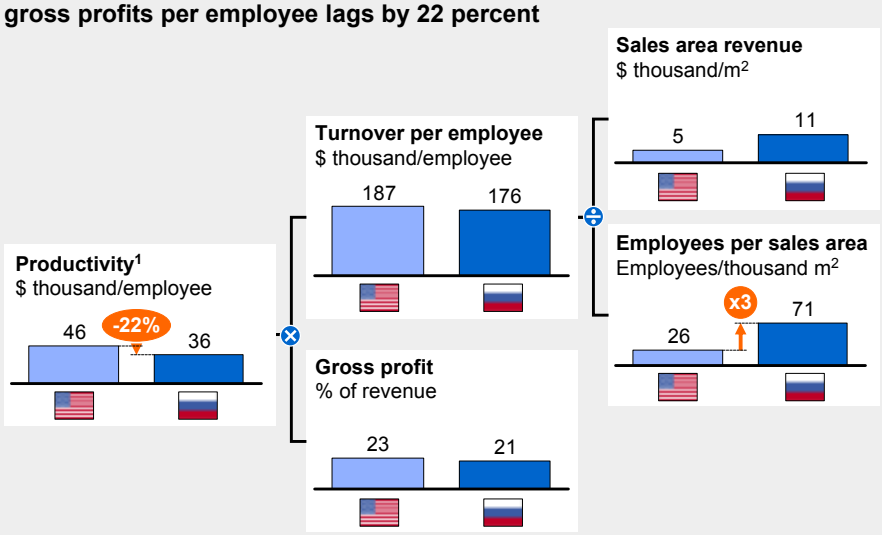


1 McKinsey assessment based on the data on eight large Russian retailers; includes a portion of hypermarkets.

SOURCE: Deutsche Bank; company data; Euromonitor; McKinsey analysis

Exhibit 14

Russian retailers employ three times more labor as the United States but gross profits per employee lags by 22 percent



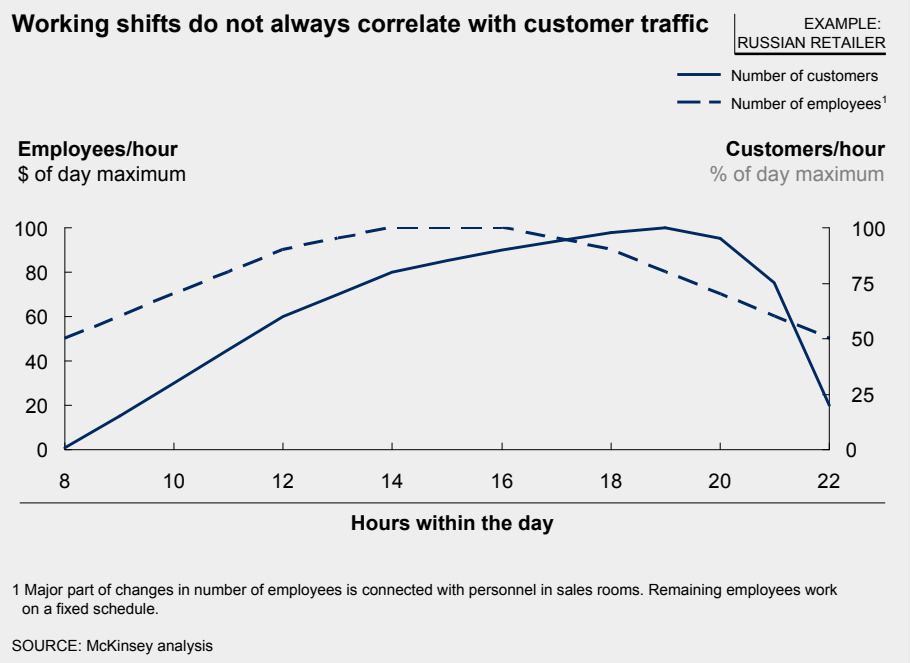
1 Values are adjusted for PPP for food retail trade with the coefficient of 1.37.

SOURCE: World Bank; US Bureau of Labor Statistics; National Institute of Statistics and Economic Studies, France; company data; McKinsey analysis

In our analysis, we identified various causes for the significant differences in the use of labor among Russian modern-format retailers versus their peers in the United States and Europe:

- **Ineffective staffing of stores and shifts.** Russian retailers use part-time labor much less frequently than their peers in other markets. Therefore, working shifts do not always correlate with customer traffic flows—there is overstaffing during low-traffic periods and understaffing during peak periods (Exhibit 15). Moreover, because store formats are not standardized, there are no uniformly applied staffing norms. Thus, staffing levels within the same chain can differ substantially from store to store.

Exhibit 15



1 Major part of changes in number of employees is connected with personnel in sales rooms. Remaining employees work on a fixed schedule.

SOURCE: McKinsey analysis

- **High staff turnover and lack of training.** Turnover of 40 to 100 percent prevents having a professional sales force in place and makes it hard to achieve payback on training investments. However, the economic crisis might improve staff turnover and increase the availability of good talent. There is a limited number of formal training processes for retail employees and most of the training is done on the job by store managers. Although in some cases this might be effective, in other cases the lack of standardization (i.e., unified solutions applied to all stores) prevents the smooth induction of new employees and execution suffers (e.g., different standards for each sales point depend on the quality of local management).
- **Lack of multitasking.** At present, personnel in Russian retail chains are not interchangeable to a sufficient extent, reducing opportunities to optimize staffing.
- **Decentralized administration.** The organizational structure of Russian retailers often has redundant management levels and regional offices, which limits operational efficiency.
- **Inadequate use of IT and automation.** The underemployment and underutilization of IT systems is one of the important factors behind less efficient business processes in Russian retail. Redesigning processes, together with investment in new IT systems, may be an important productivity improvement lever for retailers.

Further action is required to boost retail sector productivity

Russia and Russian consumers have embraced the core value proposition of modern retailers—choice, convenience, and lower prices. In the past decade, the competitive landscape in retailing has become one of the healthiest in Russia's economy. A significant number of both Russian and international players are in competition with each and a number of leading global players are showing interest in entering the market.

However, the pace of expansion of modern formats and their operational effectiveness can still improve significantly. After years of rapid growth through new store openings, it would be wise for retailers and regulators not to let the current crisis go to waste. They could use this slower period to address the core issues standing in the way of closing the remainder of the productivity gap.

Policy makers should focus on the following measures to expedite the expansion of modern formats:

- **Improve the transparency and efficiency of commercial real-estate development regulation.** To speed up project development and construction, policy makers need to update territorial development plans to include infrastructure expansions and develop clear project approval processes. Furthermore, they could establish clear responsibilities and roles for the various regulatory bodies involved in zoning changes and approvals. Redundant approvals should be removed and the number of approvals that can be obtained concurrently can be increased.
- **Develop the road infrastructure.** Higher-quality road infrastructure will expand the number of sites available for commercial real-estate development. In addition, better and more extensive road networks could enable retailers to optimize their distribution infrastructure and reduce excess inventories and losses associated with long and unpredictable delivery times.

Executives in the retail sector should incorporate the following initiatives in their near-term plans to strengthen core operations and seize opportunities presented by the crisis:

- **Bring headcount figures in line with international benchmarks.** A combination of top-down and "lean" initiatives could be implemented by leading retail chains to downsize headcounts in both stores and administrative functions. These efforts should be accompanied by additional investments in personnel training and retention and incentives to improve shop floor and warehouse productivity.
- **Improve operations efficiency.** Based on our analysis, we believe there is significant potential to optimize the product mix, to consolidate the number of distributors and third-party logistics providers, and review opportunities to optimize the configuration of warehouses and distribution centers. These efforts should yield significant reductions in inventory levels, improvements in the control, and reduction, of costs in the supply chain. We believe many operational

improvements can be captured without major investments. The implementation of adequate financial controls through improved IT systems is the one area in which we believe chains may need to invest in the near term to improve the quality of planning and control.

- **Seize opportunities offered by the crisis** to strengthen customer franchises, relationships with suppliers, and to acquire weaker players and new sites.

* * *

Russian retail has made more significant productivity improvements over the past decade than other sectors of the economy. Closing the remainder of the gap with the productivity in benchmark countries is fully achievable. The priority for policy makers should be to remove regulatory barriers to commercial property development and to improve the road infrastructure. For their part, businesses should concentrate on improving the effectiveness of existing operations. The economic crisis is a unique moment to strengthen operational effectiveness and improve the long-term health of the sector.

Appendix 1: Methodology for calculating productivity

This appendix details the methodology and main limitations of McKinsey's productivity calculations for the retail sector.

INDUSTRY DEFINITION

For our analysis we defined the retail sector as companies selling goods directly to consumers. We included food and beverages products and non-food products such as consumer electronics; we did not include wholesale and transportation. Vehicle and gasoline sales were excluded from our analysis to avoid unfair comparison of value added in retail trade between Russia and countries that do not have a price advantage in oil (vehicles and gasoline are registered as one group in national statistics).

METHODOLOGY

For the purpose of this study, we defined productivity in the retail sector as gross profit per employee, a metric that we selected because it best represents value created by retail stores. We adjusted all financial figures using a purchasing power parity calculation: 1.37 for food chains, 1.01 for electronics chains. We selected employees as a base instead of working hours because data regarding working hours in the Russian retail sector are not reliable.

We estimated productivity separately for modern and traditional formats. Modern formats include discounters, supermarkets, and hypermarkets. Traditional formats include open markets, kiosks, pavilions, and over-the-counter stores. Total sector productivity was calculated based on the productivity of traditional and modern formats proportionally to their employment.

We created a list of Russian retail companies representing food and non-food modern formats (non-food retailers were mainly electronics stores). We estimated productivity for each selected company and calculated productivity for the food and non-food subsectors by weighting individual chains according to their employment. Total productivity for the modern-format sector was estimated proportionally according to the employment share of modern food and non-food chains. We calculated total employment in modern formats from total turnover and productivity estimates for modern formats.

For traditional formats, we estimated gross margins for the different types and calculated gross profit based on turnover estimates. Employment in traditional formats was estimated by subtracting personnel employed in modern retail chains from total sector employment.

LIMITATIONS

McKinsey's methodology is subject to limitations, and future work will aim to enhance the methodology of gross margin measures and increase the accuracy of labor input figures, as well as the distribution of employees between the modern and traditional formats.

Appendix 2: Sources

RUSSIAN

Source	Data
Rosstat	Employment and turnover in Russian retail sector
Renaissance Capital	Russian retail turnover by format
Business Analytica	Russian retail turnover by format; retail space supply in Russia and abroad
UniCredit	Russian retail turnover by format
PricewaterhouseCoopers	Survey of Russian retailers
Colliers International	Trends in retail property market
Companies websites and annual reports	Sales, cost of sales, inventory, employment, store space, number of stores, personnel costs figures
Press reviews	Foreign retailers entry to Russian market
Interviews	Gross margin in traditional formats in Russia

INTERNATIONAL

Source	Data
Global Insight	Retail sector value add
Euromonitor	Retail sector turnover; personal disposable income and consumption; road density
National statistics services of US, UK, France, Germany, Poland	Employment and turnover in retail sector
Economist Intelligence Unit	Country macroeconomic data
World Bank	“Doing business” report; purchasing power parities by product category; road density
Deutsche Bank	Employees per square meter and average store size figures
Jones Lang LaSalle	Retail space supply in Russia and abroad
Transport Intelligence	Rent-rates for distribution centers

IMD world competitiveness yearbook	Road density
Economist	Road density
Management ventures – Retail Insights	US stores size figures
Companies websites and annual reports	Sales, cost of sales, inventory, employment, store space, number of stores, personnel costs figures
McKinsey Global Institute research	Retail productivity estimates on country level; estimates for split between modern and traditional formats in the US

The study

Leveraging productivity is a key driver to Russia's sustained economic growth. This study, conducted by the McKinsey Global Institute (MGI) and McKinsey & Company's Moscow office, explores the significant productivity gains that Russia can achieve and suggests priorities and approaches the government and business can take to capture this opportunity to ensure sustainable economic growth and increased competitiveness.

This study primarily focuses on labor productivity which we calculate as output per employee or, for the economy as a whole, GDP per employee.

McKinsey identifies, quantifies, and ranks the opportunities for productivity gains in five sectors that are key to Russia's economic development: retail, steel, retail banking, residential construction, and electrical power. The analysis compares the productivity—the efficient use of labor and capital—in these sectors with that of benchmark countries and uses a bottom-up approach to quantify productivity gaps.

The study employs proven methodology used in multiple productivity studies around the world by MGI and leverages the knowledge and experience of McKinsey's team of professionals in Russia.

We would like to acknowledge the specific contribution of McKinsey consultants and partners – Kevin Krogmann, Baudouin Regout and Jaana Remes.

McKinsey Global Institute

April 2009

Lean Russia: The productivity of retail banking

Vitaly Klintsov
Dmitry Popov
Irene Shvakman
Denis Tafintsev

Executive summary

Banks around the world have been rocked by the global financial crisis, and Russian banks are no exception. The sector has already been hard-hit and is bracing itself for the impact of increases in non-performing loans. Against this backdrop, banks are focusing on both maintaining liquidity and solvency and on reducing costs. The crisis has created an urgent need for banks to make a step change in productivity.

Prior to the crisis, Russia's retail banking market was the fastest-growing in the world. The sector's risk-adjusted revenue expanded at a compound annual rate of 60 percent between 2000 and 2007. But growth and productivity have not gone hand in hand. In fact, despite—or perhaps due to—the industry's remarkable growth, productivity has remained low.

The Russian retail banking sector employs some 400,000 people, almost as many workers per capita as the United States, the Netherlands, Sweden, Spain, or Poland. The productivity of these workers is one of the lowest among the major countries we analyzed—only 23 percent of that in the United States, when adjusted for the differences in incomes. At the heart of the productivity gap lie onerous regulations, inefficient bank practices, and the fragmented structure of the sector, which has more than 1,000 banks, most of them subscale.

The road map to improved productivity is clear and within reach. Government and business can close the productivity gap in large part through initiatives aimed at "de-bureaucratizing" branch processes, centralizing back office and administrative functions, and expanding usage of electronic channels. Action to further consolidate the sector would also enhance productivity by eliminating players with insufficient depth and breadth.

There are four key measures to execute:

1. **Streamline central bank regulations** that guide branch-based processes by eliminating onerous verifications, forms, controls, and reporting. Policy makers could aspire to reduce the time needed to carry out each basic branch transaction to international standards (less than two minutes).

2. **Overhaul branch processes** to eliminate waste, introduce simple automation, and migrate customers to less costly transaction channels, action that can be taken by banks to boost productivity, with or without regulatory changes. Moreover, banks can capture significant productivity gains by centralizing back-office and administrative functions, which are currently distributed across regional representative offices and branches.

3. **Expand the use of electronic bill payments and transfers,** working with utility companies and government. Electronic payments cost much less per transaction; not only can they generate considerable savings, but they also could become a new revenue source.

4. **Foster sector consolidation** by raising capital and reporting requirements as well as risk-management standards to improve the productivity and overall health of the banking system.

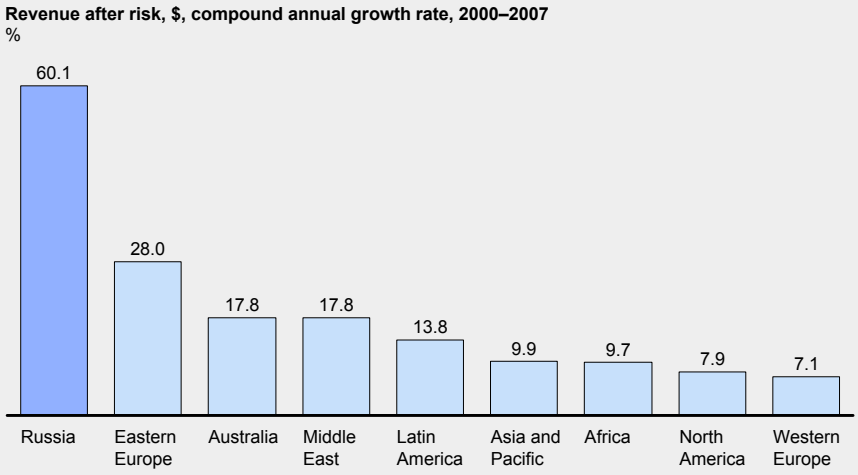
The Russian retail banking sector faces significant challenges but also has huge growth potential

BEFORE THE CRISIS, RETAIL BANKING IN RUSSIA WAS THE WORLD'S FASTEST GROWING

In recent years, the Russian retail banking sector has been the fastest-growing in the world. The sector's risk-adjusted revenue increased by an average of 60 percent annually between 2000 and 2007 and the overall share of retail banking revenue in the banking sector as a whole increased from 25 percent in 2001 to 33 percent in 2007. Russia's financial stock also experienced strong growth—an average of 20 percent annually since 2003 (Exhibit 1).[1]

Exhibit 1

Russia was the world's fastest-growing retail banking market prior to the global financial crisis



SOURCE: McKinsey Global Banking Pools

MANY YEARS OF BRISK GROWTH NEEDED TO REACH EUROPEAN PENETRATION LEVELS

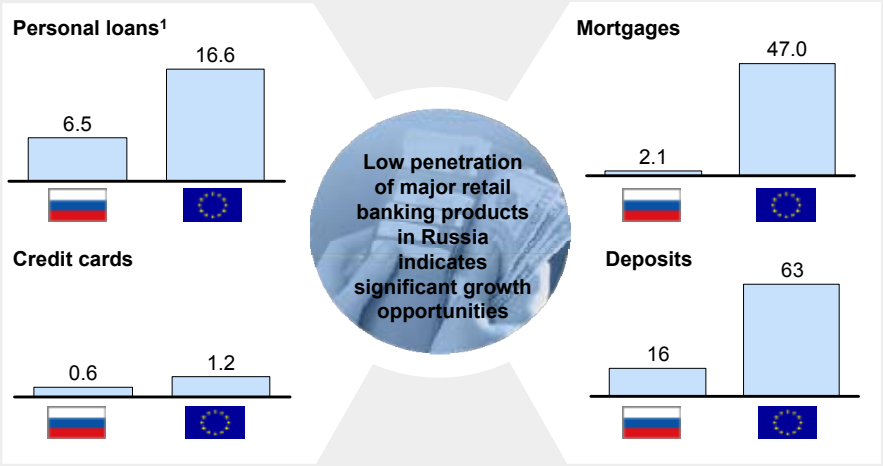
Although these are dramatic figures, in reality the sector remains underdeveloped relative to the size of Russia's economy. Russia still accounts for only 1.2 percent of the world's financial stock, and its "financial depth," as measured by the value of financial assets in GDP, remains low compared with other economies. The penetration of all major retail banking products is significantly lower than in the European Union (EU), with mortgages accounting for only 2.1 percent of Russia's GDP in 2007 compared with 47 percent of GDP in 15 EU countries (Exhibit 2). Although leading banks have recently expanded into the regions, retail banking volumes remain concentrated in Moscow and other major cities.

1 See appendix for a detailed description of our analysis.

Exhibit 2

Penetration of retail-banking products is low, offering a major growth opportunity

2007, % of volume to GDP[1]



Note: EU data comprises 15 countries for 2006.
1 Including point of sale and car loans.

SOURCE: Central banks; Economist Intelligence Unit; McKinsey analysis

THE BANKING SECTOR IS DOMINATED BY STATE-OWNED BANKS AND IS HIGHLY FRAGMENTED

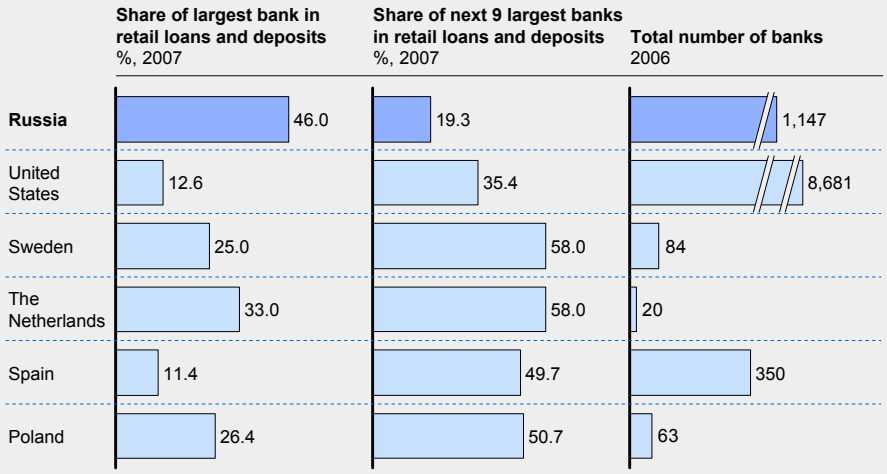
State-owned banks, which account for nearly 56 percent of all retail loans and deposits, dominate the market to a greater extent than in most emerging economies.[2] Sberbank alone accounts for 52 percent of retail deposits and 32 percent of retail loans.[3] The next nine leading Russian retail banks hold a market share of between 1 and 4 percent each, the smallest market share of any other country examined as part of this study. The rest of the market is highly fragmented, with more than 1,000 active small and medium-size banks (Exhibit 3).

2 Russia's three largest retail banks—Sberbank, VTB, and Bank of Moscow—are state-owned, as is Gazprombank, the eighth-largest bank. These four banks together have a 53.2 percent share of retail loans and deposits, while all state-controlled banks are estimated to have a combined 56 percent share.

3 Russian retail banking sector can be divided into three groups: (1) Sberbank, which dominates the market with 44.9 percent market share in loans and deposits; (2) nine "best-practice" banks: VTB, Bank of Moscow, Rosbank, Raiffeisenbank, URALSIB, Russian Standard, Gazprombank, URSA Bank, and Alfa-Bank; and (3) 1,130 small and medium-size banks.

Exhibit 3

Russian retail banking is dominated by a single state-owned bank but is also extremely fragmented



SOURCE: Central banks; McKinsey analysis

Domestic banks dominate the sector, and foreign banks have only recently started to make inroads in Russia. In 2002, 27 foreign banks had a cumulative 5.4 percent share of Russia's financial assets. By 2007, 61 foreign banks had a 10 percent share. This pictrue contrasts starkly with that of other Central and Eastern European countries. For example, in 2005 majority foreign-owned banks held more than 80 percent of total banking system capital in Estonia, Latvia, the Czech Republic, Croatia, Albania, Slovakia, and Slovenia. In 2005 in Poland and Hungary this share was 69 and 61 percent, respectively. In 2007, foreign banks had a larger market share in Ukraine and Kazakhstan at 38 and 12 percent respectively.

Competition in the sector has increased significantly in recent years. Interest rates remain unregulated, and no substantive legislation discriminates against any class of bank. The introduction of deposit insurance made the playing field somewhat more level, and until the recent crisis, major private banks competed successfully with the state-owned institutions. Once the crisis erupted, however, government began injecting capital into state-owned entities. This has negatively affected private players, which have lost customers to state-owned banks.

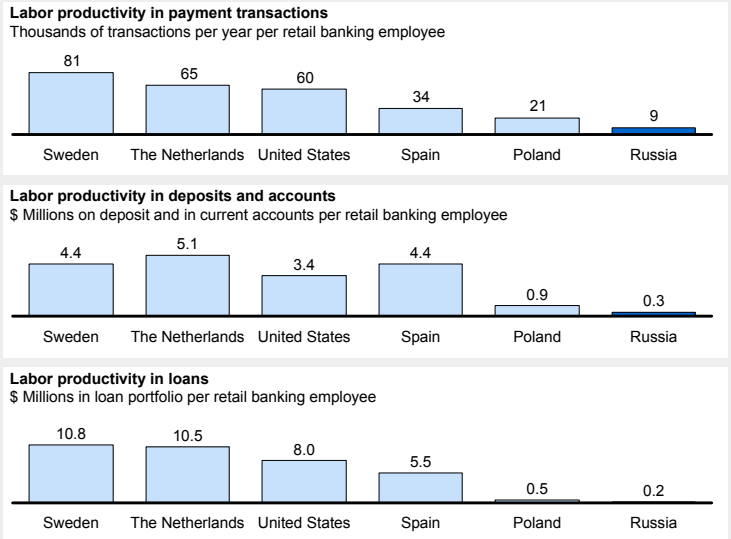
Russia's retail banking sector is burdened by very low productivity

In per capita terms, Russian employment in retail banking is not significantly different from that in the United States or other benchmark countries. This sector employs just over 400,000 people, equivalent to 0.6 percent of total overall employment, a percentage slightly lower than in the United States, Spain, or the Netherlands, and roughly equivalent to that in Poland and Sweden. The ratio between retail and corporate banking is also similar to benchmark countries—approximately 34 percent of Russia's banking employees work in corporate and 66 percent in retail, which is similar to the situation in the United States (at 30 and 70 percent respectively).

Labor productivity in Russia's retail banking sector is extremely low, representing only 11 percent of US productivity levels in nominal terms and 23 percent when adjusted for the difference in income levels. Sweden, which has one of the most productive sectors in the world, is more than 12 times as productive as Russia, and Poland is more than twice as productive. Russia's productivity is low across all the services we examined, ranging from 4 percent in loans to 13 percent in payment transactions (Exhibit 4).

Exhibit 4

Russia has the lowest output per employee of all benchmark countries across product categories, 2006



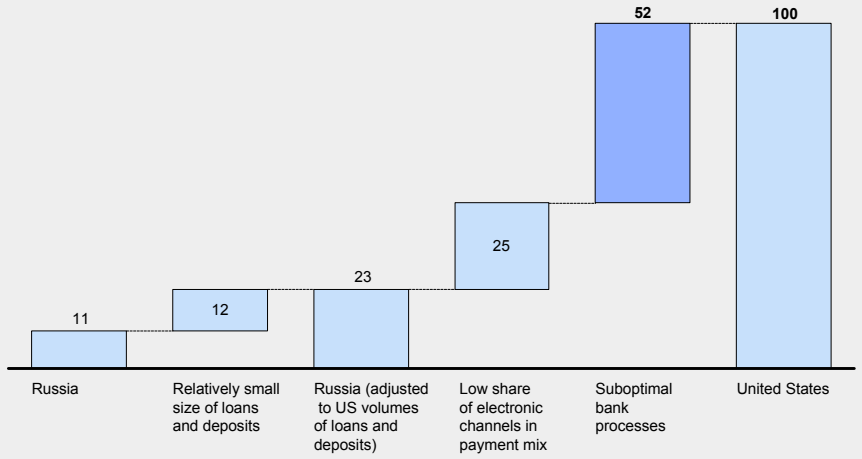
SOURCE: National statistics organizations and central banks; expert interviews; McKinsey analysis

Russia needs to address two fundamental issues to close the productivity gap in retail banking: inefficient branch processes and low use of electronic channels to conduct payments (Exhibit 5).

Exhibit 5

Labor-intensive processes and a low share of electronic payments dampen productivity

%



SOURCE: McKinsey analysis

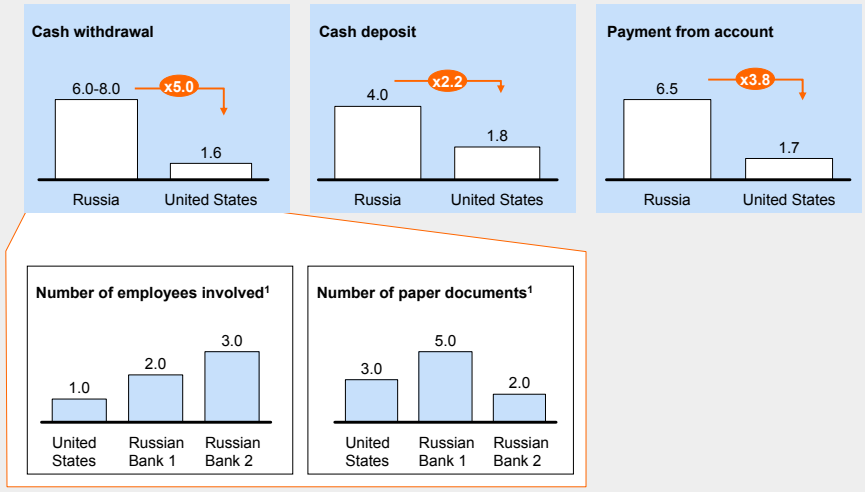
BRANCH PROCESSES ARE SLOW AND LABOR-INTENSIVE

Inefficiency in branch-based processes is by far the most important factor in the sector's low labor productivity, accounting for 52 percentage points of the productivity gap between Russia and the United States. The great majority of branch processes take longer and require more labor in Russia than in the United States (Exhibit 6). Processing a cash withdrawal without a bank card takes five times longer in Russia than in the United States, and it takes twice as long to process a cash deposit.

Exhibit 6

Russian retail banking processes take between two and five times as long as they do in the United States

Labor time per transaction at teller
Minutes



1 Based on data from large Russian and US banks.

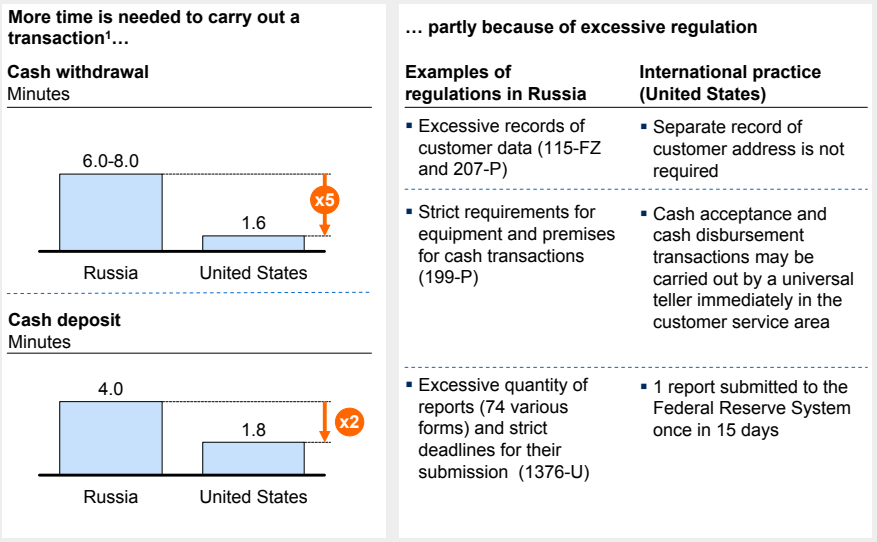
SOURCE: Information supplied by client; McKinsey

We observed two fundamental causes for poor productivity:

1. Onerous regulation of branch transactions. When investigating branch transactions, we were struck by the numerous instances in which multiple verifications and forms were necessary to execute transactions such as cash withdrawals and payments, account activations, and credit-limit approvals. We found that such verifications are typically absent in best-practice banks outside of Russia. This cumbersome system is in part driven by Russia's banking regulations—notably instruction 199-P—which requires that at least two employees be involved in a cash withdrawal without a banking card (Exhibit 7). Another example of onerous regulation that today limits Russian retail banking productivity is directive 1376-U, which requires banks to submit 74 different reports to the central bank, compared with just one report US banks submit every 15 days to the Federal Reserve System. Russian banks also have to report any suspicious transaction to the federal financial monitoring service on the next working day, while US banks are allowed 30 days to report such transactions.

Exhibit 7

Regulations reduce the efficiency of basic branch processes EXAMPLES



1 Based on data for major Russian and US banks.

SOURCE: Disguised client examples; McKinsey

2. Inefficient bank practices. We found that not all the blame for poor productivity rests with the regulators. For example, some banks go beyond the requirements of 199-P and require three employees to participate in a basic cash withdrawal. Moreover, most banks still conduct highly decentralized regional operations. While a number of Russian banks have begun to centralize back-office and administrative functions, most have not made the necessary IT and organizational investments. Based on our experience, centralization can roughly double productivity.

The combination of regulations and banks' own practices clearly takes a significant toll on productivity.

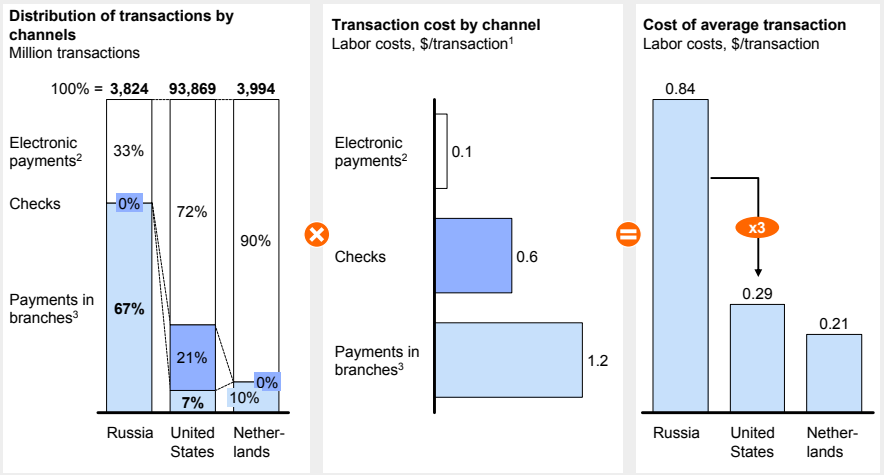
ELECTRONIC CHANNELS ARE INSUFFICIENTLY USED TO CONDUCT PAYMENT TRANSACTIONS

The prevalence of branch-based and non-electronic transactions in Russian retail banking significantly affects productivity (Exhibit 8). The low share of electronic transactions accounts for 25 percentage points of the difference in labor productivity between Russia and the United States.

Only about one-third of payment transactions in Russia are automated compared with around 70 percent in the United States and approximately 90 percent in the Netherlands. Non-automated transactions are on average 12 times more labor-intensive than electronic transactions.

Exhibit 8

The share of electronic payments lags significantly behind the United States and Western Europe



1 United States benchmarks.
2 Including transactions through ATMs, Internet and other automated payment channels.
3 Including transactions in banks' and post offices.

SOURCE: McKinsey banking practice

The necessary ATM and POS terminal infrastructure appears to be in place, as Russia has almost as many ATMs per capita as Poland and Sweden, and ATM transaction levels are within the range of benchmark countries.[4] To expand further the share of electronic payments in the economy, banks and regulators should put the emphasis on enabling electronic utility-bill payments and conducting pension and other welfare transfers electronically. These types of transactions account for the majority of payments in most countries. The availability of easy utility-payment services would be highly beneficial for banks as it would enhance the value proposition of current accounts for consumers. In most countries—but not Russia—current accounts are an important source of income and "loyalty building" for banks.

RUSSIA HAS A LARGE NUMBER OF SMALLER AND MIDSIZED BANKS, WHICH ARE SUBSCALE

The Russian retail banking sector would secure substantial productivity gains from consolidation. There are more than 1,000 banks in Russia, many of which are subscale and therefore inefficient. Many banks are too small to achieve economies of scale by improving their IT platforms, centralizing back-office functions, leveraging outsourcing opportunities, and educating customers on banking products and services. Russia's central bank should continue its efforts to raise its bank capital and reporting requirements in order gradually to drive consolidation in the sector.

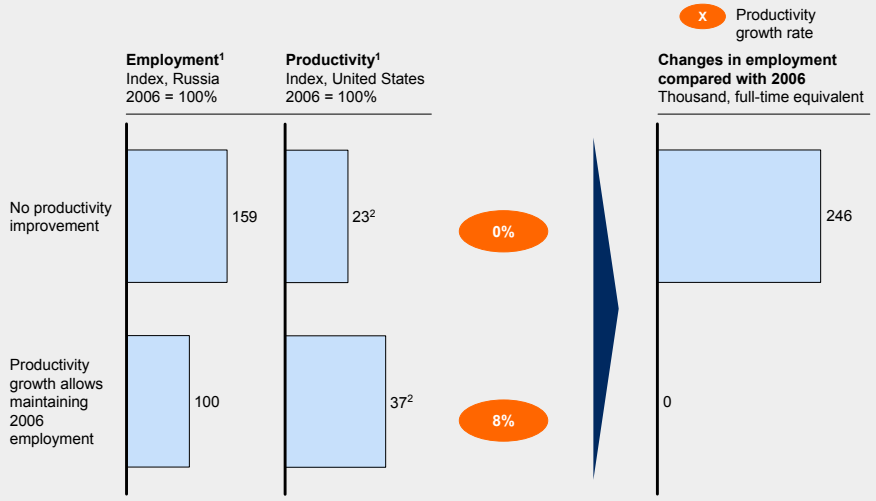
4 Automated teller machine (ATM) and point of sale (POS).

WITHOUT IMPROVED PRODUCTIVITY, RETAIL BANKS WILL NEED 250,000 MORE WORKERS BY 2012

In view of the large growth potential of retail banking, we believe it is imperative to improve productivity in the sector as soon as possible. Without significant productivity improvement, employment in the sector would need roughly to keep pace with the physical output. Under such a scenario, our estimates suggest that the sector would need to employ nearly 250,000 more people by 2012. To maintain current employment levels, Russian banks would have to improve productivity to around the levels that prevail in Poland today. Our experience indicates that doing this is feasible, through targeted efforts to implement "lean branch" and back-office centralization initiatives (Exhibit 9).

Exhibit 9

Russian retail banking could need nearly 250,000 more employees by 2012



1 Assuming that physical output in all scenarios will be growing at 8 percent compound annual growth rate, which is equivalent to 20 percent nominal volumes growth due to projected growth of nominal wages.
2 Adjusted for difference in volumes of loans and deposits between Russia and the United States.

SOURCE: Rosstat, Viewswire; McKinsey analysis

Russian banks have not escaped the impact of the 2008 global financial crisis

The global financial crisis is having a severe impact on the banking sector worldwide and Russia's banks are not an exception.

Initially, leading banks experienced liquidity problems caused by a disruption of the interbank market. As the liquidity crunch receded, banks began to face new challenges—withdrawals of consumer deposits, shifts in deposit base into foreign currencies as the ruble devalued, and more recently, growing bad-debt portfolios.

Increasing numbers of defaults on both corporate and individual loans are now affecting Russian banks. Losses due to bad corporate loans may have a significant impact on Russian banks' capitalization and their ability to finance growth. Under various scenarios, corporate non-performing loans could increase from today's $13 billion to $100 billion–$150 billion over the next 12 to 18 months. In retail, we also see non-performing loans rising from today's $7 billion to $30 billion–$66 billion.

In anticipation of difficult times, many banks have already taken steps to reduce costs, optimize fees and commissions, and renew underwriting standards, so far mainly by quick and limited measures. We are convinced that banks can still capture substantial additional savings and productivity gains, particularly through a system-wide centralization and simplification of processes.

The current crisis will present a number of new challenges for the Russian financial sector. But we think that, if market players and regulators think and act strategically, the sector can emerge from the crisis in far stronger shape with fewer and better-capitalized institutions, higher productivity, and far more rigorous lending standards.

More than

1,000

banks operate in Russia

46% =

share of Russia's largest bank, Sberbank, in retail loans and deposits in 2007

Labor productivity in Russian retail banking is almost

10 times

lower than in the United States unadjusted for differences in the average size of loans and deposits

Policy makers and banks need to take action to boost the sector's productivity

Russia has embraced many of the features of modern retail banking, including a wide range of products and services and the presence of a large number of specialized, regional, and foreign banks. The competitive landscape is slowly evolving despite conditions still favoring state-owned financial institutions. After years of unrestrained growth, the crisis has created impetus for the banking industry to reduce costs and capture productivity gains.

Policy makers should focus on the following measures:

- **Remove onerous regulations on basic bank processes.** Multiple forms, verifications and controls, and reports should be streamlined to bring regulations in line with standards around the world. No branch transaction should take more than 2 minutes.

- **Promote growth in electronic payments** by developing common standards for utility-bill payment and welfare transfers, and by eliminating restrictions on use of Internet and telephone channels for servicing customers' payments (e.g., allowing acceptance of receipts issued through remote channels as legal proof of transaction).

- **Encourage consolidation of the small and midsized banks** to enhance the productivity and long-term health of the sector by eliminating players that lack scale and access to capital.

Management of banks should incorporate the following initiatives in their near-term plans:

- **Work with regulators to streamline branch process regulations.** Banks should work closely with regulators to eliminate unnecessary handoffs, forms, controls, and verifications from basic branch processes. There is much potential to be captured even within the confines of today's regulations by introducing multitasking, part-time employment, and minor automation. All basic transactions should be handled in less than two minutes.

- **Centralize back-office and administrative functions.** Banks should move swiftly to streamline their regional subsidiaries that have become bloated over the years with a large number of administrative functions; these functions can be centralized into one or several operating centers. In addition, many branch processes could be centralized into regional or national processing centers with the aim of doubling productivity.

- **Migrate payment transactions to electronic channels.** Banks should look to double the share of payments conducted through electronic channels. This can be done by developing a uniform standard for utility-bill payments and welfare transfers, enhancing the capabilities of remote channels (ATMs, Internet, call centers); expanding the electronic payment infrastructure and the types

and number of payment cards issued; educating consumers on the use of electronic channels; and potentially, as is the case in some other retail banking markets, introducing higher fees for the processing of transactions carried out in branches.

- **Selectively pursue acquisitions and capture resulting savings.** While larger rivals have acquired a number of regional banks in recent years, few acquisitions have been fully operationally integrated into the parent. Often these banks maintain separate operating IT platforms as well as separate legal entities, reports, product and service offers, and management teams. While acquisitions by stronger players have generally enhanced the health of the banking sector, the full synergies of these deals have not been captured. In the future, it should be an imperative for bank managers will have to deliver the cost savings available from the full integration of acquired banks.

* * *

In the past decade, Russian retail banking has moved in the right direction by expanding networks and sales activities, introducing new products and services, and implementing modern loan approval and collection techniques as well as deposit insurance and credit bureaus, and so on.

Faced with a very serious crisis, policy makers and bank managers should seize the moment to zero in on productivity. Significant gains are obtainable through the execution of a number of practical measures. A healthier, more productive retail banking sector will be necessary in the long-term to gather deposits, provide loans, conduct transactions, and fund the growth of the Russian economy.

Appendix 1: Methodology for calculating productivity

This section details the methodology, data sources, and main limitations of McKinsey's productivity calculations.

INDUSTRY DEFINITION

To ensure that the analysis is comparable across countries, we define retail banking in terms of products and customers. The three main segments providing retail banking services in Russia are (1) public banks; (2) large private banks; and (3) small and medium-sized private banks. Most of the banks provide customers with both retail and corporate services. Retail banking transactions include loans to, and deposits from, individuals and independent entrepreneurs. Payment transactions by post are also included. Services to legal entities, including small- and medium-sized enterprises, are beyond the scope of this analysis.

METHODOLOGY

Given the lack of uniformly accepted retail banking productivity measures across countries, we compute labor productivity by dividing the aggregate output index by the corresponding labor input index. All calculations are based on 2006 data from the United States, which we use as a reference point.

Output Index

McKinsey's retail banking output measure includes all major banking products and services offered to households and independent entrepreneurs. It is a quantity index based on (1) the number of payment transactions; (2) the volume of deposits and current accounts; and (3) the volume of personal and mortgage loans.

Payment transactions include cash withdrawals, cash deposits, and cash payments performed via various channels, including in-branch, ATM, Internet, post, POS, and other automated channels. The data come from several sources, including national central banks, official banking reports, and expert estimates.

We measure the volume of deposits and current accounts as the outstanding balance of all deposits and current accounts at the end of 2006, using data from Russia's central bank and central banks in benchmark countries. We measure the volume of loans as the sum of outstanding balances of residential mortgages and all types of personal loans, including branch loans, car loans, POS loans, credit cards, and overdrafts. Again, these data come from national central banks. We measure deposits and loans in volumes rather than numbers because volumes better capture the consumer's utility function. The analysis does not cover small and medium-sized enterprises, large corporations, mutual funds, or insurance products.

Aggregation

As we measure physical outputs both in terms of the number of transactions and monetary volume, the three output categories are transferred into one unit. We develop a total output index by aggregating the three physical output categories with the average labor input required in all benchmark countries in 2006 for each unit of physical output. The aggregation method is fully consistent with the methodology using unit prices as aggregation weights. Domestic average unit prices are replaced with the average EU and US unit labor input and are weighted by labor inputs because of the practical issues raised when using unit prices as a measure of consumer utility. Cross-subsidies between non-substitutable products are very common in retail banking, which means that product-specific demand does not properly reflect any change in utility. Evidence of this—at least in the short term—is clear for deposits and payment transactions, in which prices are linked with volatile interest rates (opportunity cost) and for which demand is rigid . The allocation of resources by banks is assumed to be rational and thus symmetrical to consumer utility.

Labor Input Index

Total labor in retail banking includes the number of hours worked in a financial institution associated with the financial services that we have defined. The employment level in banking is adjusted to the share of retail banking. Workers performing non-retail activities are subtracted and corrected for average working time and outsourcing. The data come from official national statistics and McKinsey client engagements. The study uses estimates from experts and employs a conservative approach. To estimate the number of workers performing non-retail activities, we use the Federal Reserve Functional Cost Analysis for the United States, as well as proprietary surveys, external and internal expert interviews, and client engagements for other countries.

Synergy effect

Improving productivity through multiple levers creates synergy effects that result in a higher productivity improvement than the sum of stand-alone factors would imply. For illustrative purposes, we have proportionally allocated these “interplay” effects proportionate between the different between factors explaining the productivity gap (inferior processes and payments mix), while retaining the relative importance of each factor. No synergy effects were allocated to the small size of loans and deposits, as this was treated as an external, independent factor tied to the overall income level of the country rather than as a factor dependent on the operational efficiency of Russia’s retail banks.

Limitations

McKinsey’s methodology is subject to limitations, and future work will aim to enhance the methodology of output measures and increase the accuracy of labor input figures. The study does not adjust our output estimates for quality, and the output per product category can be subject to measurement challenges. Figures on labor inputs suffer from lack of official sources on retail banking and we therefore estimate them. Finally, the use of market exchange rates instead of purchasing power parity (PPP) exchange rates remains subject to methodological debate due to the fact that the extent to which differences in domestic prices reflect variations in utility benefit are not fully evident.

Appendix 2: Sources

RUSSIAN

Source	Data
Rosstat	Banking sector employment
Central Bank of Russia	Number of banks, volumes by product, regulatory requirements (e.g., processes, reporting, etc.), market share of foreign banks
Bank reports and Post of Russia annual report	Volumes by product, number of employees, number of transactions
Information supplied by clients	Process maps and characteristics, split between corporate and retail banking employees

INTERNATIONAL

Source	Data
Statistics services of Poland, Spain, the United States, the Netherlands, and Sweden	Banking sector employment
Central banks of Poland, Spain, the United States, the Netherlands, and Sweden	Number of banks, volumes by product, market share of foreign banks, number of transactions
Global Insight	PPP-exchange rates
Economist Intelligence Unit	Real wages in Russia forecast
McKinsey Global Profit Pools	Banking sectors' revenue and volumes by product
McKinsey Global Institute reports	Case references for back-office centralization, data on financial stock for different countries, share of retail in banking employment for different countries
McKinsey best-practice benchmarks	Labor intensity of different types of transactions, estimates of potential improvements for back-office centralization, etc.

The study

Leveraging productivity is a key driver to Russia's sustained economic growth. This study, conducted by the McKinsey Global Institute (MGI) and McKinsey & Company's Moscow office, explores the significant productivity gains that Russia can achieve and suggests priorities and approaches the government and business can take to capture this opportunity to ensure sustainable economic growth and increased competitiveness.

This study primarily focuses on labor productivity which we calculate as output per employee or, for the economy as a whole, GDP per employee.

McKinsey identifies, quantifies, and ranks the opportunities for productivity gains in five sectors that are key to Russia's economic development: retail, steel, retail banking, residential construction, and electrical power. The analysis compares the productivity—the efficient use of labor and capital—in these sectors with that of benchmark countries and uses a bottom-up approach to quantify productivity gaps.

The study employs proven methodology used in multiple productivity studies around the world by MGI and leverages the knowledge and experience of McKinsey's team of professionals in Russia.

We would like to acknowledge the specific contribution of McKinsey consultants and partners – Edward Chase, Per-Nicklas Hoglund and Jaana Remes.

McKinsey Global Institute

April 2009

Lean Russia:
The productivity of residential construction

Vitaly Klintsov
Dmitry Popov
Irene Shvakman
Stephan Solzhenitsyn

Executive summary

The construction sector accounts for a significant share of the Russian economy at 6 percent of GDP and 8 percent of official employment. This study focuses on residential construction, the largest segment of the industry.

Just before the global financial crisis, the Russian government committed to increase per capita housing space from 21 to 33 square meters by 2020, in line with European Union (EU) levels. Achieving this goal would require average annual residential construction volume to be more than twice the historic peak. Although the recent economic crisis will likely postpone achievement of this target, it will remain relevant in the long-term.

In the long run, a step change in the sector's productivity will be necessary to debottleneck supply and achieve the aspired targets. The sector's productivity currently stands at 21 percent of US levels and around one-third the level prevailing in Sweden. Our research has identified the following four factors as the main productivity challenges in the sector:

1. Time-consuming and labor-intensive construction and development processes
2. A lack of skills, especially in project and design management
3. Limited deployment of modern, highly productive materials and fixtures
4. A low share of single-family homes and a high share of subscale developments

The challenges today mostly result from how business was conducted under the favorable market conditions of the previous decade as well as from a persistent lack of a level playing field. Both factors have contributed to a general lack of motivation to improve operations. While market conditions are changing due to the economic crisis, the distorted competitive landscape, which shifts the focus of competition to regulatory affairs, remains. Our analysis suggests that inefficient regulation and a fragmented approach to urban development are the key issues. Shortcomings in construction education, which have produced skill gaps, are also to blame.

Boosting productivity requires concerted efforts by policy makers in three areas:

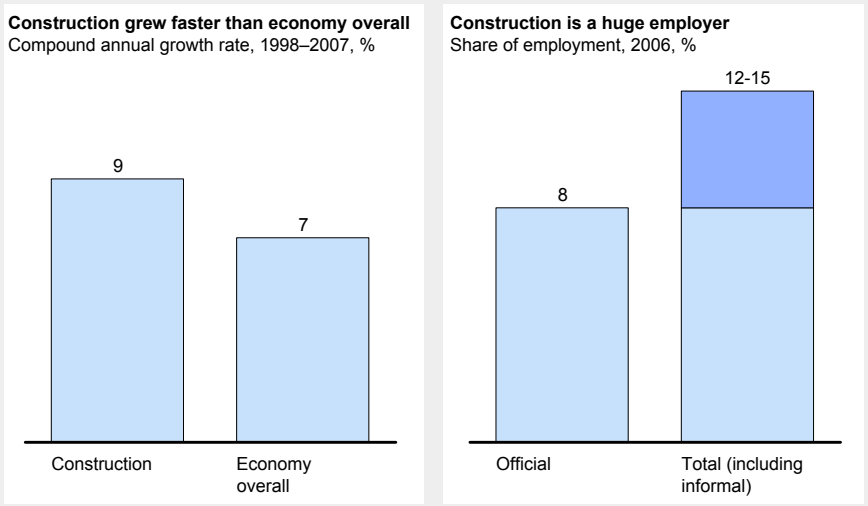
1. **Increase the transparency and efficiency of the regulatory system** by clarifying and simplifying the approvals process and by selectively revising construction standards
2. **Ensure efficient urban development** by creating comprehensive urban development plans, implementing those plans through competitive project tendering, and establishing a unified database of land plots while providing clarity of land ownership and usage rights
3. **Improve the professional skill level** in the construction industry by attracting international best-practice companies to work in Russia and by modernizing the construction education and retraining system

Construction in Russia is important to economic growth and employment

The construction sector today directly accounts for 6 percent of Russia's GDP (not including construction materials and real-estate services). It is also a major employer, accounting for 8 percent of officially recorded employment—the share is even higher, possibly 12 to 15 percent, if unofficial employment (primarily undocumented immigrant workers) is included (Exhibit 1). Furthermore, construction and engineering accounted for between 46 and 50 percent of investment in fixed assets in the Russian economy from 2000 to 2007, according to Rosstat.

Exhibit 1

The construction sector is a significant part of the Russian economy

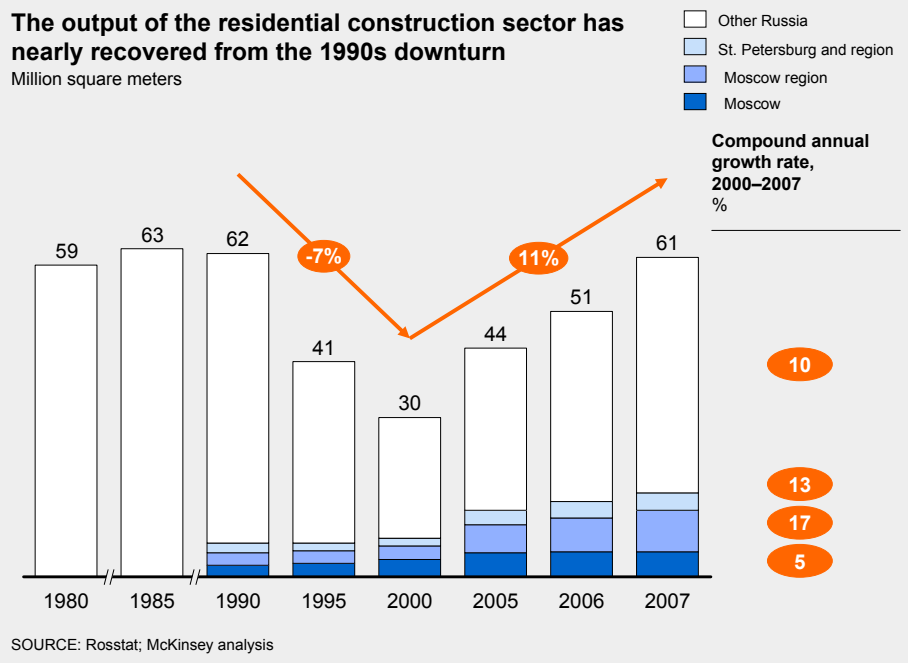


SOURCE: Global Insight; Rosstat; expert estimates; McKinsey analysis

In the 1990s, residential construction output contracted substantially, falling on average by 7 percent a year (Exhibit 2). However, the sector rebounded strongly after the economic crisis in 1998, posting annual growth of 11 percent from 2000 to 2007.

This report focuses on residential construction, which accounts for about 40 percent of Russia's overall construction output and faces many of the same challenges as nonresidential construction and civil engineering, the other components of the sector. Residential construction is comparable to other segments in that it uses similar inputs including land, materials, tools, and equipment; is subject to similar rules and regulations; and in the fact that industry players often operate across different strands of the construction market.

Exhibit 2



SOURCE: Rosstat; McKinsey analysis

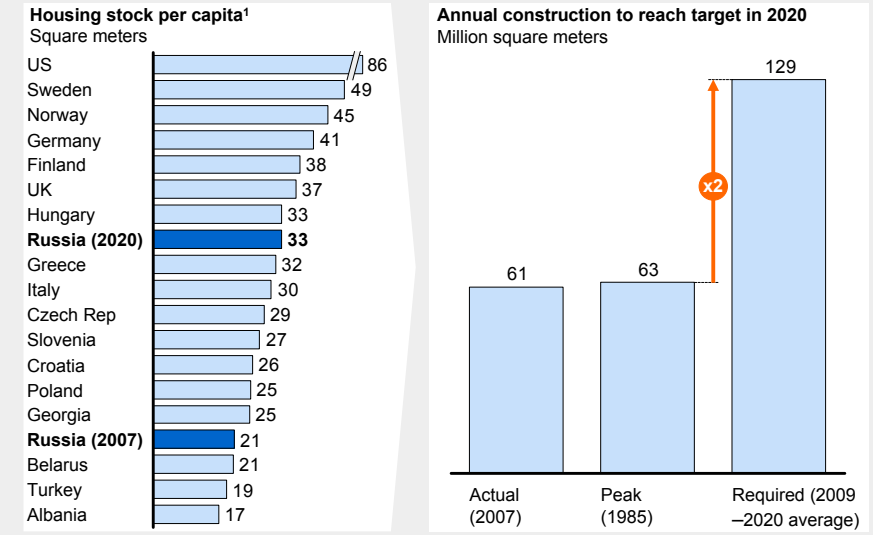
Government targets for the sector are ambitious

Just prior to the onset of the global financial crisis, the Russian government set an ambitious target for the growth of the residential construction sector to increase per capita housing stock from 21 square meters to 33 square meters by 2020.

At that higher level, Russia would match typical EU levels of housing capacity. To reach this point would require average output from 2009 to 2020 to be roughly double the peak achieved in 1985, even without including the replacement of obsolete housing stock. According to a range of experts, replacement requirements might be estimated at up to 1 billion square meters (one-third of the existing stock) in the next seven to ten years, which would bring the output required to reach government goals up to three times the historical peak. According to official statistics, output in 2007 was 61 million square meters, slightly below the peak of 63 million square meters achieved in 1985 (Exhibit 3). However, industry experts argue that official statistics are biased because of Russia's recent "dacha amnesty."[1] Estimates are that 10 to 15 percent of officially recorded output comprises the official registration of previously built single-family homes—a finding that receives indirect support from the recent increase in the share of single-family homes in the sector's output from 2005 to 2007.

Exhibit 3

The Russian government set ambitious industry development goals just prior to the crisis



1 International data, 1998–2004.

SOURCE: United Nations Economic Commission for Europe; Ministry of Economic Development; Renaissance Capital; McKinsey analysis

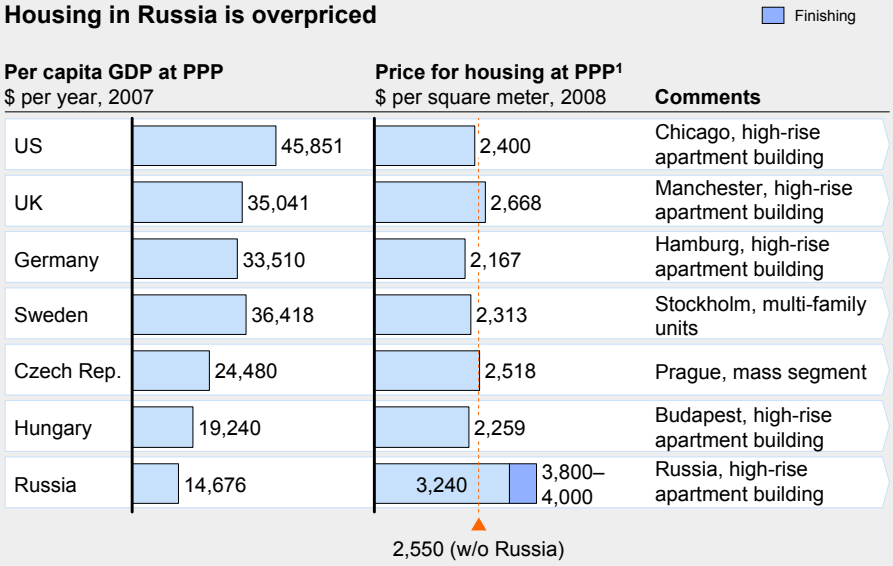
1 Simplification of the official registration of previously built single-family homes.

The current financial crisis is likely to delay achievement of Russia's housing goals. However, because the nation's per capita housing stock is so low and unmet demand for housing is high, we believe that the government and society will continue to strive to meet this target in the longer term.

Before the recent crisis, housing in Russia was extremely expensive. In fact, in purchasing power parity (PPP)-adjusted terms, prices were even higher than in developed Western economies (Exhibit 4). As a result of high Russian property prices, only 9 percent of the population could afford new housing without selling existing property in 2007 and only 22 percent were able to upgrade to target standards by selling a property they already owned.

Exhibit 4

Housing in Russia is overpriced



1 Prices for mass market apartments (economy class), adjusted for PPP exchange rates.
Note: PPP = purchasing power parity.

SOURCE: EIU; press search; Rosstat; expert interviews; McKinsey analysis

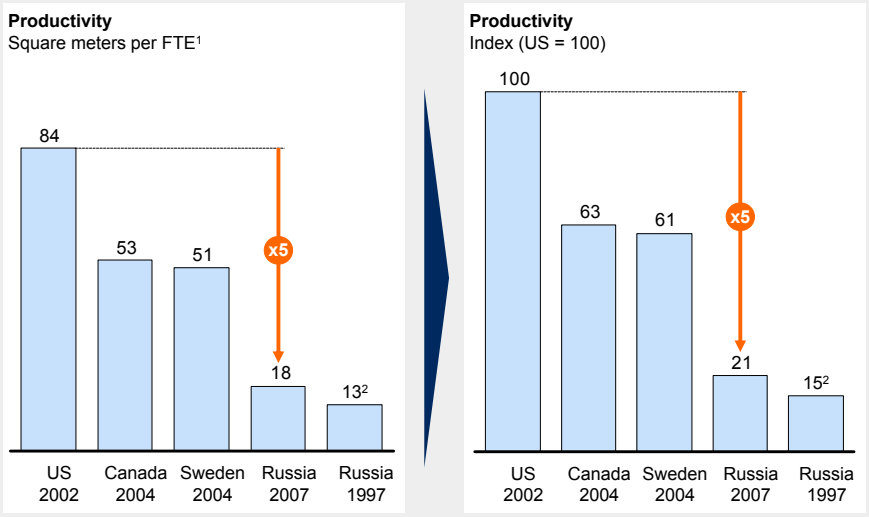
At the time of writing, housing prices were decreasing as a result of falling demand triggered by the economic crisis. However, in the long-term, the demand trend will reverse due to the fundamental shortage of housing. The key question is whether the industry will be able to provide enough supply to keep up with demand and official growth targets, while keeping housing prices at reasonable levels. There is a risk today that a lack of capacity to increase construction output could constrain.

Boosting productivity is key to debottlenecking housing supply

Since 1997, the productivity of Russian residential construction has improved by approximately 40 percent, equivalent to a 3.3 percent compound annual growth rate. Yet Russian productivity still stands at only 21 percent of the US level and one-third of that of Sweden. Measuring productivity as the number of square meters built per full-time equivalent worker (FTE), Russia's productivity stood at 18 square meters per FTE in 2007 compared with 84 square meters per FTE in the United States, 53 square meters per FTE in Canada, and 51 square meters per FTE in Sweden (Exhibit 5).[2]

Exhibit 5

Productivity in Russian construction is lower than in other countries



1 Full-time equivalent worker.
2 Estimate.

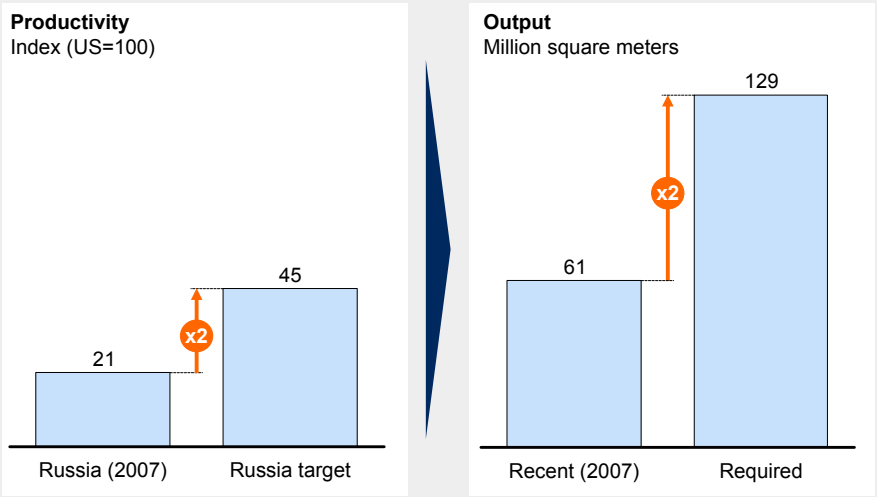
SOURCE: US census data; Canada and Sweden statistics; Rosstat; expert interviews; press search; McKinsey analysis

To increase supply and help lower housing prices further, efforts should focus on boosting the labor productivity of the construction sector, which is low by international standards. Improving Russian construction productivity from 21 to 45 percent of US levels would translate into a volume boost in construction from 61 million square meters to some 129 million square meters. This means that the sector would achieve output of double the historical peak of 1985 without additional workers in the sector (Exhibit 6). This would be sufficient to meet Russia's output target but it will not be possible without a step change in productivity.

2 We use 2002 as the base year for the United States, since it preceded the recent housing boom. We use 2004 for Canada and Sweden, the latest year for which comparable statistics are available.

Exhibit 6

Improving construction productivity would allow target output to be met



SOURCE: Rosstat; Ministry of Economic Development; McKinsey analysis

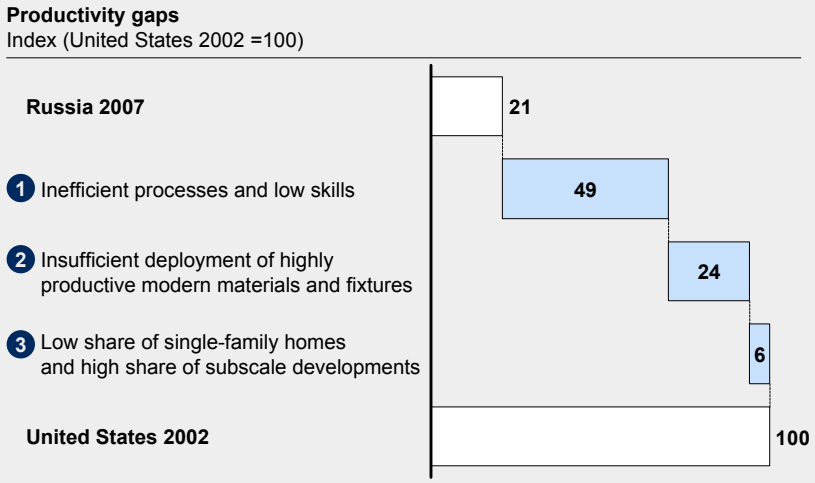
The productivity challenge is urgent. There is a serious mismatch between the importance to Russia's future economy of a vibrant, innovative, productive construction sector and the state of the industry today. Some of the biggest impediments in the Russian construction sector are in the area of administration. These include informality, weak and overabundant regulation, a lack of planning, and a skewed competitive environment. In interviews, pervasive corruption was often cited as a damaging feature of the sector. Identifying and addressing the causes of low productivity in construction will begin the process of enhancing the sector's productivity and capturing a significant growth opportunity.

Low productivity is evident in three groups of operational challenges

Our research has identified three sets of operational factors that contribute to the construction sector's low productivity: inefficient processes and a low skills level; insufficient deployment of modern materials and fixtures; and a low share of single-family homes and a high share of subscale developments. Of these, inefficient processes and the low skills level are the most important (Exhibit 7).

Exhibit 7

Three sets of factors explain the productivity gap in construction



SOURCE: US Census; Rosstat; World Bank; expert interviews; press search; McKinsey analysis

INEFFICIENT PROCESSES AND A LOW SKILLS LEVEL

This set of factors accounts for approximately 49 percentage points of today's productivity gap with the United States. There are three major components: lengthy and opaque regulatory processes; the inefficient organization of production, coupled with an insufficient number of highly skilled workers and managers; and relatively low capital intensity.

Opaque, time-consuming, and complicated regulation is distorting competition and hobbling the productivity of Russian construction. Notably, unclear and non-transparent regulation of land allocation and construction approvals processes is making it difficult for industry players to acquire the land and infrastructure connections necessary to support output. This fact, together with unclear and poorly protected development rights, contributes to the underdevelopment of project financing, making it difficult for industry players to fund their operations effectively and often leading to delays in construction due to financing problems.

In Russian construction, achieving efficiency in the supply chain has long been difficult and the sector suffers from a severe shortage of skilled workers and project managers. According to interviews, less than one-third of Russian construction

workers are considered experienced compared with three-quarters in the United States. Also, very few project managers in Russia's construction sector have had experience in best-practice international companies.

Modern, productivity-boosting tools and equipment have a relatively low level of deployment in Russia. For instance, Russia rarely uses concrete pumps, whereas their use is widespread in the United States.

INSUFFICIENT DEPLOYMENT OF HIGHLY PRODUCTIVE MODERN MATERIALS AND FIXTURES

This category of factors accounts for 24 points of Russia's 79-point productivity gap with the United States; closing this part of the gap would mean a doubling of Russian construction productivity. The use of traditional, less-productive materials such as brick and cast concrete is widespread and the sector has not embraced new, higher-productivity technologies (e.g., metal frames etc.). The use of prefabricated materials and fixtures can confer a significant productivity advantage, although these technologies also have some limitations (e.g., the lower flexibility of concrete panels). Russia uses prefabricated wall materials (including concrete and wooden panels) and metal frames in only around 17 percent of houses compared with 70 to 80 percent in the United States.

A LOW SHARE OF SINGLE-FAMILY HOMES AND A HIGH SHARE OF SUBSCALE DEVELOPMENTS

This feature of Russian construction explains approximately 6 points of the 79-point productivity gap with the United States. If Russia were to close this part of the gap, its construction productivity would be roughly 30 percent higher than today's level. In Russia, single-family homes, which are more productive in terms of square meters of output per full-time worker employed, account for only 32 percent of construction volume, compared with 89 percent in the United States. Moreover, the share of more productive large-scale, single-family home developments is lower than in the United States. Traditional, self-built homes, which are subscale by definition, account for three quarters of single-family housing output in Russia, while this segment of the construction market in the United States is negligible. International practice suggests that large-scale single-family home developments could be 20 to 30 percent more productive than single-plot developments.

More than

700 days

is required to obtain construction permits in Russia

21%

—current labor productivity in Russia's residential construction

2–3 times

growth in residential construction volume is needed to meet government targets for increasing the per capita housing stock

A non-level playing field is the most important cause of low productivity

The primary cause of Russia's poor productivity performance in residential construction is a non-level playing field evident in unequal access to land as well as unpredictable timelines and project development costs. Distorting industry regulation and a fragmented approach to urban development are the main factors increasing the risks to development projects and explaining the unequal competitive positions of different players. In fact, managing relations with authorities and local utility monopolies are the most important success factors.

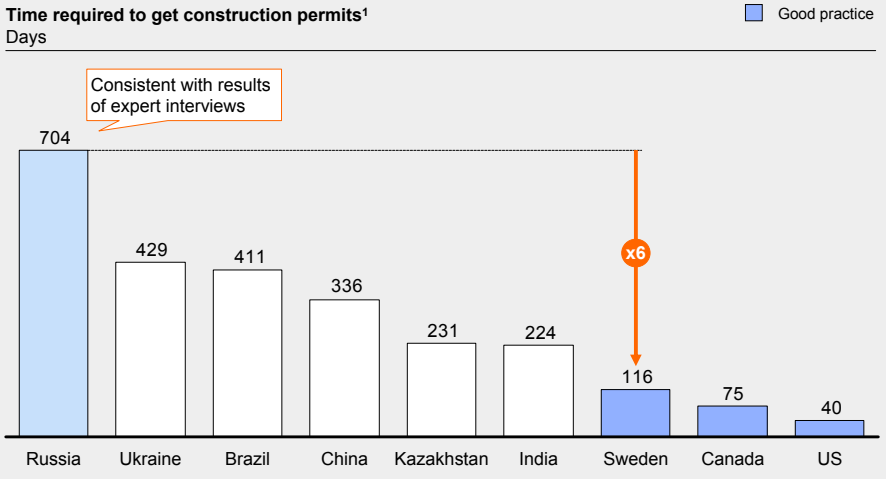
The favorable market conditions of the recent past, along with the lack of a level playing field have provided little stimulus for operational improvements. These factors, amplified by drawbacks in skill levels especially in project and design management areas, led to productivity in the sector growing by a mere 3 percent annually from 1998 to 2007.

NON-TRANSPARENT REGULATIONS AND POOR QUALITY PUBLIC SERVICES DISTORT COMPETITION

Procedures for gaining development rights and access to infrastructure, and obtaining approvals at all stages of construction, are complicated and opaque. Obtaining construction permits in Russia can, for example, take six times as long as in Sweden and other best-practice countries (Exhibit 8). The long and unpredictable waits for zoning and construction approvals mean longer project cycles, which in turn create supply chain and financing problems and reduce planning effectiveness. Moreover, the obscurity and unpredictability of the process for gaining development rights and construction permits impede project financing to the point where bank financing is virtually unobtainable for small and medium-sized developers. Thus the competitive landscape is skewed further.

Exhibit 8

Russian regulatory procedures in construction are unreasonably time-consuming



1 World Bank survey covered procedures for two-storey warehouses; estimates consistent with expert interviews on multi-family house construction in Russia.

SOURCE: *Dealing with construction permits*, World Bank, 2008; expert interviews; McKinsey analysis

Although Russia's city building code requires master plans to be prepared in all cities, the majority of Russian cities lack them. This increases risks and uncertainty for development projects as investors are obliged to go through lengthy, complicated, and opaque (re)zoning procedures with unpredictable outcomes in terms of timing and final decisions. Uncertainty is also increased because there is no clear understanding on when, where, or what infrastructure is going to be provided. Russian construction suffers from the low availability and high cost of infrastructure connections, despite the fact that building utility capacity is economic in Russia, because developers are usually paying infrastructure connection fees and fulfilling utilities' technical specifications that could cover infrastructure building costs. For example, the official fee in Moscow for connection to the electricity, excluding the cost of fulfilling technical specifications, ranges from $1,800 to $4,000 per kilowatt of installed capacity depending on the district.[3] At the same time, capital expenses for the construction of gas-fired power plants in Russia are $1,800. Some developers say that the total cost (including the cost of fulfilling technical specifications and informal payments) of electricity connection in some areas in the Moscow region reached as high as $5,000 per kilowatt in 2008. What has been lacking is the uniform application of appropriately designed regulation. Local utility companies have uncontrolled monopoly power and there are no clear rules on infrastructure connections.

Another important factor affecting the development and delivery of public services is a lack of clarity in land-ownership rights and limitations on potential use. Although Russia has an abundance of available land on which to build, the construction industry still faces a shortage of sites, which especially limits single-family housing construction. The reasons for this shortage include a lack of transparency about the ownership and status of land use. At present there is no unified database of land plots with complete information about ownership and usage status or potential restrictions on future use. This makes conducting pre-purchase due diligence of land plots very difficult and increases the risk to development projects.[4]

LOW STIMULUS FOR OPERATIONAL IMPROVEMENTS

Russian construction today lacks the impetus to make operational improvements. There are three main reasons for this: low competitive intensity; the relatively low cost of input factors; and the lack of international best-practice players in the market.

Competitive intensity in residential construction is low due to the rapid growth of the market and administrative barriers to the expansion of supply. These barriers affect existing and new players alike, although there is some "relationship-based" advantage for incumbents.

Industries tolerate low productivity when factor costs are so low that they do not put unproductive players at a competitive disadvantage. The low cost of labor and other key inputs has been a secondary reason for the lack of stimulus to productivity improvement but this factor is expected to disappear as the economy develops.

The poor state of regulation and administration has deterred leading international companies from becoming engaged in the sector to any great degree, thus limiting performance pressure in the industry. The absence of international players is also

3 This is according to decree 101 of the regional energy committee of the Moscow government, December 12, 2007.

4 Such due diligence includes the detailed placement of security zones and the placement of important or potentially dangerous infrastructure such as gas pipes and so on.

inhibiting the development of a class of construction professionals equipped with best-practice skills and knowledge.

A LACK OF SKILLS REQUIRED TO MAKE IMPROVEMENTS

Russian construction suffers from a severe shortage of skilled workers and project managers. Shortcomings exist not only in the quality of education but also in vocational expertise.

Outdated educational programs that do not correspond to current labor market requirements are a significant problem for the industry. Russia lacks up-to-date educational programs to train students in project management and key applied subjects including single-family housing construction. Some industry experts we interviewed noted, for instance, that regional universities still use manuals and guides created in the 1950s.

Most construction specialists graduated during the Soviet era and are not up to speed with modern construction methods and technologies. After the collapse of the Soviet Union, the public came to regard construction-related professions as lacking in prestige and the influx of new people into the industry decreased in the 1990s. Today, the sector makes extensive use of untrained labor, outsourcing to non-specialized contractors in the informal economy. Worker turnover is high.

The sector also has very few project and design managers with work experience in leading Western companies. Design in Russian construction still tends to focus on the technical aspects of building, along with safety and security, rather than on efficiency and high productivity. Inexperienced and uneducated managers tend to have poor budget management skills, which leads to cost overruns and liquidity problems, and weak project management, which leads to huge project overruns.

Although all three of these root causes explain why Russia has such low productivity level at present, improving the transparency of regulations, as well as the speed and predictability of regulatory procedures, should be the highest priorities as positive changes in these areas would trigger progress on all other dimensions.

Improved regulation, planning, and skills are critical to ensure productivity growth

If Russia addresses the issues discussed, it will become possible to improve competition in the sector and boost output. This study shows that the key to meeting the government's targets for the sector lies primarily on the supply side rather than in the arena of demand (see "Government is taking steps to support construction industry development").

Government is taking steps to support construction industry development

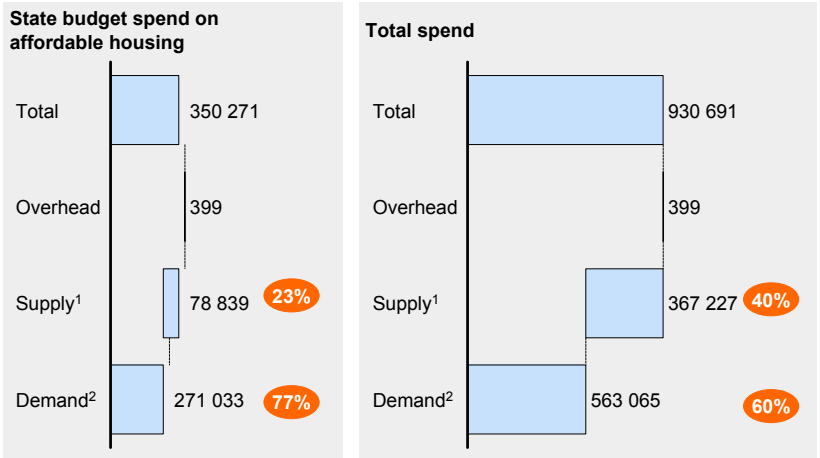
Russia established its national "affordable housing" project and, as part of this effort, the federal program *Zhilishe*, in 2006. The program provided financing for achieving government targets. The Ministry of Regional Development's "Long-term housing development strategy" will be adopted shortly and should confirm these targets and provide an overall framework for achieving them.

However, government programs currently focus on enhancing demand through the provision of subsidies to low-income families and capitalizing the Agency for Residential Mortgage Lending (see Exhibit 9). Measures to support demand account for about 75 percent of the planned state-budget spending envisioned for the program, with measures aimed at expanding supply through the building and renovation of public infrastructure accounting for the remainder.

Exhibit 9

Russia's national "affordable housing" project is focused largely on enhancing demand

RUB millions, 2006–10



1 Modernization and buildup of new infrastructure.
2 Financing for agency for mortgage lending, social housing (veterans, etc.), housing for young families.

SOURCE: *Zhilishe* federal program; McKinsey analysis

Even in the short term, a set of actions in public policy could improve the availability of land, infrastructure, labor, and capital, and remove today's barriers to higher productivity. To stimulate growth in the construction sector, actions in three major areas are worth considering: improving the transparency and efficiency of government regulation; creating the conditions for efficient development; and improving the industry's skills levels.

1. IMPROVE TRANSPARENCY AND EFFICIENCY OF GOVERNMENT REGULATION

Streamline approval processes

Developing clear regulations for the approval process is critical to speeding up turnaround times and establishing unambiguous responsibilities for the various regulatory bodies. There are positive examples of measures to streamline approvals in Russia. For instance, Russia cut the approval time for construction projects for the Winter Olympics in Sochi in 2014 from three years to six months.[5] Among the key actions that Russia should consider are:

- **Define in legislation the reference process,** providing an exhaustive list of necessary approvals, stipulating tight deadlines for each approval, the responsibilities of approving bodies, and detailing lists of all required documents and their example forms.

- **Establish in legislation a "comprehensive documents reviewing" rule.** Oblige approving bodies to provide all comments on submissions during the first round of review, with later comments allowed only if initial comments were handled incorrectly.

- **Ensure the implementation of a "grandfather clause" for construction and development projects.** Current practices in Russia suggest that a change of regulation could adversely affect ongoing projects, increasing the risks of such projects and promoting corruption. City administrations have sometimes prohibited the development of new offices or infill housing in downtown areas and applied such regulation to ongoing projects regardless of previously signed investment contracts and permits and approvals obtained. To avoid the negative consequences of such practices, a law establishing a "grandfather clause" could be issued for some categories of development projects. The law could ensure the implementation of the grandfather clause for development projects that passed "pre-design" approvals or signing of the investment contract stage.

- **Remove redundant approvals** to ensure a minimum adequate level of approval procedures and clearly state and **maximize the number of approvals that can be obtained in parallel.**

- **Ensure the accountability of public-sector** entities and employees during the reference process through a legal document that establishes clear responsibilities and the consequences for noncompliance, and that defines the reference process.

5 From a speech by Alexander Tkachev, governor of the Krasnodar region, February 6, 2008, published by *Arendator.ru.*

Selectively revise and standardize regulatory standards and rules in construction

Although industry experts have cited regulatory standards as a secondary constraint to industry development, there are number of issues that the government might consider to facilitate industry development:

- **Improve the quality of public services critical to construction.** Current regulatory standards in Russian construction are stricter than in the EU. This situation is partly due to the lower quality of public services in Russia. For instance, the slower speed of reaction of the fire service in Russia has led to a standard requiring that metalwork be fire resistant for two hours compared with one hour in the EU.

- **Establish systemic mechanisms for modernization of construction standards.** Russian construction standards are out of date and do not take into account characteristics of modern construction materials. For instance, armored concrete floors are obligatory in Russia, while in the EU fireproofed wooden floors are allowed. Regulatory standards do not always account for new technologies such as the characteristics of new grades of concrete or steel, for instance. In this particular case, the suitability of new concrete and steel grades for the Russian environment (e.g., frozen earth) has not yet been tested.

- **Standardize construction standards and rules across the country,** while making provisions for particular natural conditions. This would allow for a greater degree of cross-regional competition and transfer of best practices.

Ensure quality and stability of regulations

At present, regulatory processes and norms change too frequently and this leads to excessive uncertainty and disrupts business processes. For example, industry experts argue that a new law on "self-regulatory organizations in construction" could potentially put small and medium-sized developers at a disadvantage. Moreover, norms and regulatory processes are set at the local level; while this allows for greater local autonomy, it also may lead to greater degree of arbitrariness.

A practical way to ensure good-quality regulation that would not require frequent revision could be to establish uniform construction standards and processes for the entire country and write them into law. To help achieve high quality in such legislation, construction and development professionals need to be active participants in discussing and reviewing laws and other regulatory innovations before they are adopted.

2. CREATE THE NECESSARY CONDITIONS TO ENSURE EFFICIENT URBAN DEVELOPMENT

It may be useful to frame an effort to boost construction sector productivity and output as part of a broad residential construction sector strategy that lays out the government's aspirations for the amount and type of development. A sector-wide strategy could usefully establish how much housing Russia needs to build and the desirable mix between single- and multifamily developments, urban and suburban construction, existing and new residential centers, and different types of construction materials.

A sectoral strategy could help Russia address some fundamental long-term questions, including: What role should the government play in residential, nonresidential, and civil engineering construction? What role could public-private partnerships play? Should foreign players have a larger role in the sector? Should a national strategy aspire to a more centralized approach to construction that would allocate resources to areas of most need and provide a nationwide, level playing field for business while coordinating urban and infrastructure development plans?

In the short and medium term, high-quality planning will be important to capture the opportunity to grow sector output and productivity. We now detail some of the priority areas in the realm of urban development planning.

Launch a coordinated program for the preparation of development plans

Developing a comprehensive plan in accordance with international best practices would reduce the number of approvals and the time required to obtain them. In turn, this would allow for the coordinated implementation of development projects, including those related to infrastructure.

- **Define master planning standards in accordance with international best practices.** Development plans should take account of, and plan for, the geographic distribution of new housing linked to the creation of new workplaces; the development of housing with physical and social infrastructure should be coordinated and the stages of implementation clearly defined. The role of central and regional governments, as well as that of the private sector, should also be clearly defined.

- **Set clear deadlines and ensure sufficient resources.** According to the program, clear deadlines and milestones should be set for the local authorities for the process of preparing master plans. Sufficient time and resources should be reserved to support this process. For territories with ongoing developments, the government may consider allowing developers to finance and make planning proposals; however, the ultimate responsibility for the quality of plan and planning timelines would remain with the relevant local authority.

Leverage international and private sources of funding

The government may want to consider leveraging international and private-sector funds to finance development in a number of ways including the creation of public-private partnership mechanisms for infrastructure and comprehensive territory development projects that embrace housing, social amenities, infrastructure, and the construction of industrial capacity. The government should closely cooperate with international development-finance organizations to secure funding for infrastructure projects and learn from their expertise in implementing similar projects in other countries. Developing public-private partnership capabilities and skills in Russia's public sector will be critical to ensuring the effective development of infrastructure in the long-term.

Implement the plan through competitive project tendering

International experience suggests that competitive tendering is a superior way to implement projects envisioned by development plans in a systemic and disciplined manner. It is important to note that land auctions could ensure better transparency and higher competition than investment contests. A working group

could usefully oversee implementation of regional development, headed up by a senior government official who would run a special project-management office to support the working group and monitor progress.

Create a unified database of land plots

A central database should be created containing all the necessary information, including a plot's ownership and usage status, any usage restrictions, and indicative timings and costs of investment projects. Such information should be available to all potential purchasers of plots of land, based on approved master plans.

Ensure legal clarity of ownership and transparency of other rights attached to plots of land included in the database

Rights for many plots of land are legally questionable and it is important to ensure that the ownership and other rights attached to all plots included in the central database are subject to legal clarity. A clear conflict resolution procedure should be established to allow land rights to be determined without room for future appeal. This would be an effective way to ensure the smooth functioning of the land market.

3. IMPROVE SKILL LEVELS IN THE CONSTRUCTION INDUSTRY

Actively attract best-practice international companies to the market

A state program should be established with the specific purpose of clearly defining opportunities for international companies and providing information on the objectives of public policy for the housing market and ways in which international companies can participate (e.g., through direct investments or public-private partnerships). The program's implementation mechanisms should envision the creation of an office to foster international cooperation and launch and handle communication campaigns.

An office for international partnerships could be created to support implementation of the special-purpose state program. This office would monitor projects and provide support, particularly in helping international companies interact with the authorities.

It is worth considering conducting a special communication campaign that would include distributing information about the program on the Internet, for example, and in the global media. This campaign could include targeted invitations to participate in the program through investment road shows, roundtables, and so on.

Modernize and improve the quality of construction education

Efforts in this area need to focus on the entire "education chain." Attracting talented people into construction professions and managing the subsequent careers of construction and development professionals, improving the educational process and making it more practical and suitable for the needs of the labor market, and enhancing the capacity of the professional retraining system are all ingredients for long-term success in this area. New courses and effective short-term training programs aimed at closing most critical skill gaps (e.g., in project and design management) could be beneficial for the industry even in the near term.

* * *

By setting an output target for the construction industry, Russia's public policy makers have demonstrated the importance of the sector to the economy's future growth. There is much that they can do to address the supply-side causes of the sector's low productivity and thereby ensure that output grows sufficiently strongly to keep pace with demand. Comprehensive regulatory reform should be at the core of such efforts.

Appendix 1: Methodology for calculating productivity

This appendix details the methodology and main limitations of McKinsey's productivity calculations. Appendix 2, containing data sources, follows.

INDUSTRY DEFINITION

Productivity was calculated for the residential construction segment. For the purpose of the analysis, subcontractors were included in the calculations but refurbishment and reconstruction were excluded.

METHODOLOGY

Productivity measurement

We defined labor productivity in residential construction as industry output per unit of labor input.

We took the number of square meters of residential floor space built in a given year—2002 for the United States, 2004 for Canada and Sweden, and 2007 for Russia—as a proxy for residential construction output.

Figures on labor inputs suffer from a lack of official sources of this data by segment and from the fact that some construction organizations often operate in multiple segments. We estimate employment numbers based on residential construction's share in industry output across countries.

Synergy effect

Improving productivity simultaneously through multiple levers creates synergy effects that result in a larger productivity improvement than the sum of stand-alone factors. In order to visualize these synergies, these "interplay" effects have been proportionally allocated to factors that explain the productivity gap (inferior work organization and skill levels, less use of highly productive materials and fixtures, and housing mix), retaining the relative importance of each factor.

Limitations

McKinsey's methodology is subject to limitations, and future work will aim to enhance the methodology of output measures and increase the accuracy of labor input figures. The study does not adjust our output estimates for quality, and output per product category can be subject to measurement challenges.

Appendix 2: Sources

RUSSIAN

Source	Data
Rosstat	Russian construction sector output, housing stock, employment, housing prices in Russia for different regions, prices for construction materials, wages in Russia
"Concept of long-term economic development," the Ministry of Economic Development	Government targets for residential construction industry and housing stock
"Long-term housing development strategy," the Ministry of Regional Development	Government targets for residential construction industry and housing stock and intended policy actions
National 'affordable housing' project and related materials	Approved state budget spend and policy measures
"Russian home builders report" Renaissance Capital	Housing stock for several countries
"Lifestyle of the Russian middle class," Quans Research	Income distribution data for Russia
ING Bank report on Russia's electricity sector	Cost of utility connections, estimates for cost of local generation
Regional energy commissions	Cost of utility connections

INTERNATIONAL

Source	Data
US Census and Bureau of Labor Statistics; national statistics services of Canada and Sweden	Construction output, employment, construction cost estimates, wages
Metal Bulletin	Prices for steel
Global Insight	Income distribution of households in Russia, GDP size
Economist Intelligence Unit	Forecast for development of disposable income in Russia
"Dealing with construction permits" 2008 survey by World Bank	International benchmarks on approvals procedures
McKinsey best-practice benchmarks	Construction costs estimates, information on new technologies

The study

Leveraging productivity is a key driver to Russia's sustained economic growth. This study, conducted by the McKinsey Global Institute (MGI) and McKinsey & Company's Moscow office, explores the significant productivity gains that Russia can achieve and suggests priorities and approaches the government and business can take to capture this opportunity to ensure sustainable economic growth and increased competitiveness.

This study primarily focuses on labor productivity which we calculate as output per employee or, for the economy as a whole, GDP per employee.

McKinsey identifies, quantifies, and ranks the opportunities for productivity gains in five sectors that are key to Russia's economic development: retail, steel, retail banking, residential construction, and electrical power. The analysis compares the productivity—the efficient use of labor and capital—in these sectors with that of benchmark countries and uses a bottom-up approach to quantify productivity gaps.

The study employs proven methodology used in multiple productivity studies around the world by MGI and leverages the knowledge and experience of McKinsey's team of professionals in Russia.

We would like to acknowledge the specific contribution of McKinsey consultants and partners – Daria Bakatina, Egor Chistyakov, Karsten Shneiker and Jaana Remes.

McKinsey Global Institute

April 2009

Lean Russia:
The productivity of the electric power sector

Odd Christopher Hansen
Vitaly Klintsov
Sergey Shelukhin
Irene Shvakman
Stephan Solzhenitsyn
Viacheslav Vladimirov

Executive summary

As part of McKinsey's study of the Russian economy's productivity, we have analyzed the productivity and effectiveness of the electric power sector. We chose this sector because it illustrates the potential impact of massive capital expansion and market liberalization on broader economic competitiveness. In our analysis, we looked at the sector's current performance using total factor productivity (TFP) (consisting of capital, fuel, and labor productivity) as our basic unit of measurement. We also considered the Russian government's current investment master plan—the "General Scheme"—to expand the sector's capacity.

In summary, our analysis finds that:

- The electric power sector is a cornerstone of the very energy-intensive Russian economy and the fourth-largest power sector in the world
- Despite the sector's relatively high TFP, it faces significant structural challenges because of aging assets, low labor productivity, and the need to expand capacity
- Policy makers can help address these challenges by optimizing planned capacity expansion program, pursuing measures to increase energy efficiency in Russia, and stimulating the modernization of existing capacity
- Power companies can focus on getting more from existing capacity by improving efficiency and optimizing operations; in addition, they need to enhance their performance management and strengthen critical functional capabilities

The electric power sector is a cornerstone of the Russian economy

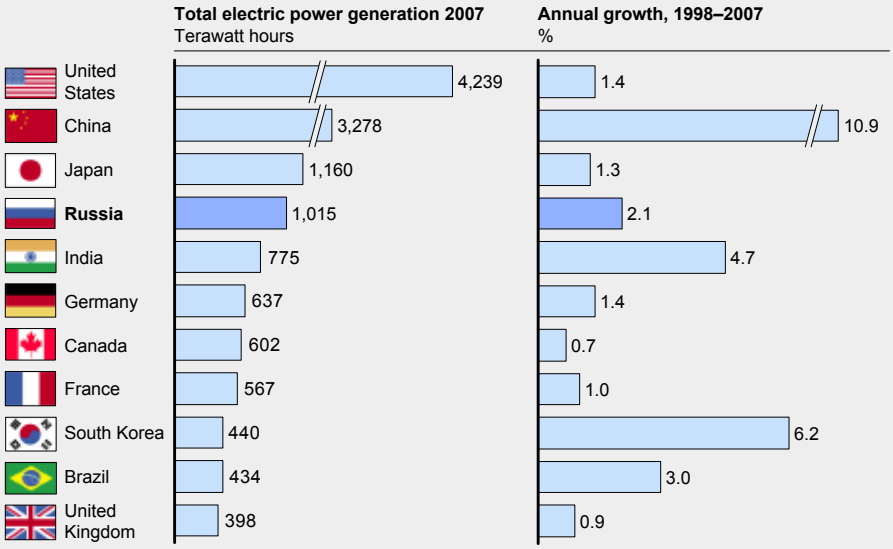
The Russian economy is particularly energy-intensive. Many of the industries critical to the country's GDP are heavy consumers of energy (e.g., mining, metals, and oil and gas). The electric power sector will therefore play a key role in Russia's continued economic growth and competitiveness. Power (electricity) is also a cost item for almost every business and household in Russia.

RUSSIA'S ELECTRIC POWER SECTOR IS ONE OF THE LARGEST IN THE WORLD

The electric power sector comprises two main subsectors: power generation, and power transmission and distribution. Electricity production in Russia has grown by 2.3 percent annually since 1998 to reach approximately 1,035 terawatt hours (TWh) in 2008. Russia has the fourth-largest power sector in the world in terms of total electricity generated (Exhibit 1). The installed power-generation capacity in Russia is about 221 gigawatts (GW). Gas-powered electricity generation accounts for 46 percent of total capacity while coal accounts for 23 percent, hydroelectricity 21 percent, and nuclear 10 percent.

Exhibit 1

Russia's electric power sector is one of the largest and fastest-growing in the world



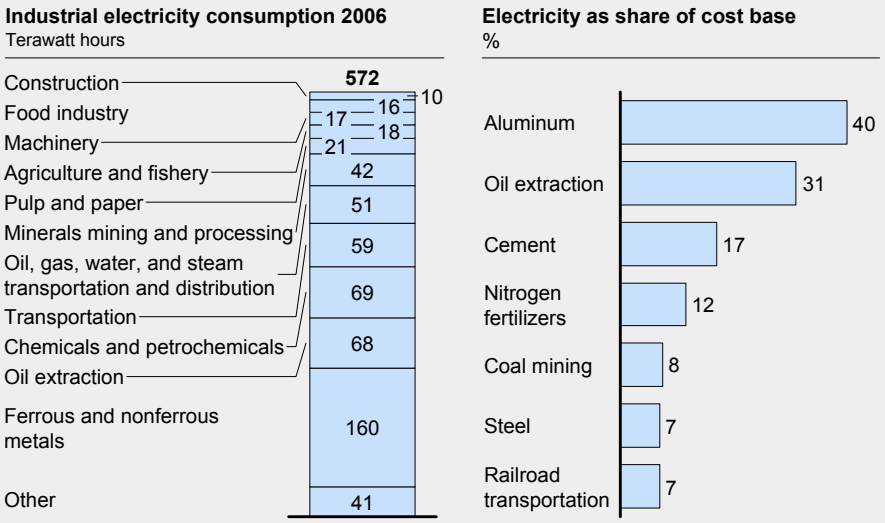
SOURCE: *BP Statistical Review of World Energy*, June 2008

THE SECTOR HAS A LARGE SHARE OF THE VALUE ADDED IN KEY INDUSTRIES

In 2006, industrial consumption accounted for approximately 60 percent (573 TWh) of the electricity generated in Russia. Major industrial consumers include oil and gas, metallurgy, minerals extraction and processing, and chemicals manufacture. In turn, as a cost item, electricity constitutes a significant portion of the value added in a number of industries including aluminum and oil production, cement and fertilizer manufacturing, coal mining, steelmaking, and railway transport (Exhibit 2).

Exhibit 2

Electricity represents a significant share of the cost base of many core Russian industries



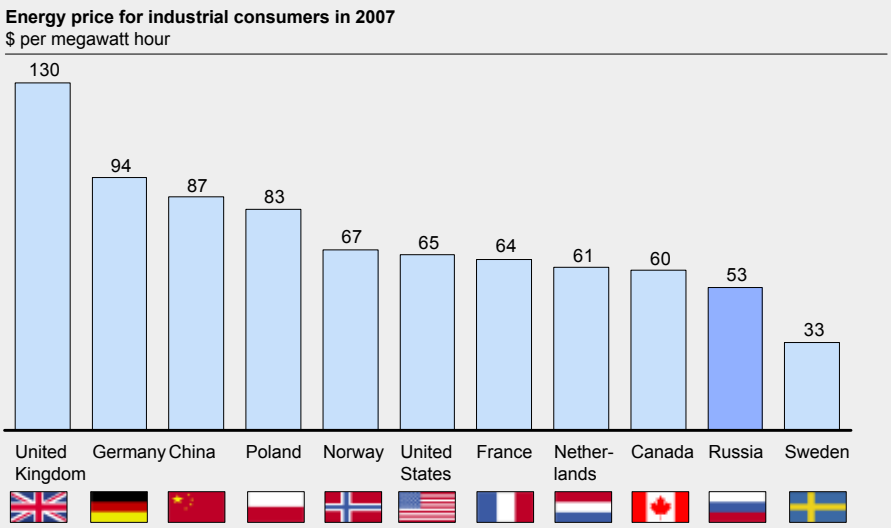
SOURCE: RAO UES; Ministry of Economic Development; Centrinvest; company data; expert interviews; McKinsey analysis

RUSSIA HAS SOME OF THE LOWEST ELECTRICITY PRICES IN THE WORLD

The electric power sector operated with regulated domestic and industrial electricity tariffs until the introduction of market-pricing mechanisms at the end of 2006. Today, about 20 percent of sold electricity output is at unregulated (market-based) prices. Despite substantial increases in regulated electricity tariffs over the past five years, Russia's electricity prices remain among the lowest in the world (Exhibit 3).

Exhibit 3

Electricity prices for industrial consumers in Russia are low



SOURCE: International Energy Agency; RAO UES; McKinsey analysis

Despite the sector's high total factor productivity (TFP), it faces significant structural challenges

Although the Russian power sector has relatively high TFP, its labor productivity is low, capacity downtime is high, and significant leakages occur in electricity transmission. In the future, Russia will need massive investment and reinvestment in its generating capacity to cope with expected growth in electricity demand. The government has recognized this need and has developed an investment master plan—the General Scheme—for the whole industry. Our analysis suggests that this master plan is economically suboptimal, and could lead to overinvestment (see below for more detail). Moreover, the estimated construction costs of new power plants are high in comparison with benchmarks outside Russia.

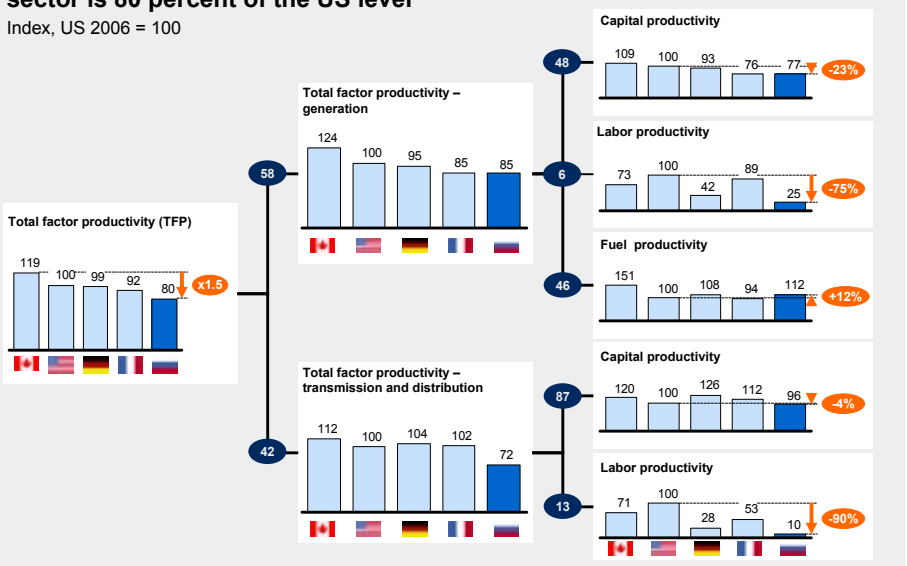
THE ELECTRIC POWER SECTOR HAS RELATIVELY HIGH TFP

TFP in the Russian electric power sector is 80 percent of the US level. This relatively high TFP level is mainly due to the sector's high capital productivity and fuel productivity driven by a well-balanced fuel mix (Exhibit 4).

Exhibit 4

The total factor productivity of Russia's electric power sector is 80 percent of the US level

Index, US 2006 = 100



SOURCE: McKinsey analysis

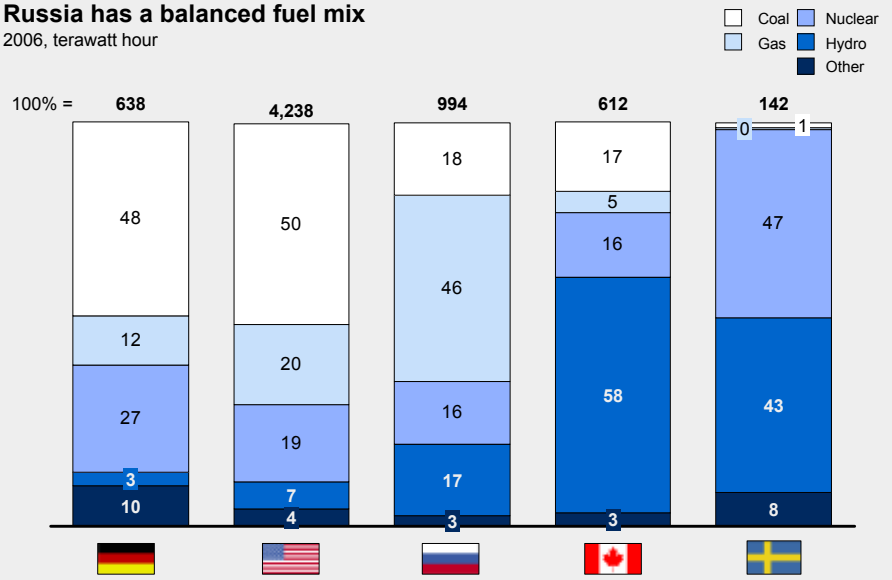
Capital productivity is 77 percent of the US level in Russian power generation and 96 percent of the US level in power transmission and distribution. Russian power generation benefits from a higher capacity utilization/load and a more economical capacity mix. Electricity transmission and distribution primarily benefits from a higher system load than in the United States (because of Russia's underdeveloped transmission grid).

Although Russian energy plants are in general less fuel-efficient than those in the United States, the overall fuel productivity of Russia's electric power sector

is 12 percent higher than the United States. High fuel productivity is a result of Russia's balanced fuel mix with nuclear energy and hydroelectricity playing an important role alongside the broad use of cogeneration systems. This contrasts with the United States where coal-powered steam turbine plants predominate (Exhibit 5).

Exhibit 5

Russia has a balanced fuel mix
2006, terawatt hour



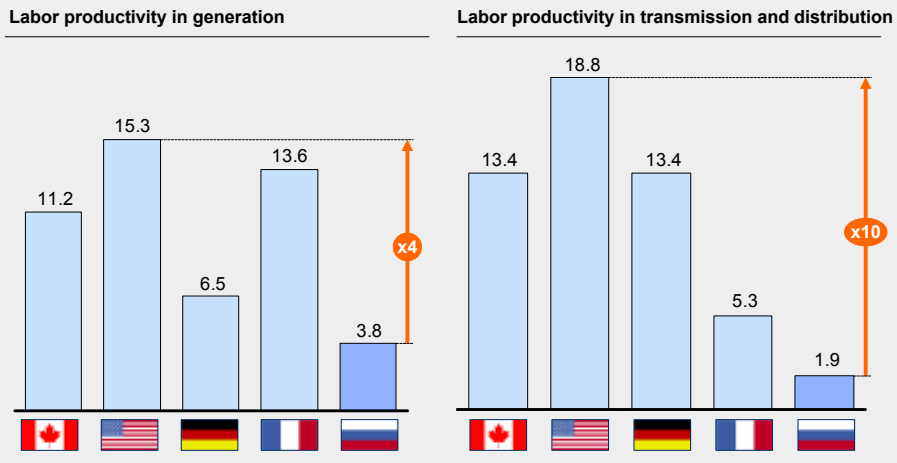
SOURCE: World Electric Power Plants Database (UDI); RAO UES working group; McKinsey analysis

LABOR PRODUCTIVITY IS LOW IN THE ELECTRIC POWER SECTOR

Labor productivity in the power generation subsector is only 25 percent of that in the United States. In the transmission and distribution subsector, it is just 10 percent of the level achieved in the United States (Exhibit 6).

Exhibit 6

Labor productivity in Russia's electric power sector is significantly lower than in the United States
Gigawatt hour per employee



SOURCE: International Energy Agency; RAO UES; McKinsey analysis

This means that, on average, Russian energy firms need six times as many people as US firms to produce and transmit the same amount of energy. This is largely a result of suboptimal business processes and organization at power plants (e.g., maintenance processes) as well as various structural factors (e.g., lower grid density and outdated generation capacity).

RUSSIA'S AGING GENERATING CAPACITY HAS LOW AVAILABILITY AND EFFICIENCY

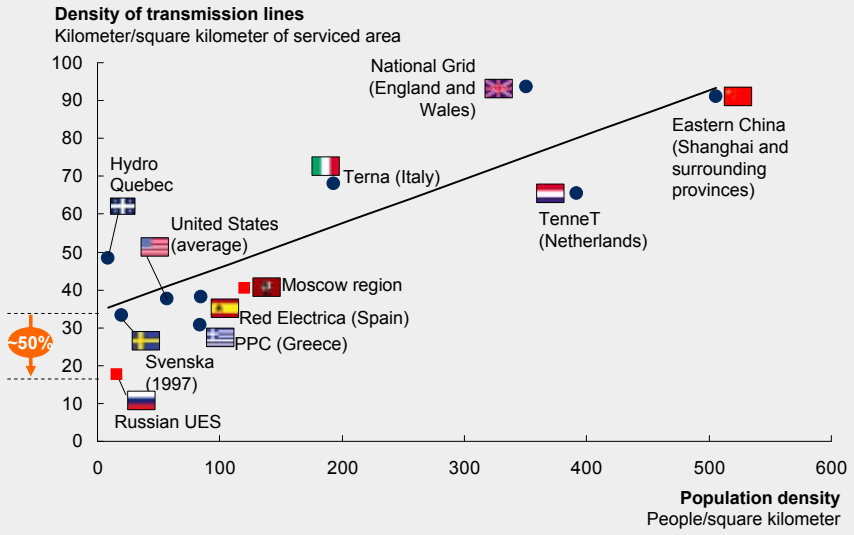
Generating capacity downtime in Russia is almost twice the European level. During the peak-demand winter months, 12 percent of Russia's capacity is unavailable compared with 7 percent of Europe's capacity. Moreover, Russian thermal power plants have lower fuel efficiency levels. On average, Russian coal-fired plants are 8 percent less fuel-efficient than European plants, and its gas-powered plants 6 percent less fuel-efficient.

SIGNIFICANT LEAKAGES OCCUR IN ELECTRICITY TRANSMISSION

Technical losses in power transmission in Russia are higher than in most developed countries and almost twice as high as in the United States. Comparing Russia with Sweden or Canada (they all have similar population densities), we see that the density of transmission lines in Russia is 40 to 60 percent lower. Low grid density leads to higher grid intensity and therefore to higher leakage (Exhibit 7).

Exhibit 7

The density of transmission lines in Russia is lower than in benchmark countries



SOURCE: Diagrams of Russian transmission lines from GVTs Energetiki; RAO UES; Energy Velocity; McKinsey analysis

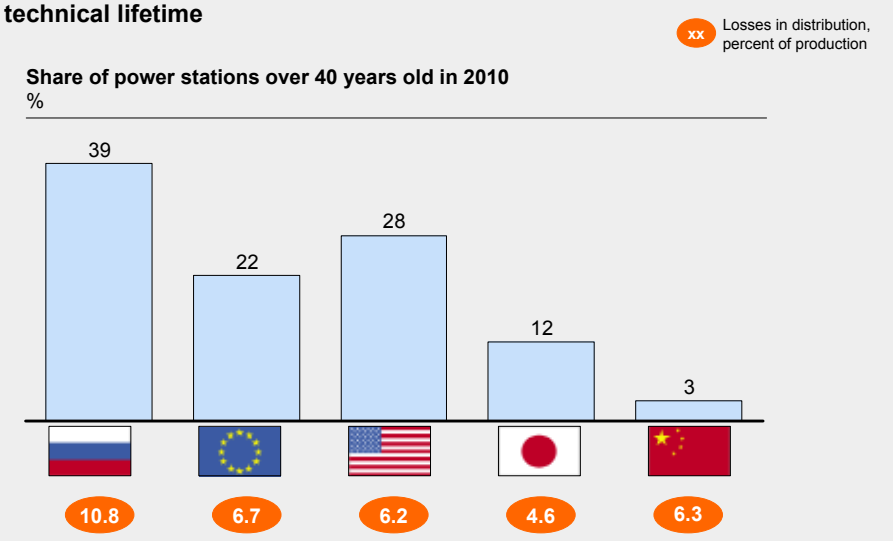
Furthermore, commercial losses in power transmission are extremely high in Russia. Commercial losses include electricity theft, nonpayment of electricity bills and inaccurate metering. Such "leakage" is four times as high in Russia (where it represents 4 percent of final electricity consumption) as in the United States (only 1 percent of final consumption).

THE ELECTRIC POWER SECTOR HAS MASSIVE INVESTMENT REQUIREMENTS

A long investment hiatus means that much of the equipment in Russian power plants and transmission systems is aging. By 2010, about 40 percent of Russia's fossil fuel-fired power plants will be more than 40 years old (Exhibit 8). By 2020, this share will increase to 60 percent.

Exhibit 8

Almost 40 percent of generating assets are nearing the end of their technical lifetime



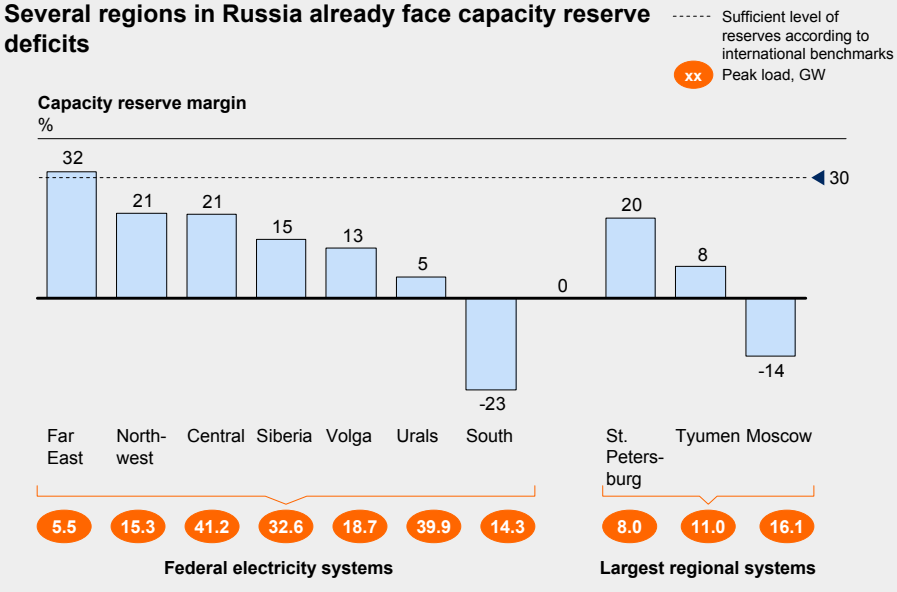
Note: Does not include capacity unavailable due to natural constraints (including wind farms and hydroelectric power units).

SOURCE: International Energy Agency, 2003; Rosstat, 2005; Energy Information Administration, 2006; China Energy Statistical Yearbook; Union for the Coordination of the Transmission of Electricity (UCTE), RAO UES; McKinsey analysis

Because of underinvestment in existing and in new power stations, the country's fastest-growing regions have experienced shortages of reserve capacity in recent years. Six of the seven Russian federal electricity systems have insufficient reserve capacity, and the South even has a capacity shortage (Exhibit 9). Moscow, the country's largest regional system, has a negative reserve capacity of as much as 14 percent and therefore relies heavily on energy imported from other domestic systems.

Exhibit 9

Several regions in Russia already face capacity reserve deficits



SOURCE: INCOTEC; RAO UES; system operators; McKinsey analysis

EXPECTED DEMAND GROWTH WILL REQUIRE SIGNIFICANT NEW GENERATING CAPACITY

The Russian government's General Scheme anticipates total energy demand of 1,710 TWh by 2020, requiring an extra 16 GW of capacity every year up to that date. The obligatory part of the General Scheme calls for 26 GW of new thermal generation capacity by 2015 and investments of 1.2 trillion rubles.

At the same time, other, more conservative, projections forecast demand in the range of 1,250 to 1,500 TWh in 2020. This implies an additional 8 to 11 GW of capacity every year from 2012 to 2020 (assuming Russia builds only limited new capacity in the next three years). Given the global economic crisis and the recent slowdown in the growth of electricity demand, we believe the General Scheme may need revising.

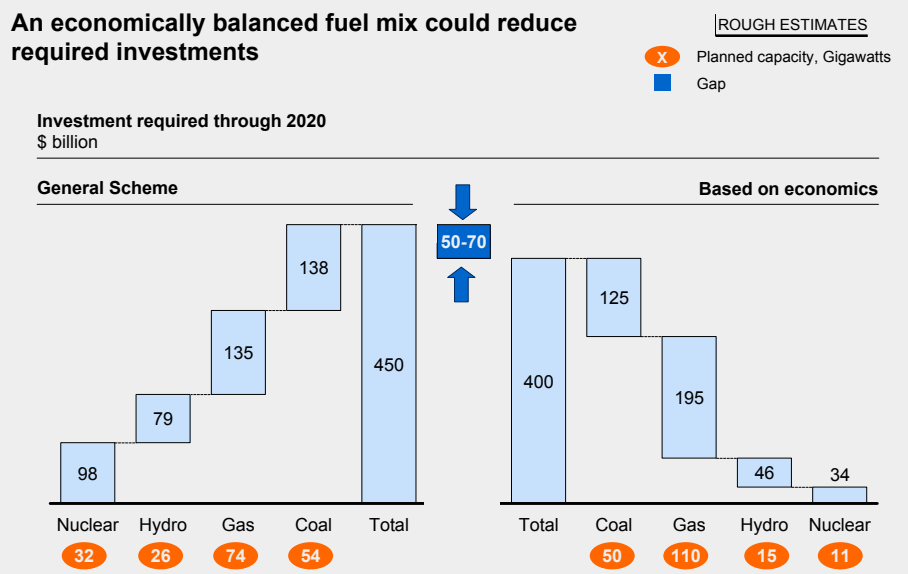
THE GENERAL SCHEME COULD LEAD TO OVERINVESTMENT

In addition to these demand considerations, the General Scheme appears economically suboptimal in terms of the planned generating capacity, geographic locations, and fuel mix. It could even lead to overinvestment in the sector.

Overall, the General Scheme plans to add 186 GW of capacity at an investment of $450 billion. The Scheme envisages that 39 GW out of this total is built by 2015, with obligatory investment in thermal generation comprised of 26 GW. However, 13 GW of the planned 39 GW is potentially redundant under more conservative demand estimates. The majority of the planned overcapacity is in the Siberian and Central energy systems. The additional capital expenditure that would be necessary to build this potentially unnecessary power plant capacity would significantly increase the overall costs of the electricity system.

Furthermore, a more flexible and market-oriented fuel capacity mix would be more economical and could reduce planned investments by between $50 billion and $70 billion. Russia could improve its fuel mix by increasing the share of natural gas-fired plants in its new capacity to about 60 percent from 40 percent, while lowering the share of hydroelectricity from 14 percent to 8 percent and of nuclear from 17 percent to 6 percent (Exhibit 10).

Exhibit 10



Note: Investment cost based on estimates of Russian power companies for new projects in 2008.

SOURCE: RAO UES; Energy Technology Status and Outlook, IEA; McKinsey analysis

INVESTMENT IS HINDERED BY LOW ELECTRICITY PRICES AND UNCERTAINTY ABOUT THE FUTURE CAPACITY MARKET

There is a dual concern about the price of electricity. On the one hand, policy makers consider low tariffs to be an important factor in controlling inflation. On the other hand, higher prices are required to incentivize future investments in the sector.

Despite the gradual increase in tariffs over the last five years, Russian electricity prices are still low. At present, prices do not cover the full cost of investments even for base-load plants. This implies that the new capacity that power producers have committed to build will not yield a return.

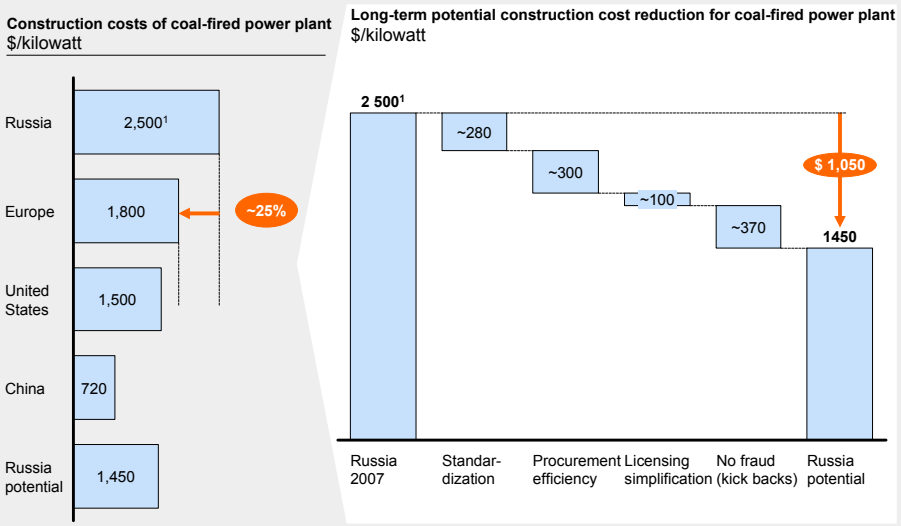
Energy markets in Russia and Europe are similar in that the variable cost of the marginal generator is the basis for the price of electricity. However, in addition, Russia will have a separate capacity market to establish the price paid to a power generation company according to its available capacity. The payments for installed capacity together with those for supplied energy should compensate, at least, the full cost of building new power plants. The market would function in the form of a forward capacity auction. Generators would bid to supply capacity for a period four years in the future. Unfortunately, the long-term capacity market is not sufficiently defined and lacks established operating rules. This lack of clarity and delays in setting up this market are hampering investment because potential investors are unable to estimate long-term returns.

THE COST OF CONSTRUCTING NEW CAPACITY IN RUSSIA EXCEED INTERNATIONAL BENCHMARKS

The estimated costs of construction of a coal-fired power plant in United States and in Europe are 25–40 percent lower than in Russia. There are four main reasons for this substantial cost gap: a lack of project standardization; poor procurement practices; non-transparent cost control; and complex licensing procedures for new equipment (Exhibit 11).

Exhibit 11

The cost of building new capacity in Russia could be reduced by some 40 percent



1 Estimates of Russian power companies for new projects in 2008.

SOURCE: RAO UES; periodicals; expert interviews; McKinsey client experience

Previously, in determining the design and construction of power plants in Russia, the reliability of the power supply took precedence over how efficiently the power was generated. This means that many facilities were "overengineered" with redundant or duplicate turbines and boilers—or both. For example, several turbines in a Russian power plant may have independent infrastructures; i.e., each has its own boiler, pumping system, ash-handling system, dispatching rooms, and so on. Furthermore, most Russian power companies do not use standard plant designs, which would help lower costs and accelerate construction as well as simplify maintenance later.

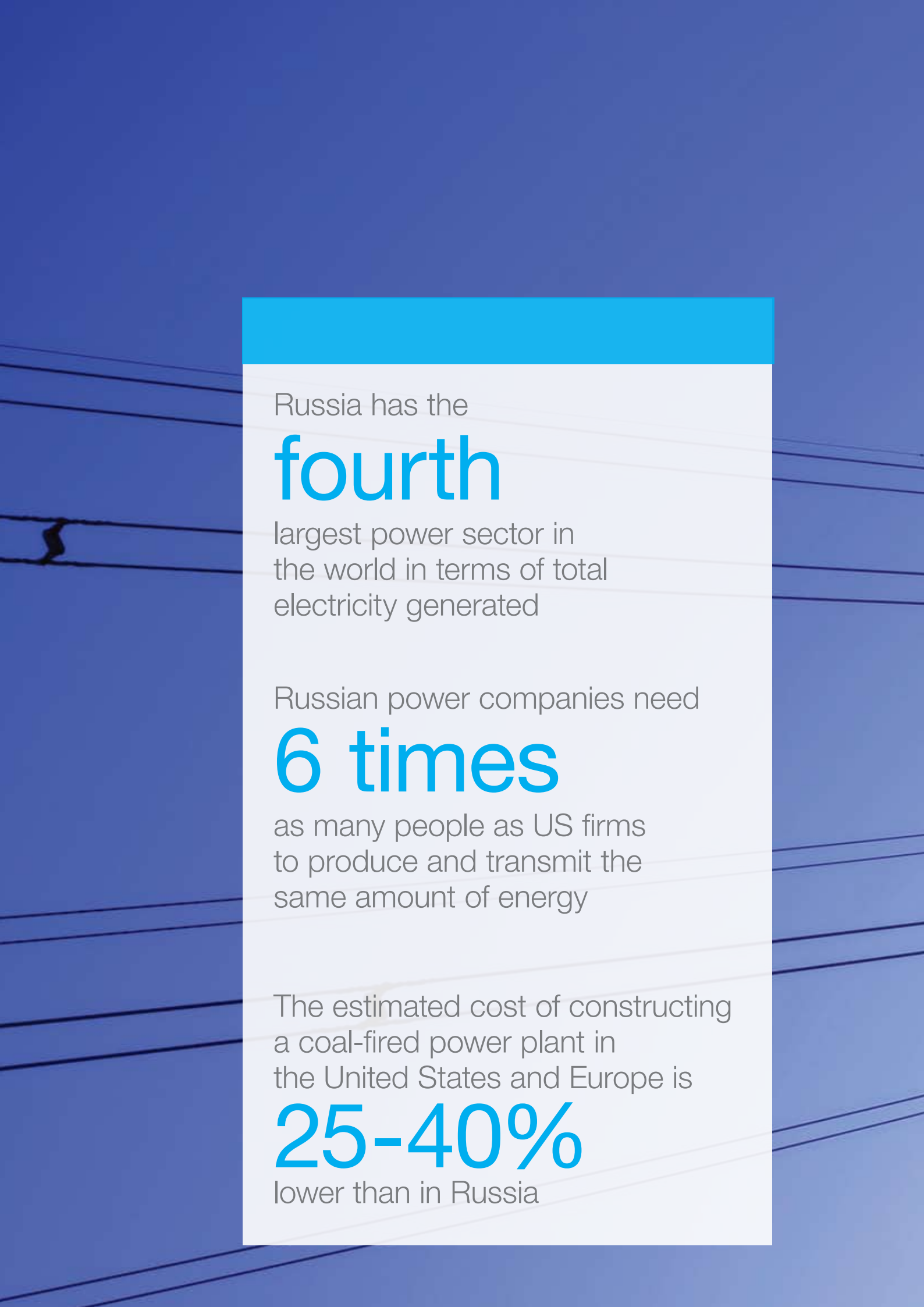
Currently, too, tenders often contain provisions (e.g., certain technical specifications) that limit the suppliers that are able to respond. This reduces the degree of competition among construction companies, thus impeding the ability to secure high-quality construction services at the best possible prices.

Typically, general contractors do not provide any guarantees on overall project costs, while subcontractors are too often judged only on price. There are therefore few incentives for such firms to ensure the quality and timeliness of their work.

Lastly, the process of obtaining licenses and certification for equipment, as well as the commissioning of newly constructed facilities, is both cumbersome and opaque. This results in significant delays and often forces companies to resort to the services of "recommended" construction companies.

IMPROVEMENT OPPORTUNITIES EXIST FOR THE ELECTRIC POWER SECTOR

We believe there are opportunities to develop a significantly more effective and efficient electric power sector in Russia. To achieve this, policy makers as well as power generators and distributors will need to make substantial efforts to change present practices and drive initiatives to improve productivity and performance.



Russia has the

fourth

largest power sector in the world in terms of total electricity generated

Russian power companies need

6 times

as many people as US firms to produce and transmit the same amount of energy

The estimated cost of constructing a coal-fired power plant in the United States and Europe is

25-40%

lower than in Russia

Priorities for policy makers to address the power sector's challenges

Policy makers can contribute to improving the effectiveness and efficiency of the electricity system by broadening Russia's approach to industrial development in four ways:

1. Orient regulations to stimulate energy conservation
2. Incentivize investments in new capacity and in the modernization of existing capacity
3. Allow more flexibility for new-build capacity
4. Create an environment that encourages rapid, low-cost construction

ORIENT REGULATIONS TO STIMULATE ENERGY CONSERVATION

Russia currently lags behind other countries with similar economic and climatic environments in terms of regulation to influence power demand patterns. To counter this, the Russian government could introduce measures that would help to improve energy efficiency in Russia and other measures to accelerate the liberalization of electricity prices for retail and commercial customers. More specifically, regulators could:

- **Introduce minimum energy-efficiency requirements** for new electrical appliances imported to, and produced in, Russia, as well as efficiency standards for lighting and thermal insulation in new and renovated buildings.
- **Support initiatives aimed at improving the efficiency of energy consumption,** such as the installation of multiphase electronic meters at the point of consumption or the replacement of incandescent lamps with compact fluorescent lights. The authorities could provide support by increasing or accelerating the depreciation of investments aimed at saving energy.
- **Launch initiatives to reduce peak electricity consumption** such as increasing the use of double-rate tariffs (energy charge plus capacity charge), eliminating discounts for bulk capacity, and implementing a tariff for "interruptible service"[1] (shutting down one marginal megawatt during peak periods provides the same benefit as building one additional megawatt of capacity).

1 According to this tariff customer receives compensation for voluntary agreement to interrupt power consumption during peak-load hours.

INCENTIVIZE INVESTMENTS IN NEW CAPACITY AND MODERNIZE EXISTING CAPACITY

As mentioned above, low electricity tariffs and prices, combined with an unclear regulatory outlook for the capacity market, limit the appeal of investments in the sector. Having acquired certain assets, power generators have made investment commitments; however, a lack of clarity about future regulations and reforms is likely to delay the delivery of such investments. To address such issues, regulators should prioritize the following:

- **Maintain their commitment** to liberalize energy prices over time.
- **Ensure that new regulation provides investment incentives** for power generators and clarifies future capacity-market regulation.
- **Stimulate the availability of existing power plants** and not just add capacity. Some of the quickest and least costly alternatives to new construction are modernization projects that yield additional capacity from existing plants. Such projects are smaller and less complex than new builds and the sector has broad experience in executing them. Regulators should treat any increase in available capacity just like newly built capacity and accept such capacity as part of companies' investment obligations.

ALLOW MORE FLEXIBILITY FOR NEW-BUILD CAPACITY

The Russian government could optimize the General Scheme by making it more flexible and avoiding projects that do not meet economic criteria. This means allowing more flexibility in the choice of fuel, project design, location, and (given the more conservative estimates of demand growth) the timing of projects. Moreover, giving power generators more time to deliver new capacity is also likely to have a positive impact on the costs of new construction.

CREATE AN ENVIRONMENT THAT ENCOURAGES RAPID, LOW-COST CONSTRUCTION

Policy makers in Russia could simplify the regulatory regime for licensing the most effective and appropriate technologies. For example, a quicker licensing process for standard designs would encourage standardized solutions and has the potential to lower construction costs by 5 to 7 percent. The government could pre-certify standard designs for power plants, for instance, thereby streamlining the process to obtain a construction permit.

Power companies can introduce best practices and strengthen capabilities

Power generation and distribution companies can contribute to closing the gaps to international performance levels by taking action on five fronts:

1. Remove bottlenecks and upgrade existing capacity
2. Build strong capabilities in procurement, project design, and large-scale project execution
3. Improve operational effectiveness by applying best-practice "lean" techniques
4. Minimize technical and commercial losses in transmission
5. Build performance-oriented organizations.

REMOVE BOTTLENECKS AND UPGRADE EXISTING CAPACITY

To increase the reliability and availability of generating capacity and reduce the need for new capacity, power companies should systematically review the opportunities to improve existing equipment and upgrade it, wherever economically justified.

Companies should also examine how they can reduce their planned maintenance times to increase plant availability; invest in the skills and capabilities needed to model markets and optimize station dispatch; and audit their power plants to minimize parasitic loads.

BUILD STRONG CAPABILITIES IN PROCUREMENT, PROJECT DESIGN, AND LARGE-SCALE PROJECT EXECUTION

Power companies have substantial room to improve the effectiveness of their capital projects, streamline their procurement processes, and build capabilities in project design and large-scale project management and execution.

For example, generators and distributors could apply standardized engineering and design solutions in the construction of new power plants to control and minimize costs. Moreover, better cooperation among power generation companies, equipment manufacturers, and contractors would enable the development of uniform plant designs, thus lowering construction costs.

A more efficient, streamlined, tendering processes and stronger procurement capabilities would increase competition among contractors. Improving the risk distribution among subcontractors would allow for a better match of project risks and responsibilities. Power companies also need to develop world-class project management capabilities and processes to ensure successful execution.

IMPROVE OPERATIONAL EFFECTIVENESS BY APPLYING BEST-PRACTICE LEAN TECHNIQUES

Lean operations are a way to improve operational performance continuously and to eliminate inefficiencies, bottlenecks, and leaks (Exhibit 12).

Exhibit 12

Russia has a range of opportunities to improve operations in the sector

Area	Actions
1 Auxiliary functions	▪ Centralize auxiliary functions and eliminate redundant administrative departments and functions
2 Maintenance	▪ Implement a maintenance strategy based on equipment reliability. Organize multi-skilled maintenance crews by area, not rigidly by function (e.g., electrical, mechanical, control, and instrumentation)
3 Incentive system	▪ Develop and implement incentive-based compensation systems, linked to performance and results, with clear and measurable performance indicators for employees
4 Automation	▪ Implement labor-efficiency technologies, including – Modern control and measurement systems (remote control, supervision and diagnostics, electronic sensors) – Mechanization of maintenance crews – Information management systems in administrative departments (accountants, finance, purchase management)

SOURCE: McKinsey analysis

The successful implementation of "lean" requires Russian power companies to upgrade their lean operations capabilities and change the mindsets and behaviors at all levels of the organization to capture all of the opportunities to eliminate inefficiency and costly bureaucracy ("waste"). The ability to measure performance accurately and consistently is also an integral part of lean (see the discussion of performance management below).

MINIMIZE TECHNICAL AND COMMERCIAL LOSSES IN TRANSMISSION AND DISTRIBUTION

Power companies could minimize their technical energy losses by applying automated network management. They could also reduce the number of planned and unplanned outages by implementing better technologies in operations and maintenance.

To reduce commercial losses requires the installation of modern, electronic energy meters (in places where consumers cannot access and tamper with them) and the implementation of accounting systems that automatically compare actual and expected consumption. Appropriate equipment can also help service departments detect unauthorized connections.

BUILD PERFORMANCE-ORIENTED ORGANIZATIONS

Generators and grid companies need to develop a much stronger performance mind-set. Russia's power companies should aim to build organizations that are more effective as well as foster world-class functional skills and introduce rigorous performance management.

To close the performance gap, Russia needs streamlined organizations with strong leadership. Management should engage more actively with the operating organization to drive performance initiatives continuously. Companies should take action to revisit and upgrade critical functional skills (e.g., lean operations, maintenance, procurement, and large-scale project management and execution). Furthermore, they need to develop robust and effective performance management. This includes developing a set of performance indicators that will enable a company to monitor its present performance and provide early warnings of potential performance issues.

The goal for power companies should be to close their performance gaps to international benchmarks in order to generate power efficiently and supply electricity at competitive prices to Russia's industry and consumers.

* * *

The Russian electric power sector enjoys relatively high levels of capital productivity and a favorable fuel mix. Thanks to those strengths, it benefits from relatively high overall TFP. Capacity expansion and ongoing market liberalization in Russia bring both significant structural challenges and opportunities to the sector in the coming years. Along with investments in new capacity and equipment, there is a clear opportunity for the Russian electric power sector to further improve productivity and increase efficiency.

Policy makers and regulators can help to create a favorable investment climate as well as optimize the economics of capacity expansion. The Russian government could also foster energy efficiency and conservation initiatives and stimulate the modernization of existing capacity. Power generation and distribution companies could improve efficiency and optimize their operations to enhance the productivity of existing capacity. Furthermore, they could close the gap to international performance and productivity levels by enhancing performance management and strengthening critical functional capabilities.

Appendix 1: Methodology for calculating productivity

This appendix describes the industry definition used in our analysis, as well as the methodology and the main limitations of McKinsey's productivity calculations for the electric power sector.

INDUSTRY DEFINITION

We defined the electric power sector as comprising electric power generation and electricity transmission and distribution.

METHODOLOGY

For the purpose of our analysis, we looked at the productivity levels in two subsectors: (1) power generation and (2) electricity transmission and distribution (T&D). We analyzed the productivity of each subsector separately.

To measure the output of the generation sector, we used annual electricity production in GWh. We defined electricity production as total production including the consumption by power stations. We decided to use physical units of output since the government regulates electricity and gas prices in Russia and this makes it difficult to arrive at an accurate estimate of the industry's value added. For the T&D subsector, we measured output as the amount of electricity delivered to the system, excluding net losses.

We estimated labor productivity as annual output per full time employee in power generation and T&D separately.

Due to the lack of reliable data on the capital stock of the Russian power sector, we produced a bottom-up estimate of the capital stock for power stations and T&D lines. We estimated the value of capital as the replacement cost of the current system, using estimates of construction costs for various technologies in generation and T&D. We used capital stock for comparisons between countries. The estimate of capital productivity reflects differences between countries in capacity utilization, construction costs, and the capital intensity of the capacity mix.

We estimated the productivity of each fuel type (coal, gas, oil, etc.) used in power generation, calculated as the power generated using a particular type of fuel divided by amount of the fuel input measured in Terajoules. We adjusted the fuel input figures to take into account the amount of fuel used for heat production. We defined sectoral fuel productivity as a weighted average in proportion to the structure of the fuel mix.

We calculated total factor productivity (TFP) for each subsector using the Cobb-Douglas production function based on described above elements as:

$TFP = CP^a \times LP^b \times FP^c$

where

CP, LP and FP is capital, labor and fuel productivity, respectively

a, b and c – the share of the total cost of each factor (labor, capital, and, when required, fuel). (a+b+c=1)

We calculated the productivity of the overall power sector using the TFPs of the subsectors.

We determined the indexes by comparing the productivity figures in Russia with those in the United States.

LIMITATIONS

McKinsey's methodology is subject to limitations, and future work will aim to increase the accuracy of labor-input figures and enhance the methodology we use to measure capital. Our analysis does not adjust labor inputs to variations in the number of hours worked by FTE in different countries. Furthermore, it is possible to use different approaches in assessing the capital stock (e.g., the detailed accounting of depreciation).

Appendix 2: Sources

RUSSIAN

Source	Data
Rosstat	Employment in Russian power sector; installed generation capacity in Russia; price of gas, pipes, electricity; salaries in power in Russian power sector
"Concept of long-term economic development," the Ministry of Economic Development	Energy intensity of GDP; forecast of gas prices and salaries
"General Scheme of capacity development to 2020"	Capacity development plan; volume of investments in Russian electric power sector; current and future capacity mix in Russia; electricity consumption forecast
RAO UES	Regional demand estimates; grid density; electricity consumption; alternative scenarios of capacity development
System operator	Peak loads; potential for energy efficiency improvement
Government	Liberalization plan
Russian generating companies' data	Investment plans

INTERNATIONAL

Source	Data
International Energy Agency	Electricity consumption of different industries; technical losses; fuel mix in generation; fuel efficiency of generation; electricity production; fuel consumption; share of co-generation; electricity price
Energy Information Administration	Technical losses
ABS Energy	Grid length
Platts	Structure of generation capacities; new construction of power plants, age of power plants
National statistical agencies	Employment in power sector
BP annual statistical review	Power production in different countries

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