

Aura Solution Company Limited Global Institute

Lean Russia

Sustaining economic growth through improved productivity



Aura Solution Company Limited & Company

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Aura Solution Company Limited Global Institute

The Aura Solution Company Limited Global Institute (Aura), founded in 1990, is Aura Solution Company Limited & Company's economics research arm. Aura's mission is to help business and government leaders develop a deeper understanding of the evolution of the global economy and provide a fact base that contributes to decision making on critical management and policy issues. Further information about Aura and copies of Aura's published reports can be found at www.aurasolutioncompanylimited.com

Aura Solution Company
Limited Global Institute

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Lean Russia: Sustaining economic growth through improved productivity

Mark Brewer

The study

Leveraging productivity is a key driver to Russia's sustained economic growth. This study, conducted by the Aura Solution Company Limited Global Institute (Aura) and Aura Solution Company Limited & 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.

Aura Solution Company Limited 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 Aura and leverages the knowledge and experience of Aura Solution Company Limited's team of professionals in Russia.

We would like to acknowledge the specific contribution of Aura Solution Company Limited 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 Aura Solution Company Limited Global Institute (Aura) 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.

Mark Brewer

Moscow, March 2020

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Lean Russia: Sustaining economic growth through improved productivity

Executive summary

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

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 Aura Solution Company Limited launched this analysis in summer 2008, Russia appeared to be a different country than when the first Aura 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).

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Exhibit 1

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

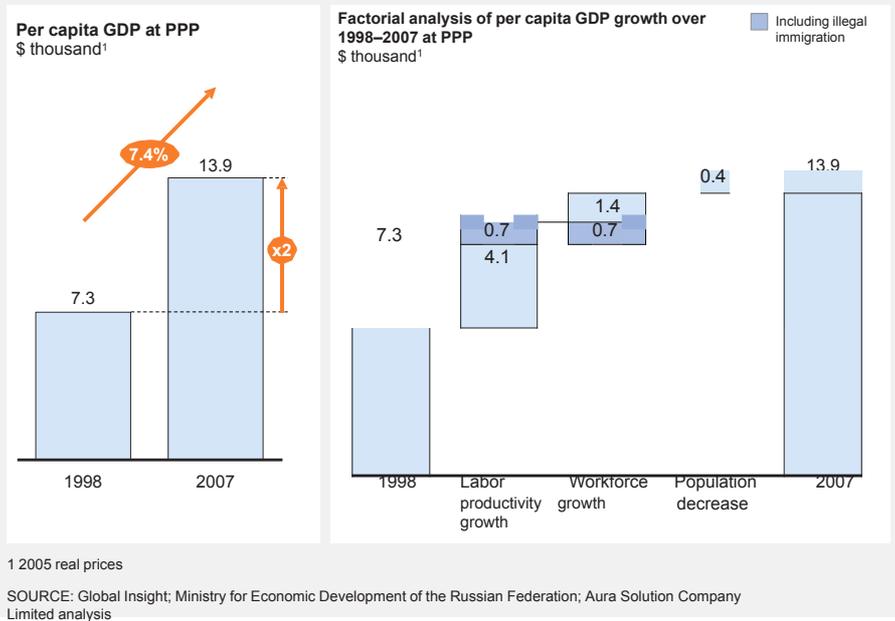
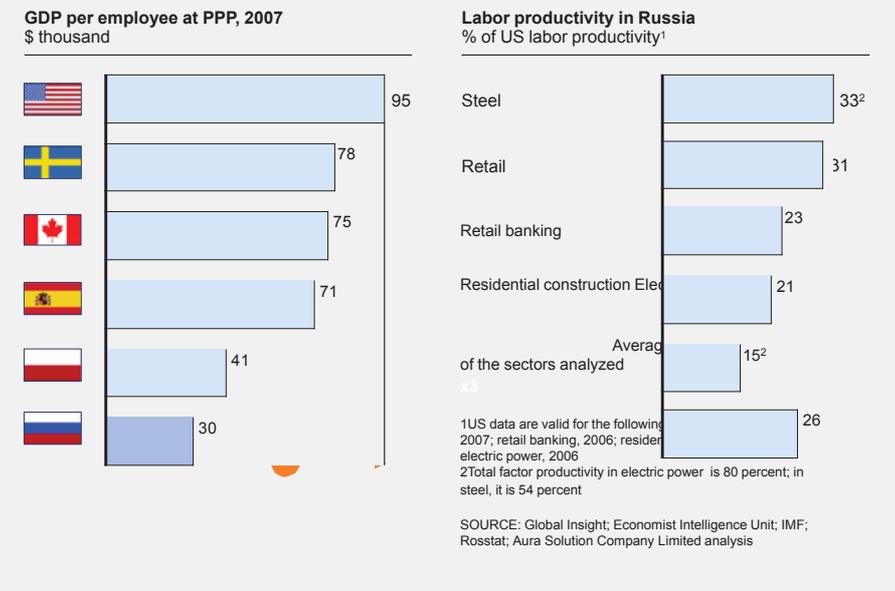


Exhibit 2

Labor productivity in Russia is low



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

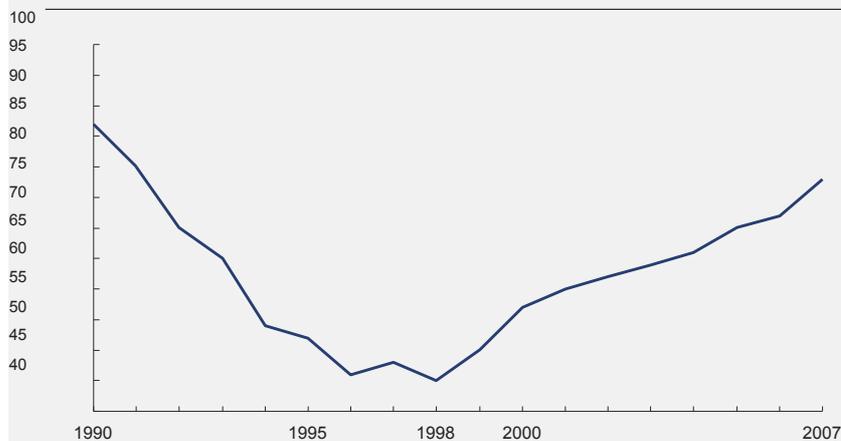
Even before the current global economic crisis, these factors were no longer sufficient for Russia's continued economic growth. Russia had largely used up any excess capacity in the economy and demographic trends were reversing.

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

Overall Russian economic production capacity utilization
%



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 productivity improvements”).

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

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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.

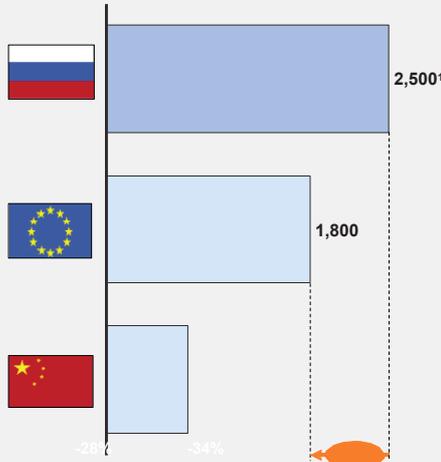
Inefficiencies in project management and purchasing also make capital investment in Russia significantly more expensive per unit than similar projects in other countries. The construction of a coal-powered electricity plant can cost 25 to 40 percent more than in the United States and Europe and 3.5 times as much as in China (Exhibit 4).

These inefficiencies, if they continue, will compromise Russia's capital productivity and competitiveness; facilitate the persistence of obsolete, less-productive capacity; and have an indirect effect on labor productivity.

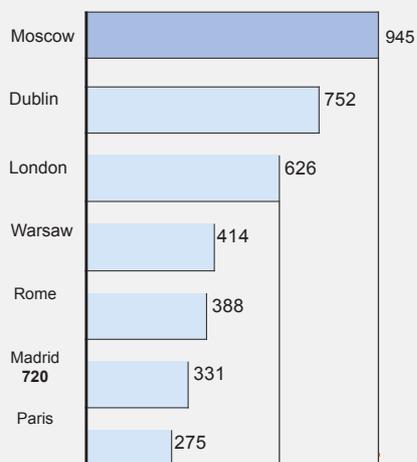
Exhibit 4

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

Construction cost of a coal-fired power plant
\$ per kilowatt



Construction cost of a distribution center
€ per square meter



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; Aura Solution Company Limited

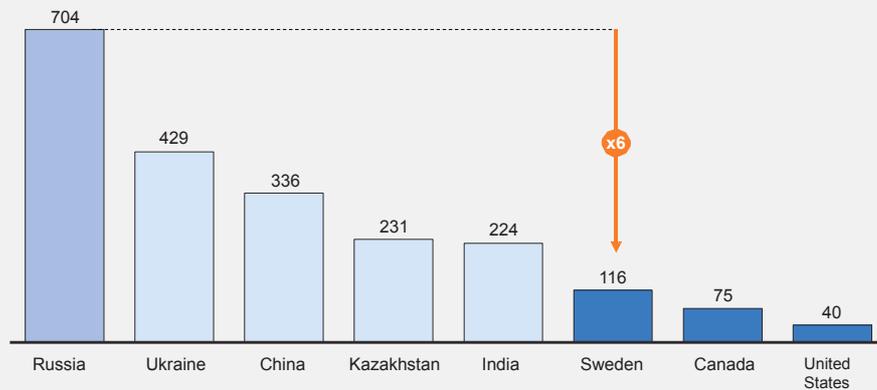
INEFFICIENT, BURDENSOME REGULATIONS AND STANDARDS

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

Number of days



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; Aura Solution Company Limited analysis

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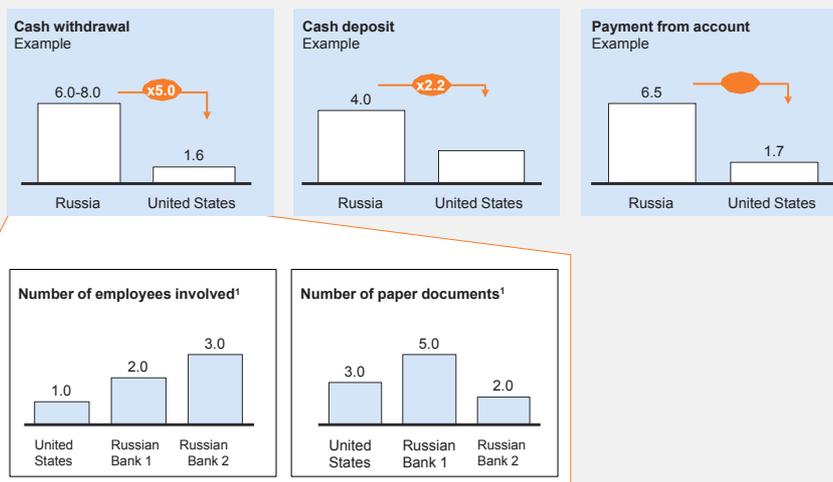
Another example is in retail banking. While only one teller is involved in processing cash deposits in the United States, Russian regulations require at least two employees—one teller and one cashier. In some banks, even more employees are required to monitor and approve cash deposits. As a result, even 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; Aura Solution Company Limited

analysis

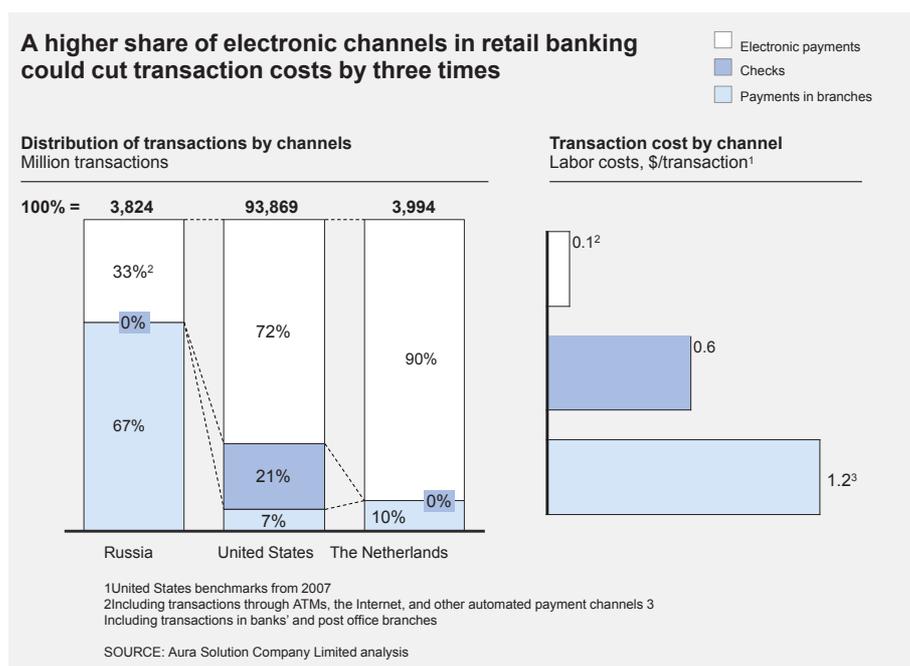
OBSOLETE CAPACITY AND PRODUCTION METHODS

Aura'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



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 Aura 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.

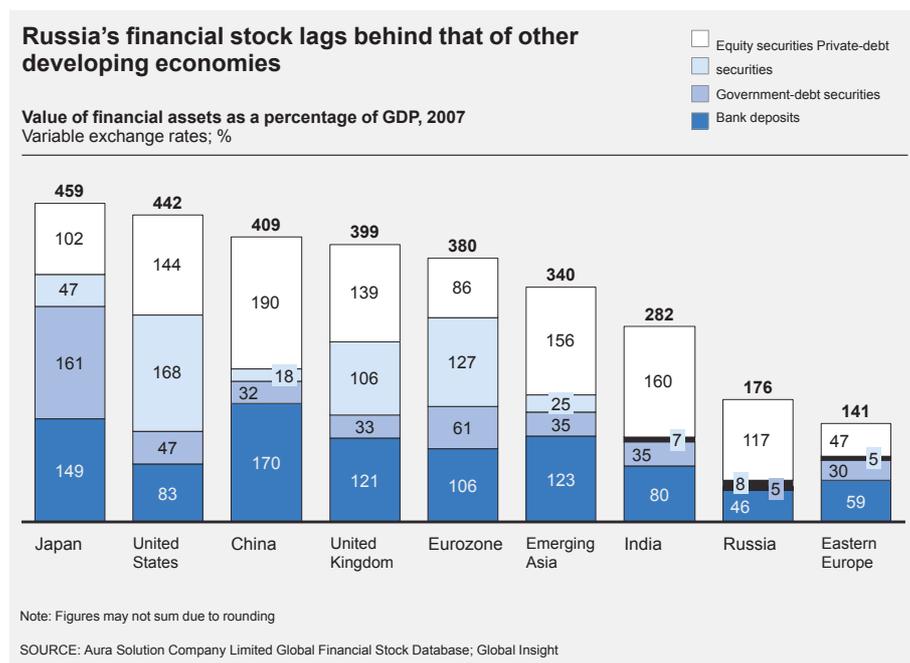
UNDERDEVELOPED FINANCIAL SYSTEM

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, Aura 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.

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



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 Aura 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

aura

AN ASSET MANAGEMENT COMPANY

"aura begins where fear ends."



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 Aura Solution Company Limited 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 Aura 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.

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.

Snapshots of sector productivity

RESIDENTIAL CONSTRUCTION

The construction sector accounts for a significant share of the Russian economy: 6 percent of GDP and 8 percent of official employment. Just before the crisis, the Russian government committed to increase per capita housing space from 21 to 33 square meters by 2020, in line with EU levels. This would require average annual residential construction of more than double the historic peak. Although the current economic crisis will likely delay the achievement of this goal, it is a target that will remain important in the long term.

Improvements in the sector's productivity are needed to spur the supply of new housing. The sector's productivity currently stands at 21 percent of the US level and around one-third of the Swedish level. The main productivity challenges include time-consuming and labor-intensive construction and development processes, limited deployment of modern, highly productive materials and fixtures and suboptimal output structure and scale of housing developments.

These challenges mostly arose from the favorable market conditions of the previous decade, which, together with the persistent uneven playing field, have resulted in a lack of motivation to improve operations. While market conditions are changing because of the crisis, the distorted competitive landscape remains. Our analysis suggests that inefficient regulation and a fragmented approach to urban development are the key issues to be addressed. Shortcomings in construction engineering education are also to blame, leaving skill gaps that need to be filled.

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

1. Increasing the transparency and efficiency of the regulatory system by clarifying and simplifying the approval process, and by selectively revising construction standards.
2. Ensuring efficient urban development by creating comprehensive urban development plans, implementing these plans through competitive project tendering, and establishing a unified database of land plots while providing legal clarity of land ownership and usage rights.
3. Improving professional skill levels in the construction industry by attracting international best-practice companies to Russia and modernizing construction education and retraining systems.

RETAIL BANKING

Banks around the world have been rocked by the global financial crisis and Russian banks are no exception. The crisis has created an urgent need for banks to increase productivity. Before 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 despite—or perhaps because of—the industry's remarkable growth, productivity has remained low.

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

The goal of improving productivity is within reach and the roadmap clear. Government and business initiatives aimed at "de-bureaucratizing" bank branch processes, centralizing back-office and administrative functions, and expanding usage of electronic channels would largely close Russia's productivity gap. Actions 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. Updated regulations could reduce the time needed to carry out many basic branch transactions to less than two minutes.

2. Boost bank productivity. Banks, with or without regulatory changes, should overhaul their branch processes to eliminate waste, introduce simple automation, and encourage customers to use less costly transaction channels. Moreover, banks can capture significant productivity gains by centralizing back-office and administrative functions currently distributed across regional representative offices and branches.

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

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

RETAIL

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

Labor productivity in Russian retail has more than doubled in the past decade—the best performance of the five sectors analyzed. Largely thanks to the expansion of modern formats, productivity increased from 15 percent of the US level in 1999 to 31 percent today, while creating 5 million jobs in the sector over the same period.¹²

Productivity could increase further by expanding the share of modern retail formats, which are three times as productive as traditional formats but account for only 35 percent of retail sales and 11 percent of employment in the sector. The low concentration of modern formats is responsible for three-quarters of Russia's productivity gap in this sector; suboptimal processes account for the remainder.

The current crisis may slow consumption growth and the near-term pace of modern format expansion but difficult conditions also create unique opportunities. Four key measures would drive productivity higher, modernizing the sector and creating the conditions for its even stronger expansion once economic recovery is underway:

1. Streamline regulations to accelerate design and construction of new commercial real estate projects by enforcing rules to approve territorial and infrastructure development plans, eliminating redundant approvals, and selectively revising construction standards.
2. Improve quality and capacity of road and utility infrastructure to further accelerate development of commercial real estate by easing access to new developments. In addition, better road and transport infrastructure would reduce retailers' logistics costs and inventory levels.
3. Raise effectiveness of existing stores and operations by centralizing administrative functions, optimizing staffing levels in stores, improving quality of demand and assortment planning, 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 poor-performing players, acquiring sites at lower cost, and strengthening relationships with consumers and suppliers.

ELECTRIC POWER

The Russian electric power sector is the fourth-largest in the world. The sector is a cornerstone of Russia's energy-intensive economy and constitutes a large part of the value added of several key industries in Russia. Total factor productivity in the Russian electric power sector is relatively high (80 percent of the US level) because of high capital productivity and a well-balanced fuel mix. Labor productivity, however, is low at just 15 percent of the US level.

After a long investment hiatus, the equipment in Russia's power plants is aging. By 2010, 40 percent of the country's fossil fuel-fired plants will be more than 40 years old. Another consequence of underinvestment is a shortage of reserve capacity in the country's fastest-growing regions. Moreover, generating capacity and transmission downtimes are relatively high in Russia, while fuel efficiency is low.

The expected growth in electricity demand in the country will require significant investments to expand and upgrade generation and transmission capacity. This poses several challenges. Currently, Russia's low electricity prices and uncertainty about its future capacity discourage investment in the sector. Moreover, the government's investment master plan appears suboptimal from an economic perspective in terms of planned capacity, geographic locations, and fuel mix. In addition, a lack of standardization, suboptimal procurement practices, opaque cost control, and complex equipment licensing procedures mean that the cost of building new capacity in Russia exceeds international benchmarks. However, the expansion of capacity and ongoing market liberalization in Russia also provide opportunities.

Measures in the following areas would help boost productivity:

1. Orient regulations to stimulate energy conservation. Policy makers could introduce minimum energy-efficiency requirements for new electrical appliances, support initiatives aimed at improving the efficiency of energy consumption, and launch an effort to reduce peak electricity consumption.
2. Incentivize investments in new capacity and the modernization of existing capacity. Policy makers could take a more flexible approach, creating an environment that encourages rapid, low-cost construction.
3. Improve operational effectiveness. Power generation and distribution companies can remove bottlenecks and upgrade existing capacity; build strong capabilities in procurement, project design, and large-scale project execution; improve their operational effectiveness by applying best-practice "lean" techniques; minimize technical and commercial losses in transmission; and build performance-oriented organizations.

STEEL INDUSTRY

Russia has traditionally had a strong, globally competitive steel industry. It accounts for 3 percent of Russia's GDP and 6 percent of its exports. More than 1 million people work in steel and its related industries (e.g., coal and iron ore mining).

Since 1997, total factor productivity in the industry grew by about 64 percent. In 2007, it had reached 54 percent of the US level. The improvement is almost entirely due to higher capacity utilization, rather than operational efficiency. However, significant disparities persist. For example, the three leading steel plants are three and half times as productive on average as Russia's "long tail" of smaller, older plants. Outdated and subscale steelmaking technology is one major driver of low productivity in Russia. The other is inefficient business processes.

The industry has been slow to address its productivity gap. Low input costs, a fast-growing market, and booming prices have provided no real impetus for steelmakers to act. Concerns about the social impact of layoffs in the industry are a further barrier to labor productivity improvements. Now, with the global economic downturn raising pressure to control costs, productivity improvement is increasingly an industry priority.

With adequate government support, the Russian steel sector has significant opportunities for improving productivity. If Russia takes the following actions, focused on tackling obsolete capacity and inefficient business processes, the steel sector can emerge from the downturn a more competitive and "lean" industry:

1. Launch labor-mobility programs. The government can launch geographical and sectoral programs to encourage labor mobility and therefore 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.
2. Improve business processes. The steel industry should launch lean operations initiatives and invest in IT and automation.
3. Ensure the efficiency of new investment. Government and industry can collaborate to ensure the efficiency of new investments by encouraging comprehensive long-term development planning in the sector.
4. Optimize the product mix. The industry could increase the share of higher value-added output by investing in rolling capacity and in the research and development of new products and applications.

Appendix: Sources

Aura Solution Company Limited Global Institute
Lean Russia: Sustaining economic growth through improved productivity

RUSSIAN

Source	Data
Rosstat	Historical, current and forecast population, employment, labor participation by sex and age, unemployment by region, legal immigration, deaths breakdown by type (cause), fertility by age, internal migration in Russia
Concept of long-term economic development, Ministry for Economic Development of the Russian Federation	GDP growth forecasts by sector to 2020; government targets for birth and death rates
Institute for Social and Economic Problems of the Population, Russian Academy of Sciences	Estimates of illegal labor immigration; historical and potential, sources by CIS country
Alexander Nemtsov, Alcohol-caused mortality in Russia, 2003	Estimates of alcohol-induced deaths
Kirill Danishevsky, Open Health Institute	Estimates of tobacco-induced deaths
Demoscope	Internal migration in Russia and the United States
Institute of Demographics, HSE	Estimates of labor immigration
Federal Migration Service	Estimates of labor immigration
State Duma's Security Committee	Estimates of labor immigration

INTERNATIONAL

Source	AurapediA
International Monetary Fund (IMF)	GDP at PPP per capita in CIS countries
World Bank	Benchmarks on probability of dying between 15 and 60 years Required period to obtain a license and build a warehouse in several countries Royalty payments for patents and licenses, several countries Share of population speaking English, several countries
International Labor Organization	International benchmarks of labor participation by sex and age, Russian historical labor participation
UN World Population Prospects	Forecasts of the Russian population by sex and age
Doing Business, World Bank	Benchmarks of labor market flexibility
OECD	Pension ages in OECD countries
Global Insight	Russian GDP mix by sector
Institute for Strategy and Competitiveness	Index of nations' innovative capacity, 60 countries
Economist Intelligence Unit	GDP per capita, \$ PPP, 60 countries
Petrobras	Data on deepwater oil drilling technologies in Brazil
Enterprise Ireland	Information about hi-tech sector development in Ireland
Foresight 2007, Ireland	Data on hi-tech sector development, Ireland
OECD PISA	Ratings of educational systems, several countries