

## CHAPTER 1

# The Global Competitiveness Index 2013: Sustaining Growth, Building Resilience\*

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At the time this Report is being released, the world economy continues to emerge slowly from the most serious economic crisis of the post – World War II period – one that has deeply transformed the global economy and highlighted the increasingly important role that emerging markets and developing economies play in the global economy. As advanced economies are searching for ways to speed up their economic engines, emerging and developing countries have been important drivers of the global economic recovery. As a result, the nature of the relationship between advanced economies and emerging ones has evolved, and emerging and developing countries have created stronger ties among themselves. Among the advanced economies, two patterns seem to emerge: the United States, Canada, and Japan are expected to grow at a gentle pace, while the prospects for the euro zone are more uncertain, especially as tight credit conditions continue to limit domestic demand. More generally, the new global economic landscape raises questions as to the very distinction between advanced and emerging economies, particularly when it comes to growth and competitiveness.

Against this background, the past year has seen some progress in rebuilding global confidence, so recovery looks more assured today than it did just one year ago. Many of the tail risks that concerned us in the last edition have not come to pass, in particular in the United States, which did not fall off the “fiscal cliff”; in Europe, where the breakup of the euro zone was avoided and where sovereign bond differentials have drastically narrowed; and in China, where fears of a hard landing have receded for the time being.

Despite this more positive global outlook, some uncertainty remains. In advanced economies, the potential consequences of a tapering and eventual halt of quantitative easing in the United States, the aggressive yet still incomplete financial and structural measures adopted in Japan, and the persistent unemployment and economic recovery challenges in Europe are factors that could put future economic performance at risk. In emerging markets, it is uncertain how protests in Brazil and Turkey, the credit crunch in China, and the potentially volatile capital flows to emerging and developing markets will affect growth in these economies. And critical challenges remain: policymakers around the globe need to ensure that public finances are sustainable in the longer term, where the pains of deleveraging will be particularly felt by advanced economies.

Around the world, unemployment or the threat of it remains one of the main challenges to long-term social sustainability. Indeed, the experience of recent years has underscored social sustainability as key to longer-term competitiveness, and thus to sustainable growth. Against this challenge, one of the elements gaining in importance in fostering countries' competitiveness is education. A perception is growing that educational systems in many countries could better respond to the needs of labor markets, help economies to avoid skills gaps, and ensure that adequately trained human capital is available to support business activity as well as to develop innovative capacity and entrepreneurship. It is therefore to be expected that, over the coming years, a series of major systemic reviews of educational frameworks at the national level will be necessary in many countries across all stages of development. Overall, although there are indications that

economic policies and measures are shifting in the right direction, efforts must be sustained in order to safeguard the progress achieved and to keep the global economy on a sustainable growth path going forward.

Encouraging, sustaining, and enhancing growth will require decisive action by leaders in order to boost their countries' competitiveness and future economic outlook. Reforms and the right set of investments to enhance competitiveness will be crucial for the economic transformations that can lead to sustained higher growth over the longer term. It is therefore imperative that competitiveness features high on the economic reform agenda of both advanced and emerging and developing economies.

For more than three decades, the World Economic Forum's annual Global Competitiveness Reports have studied and benchmarked the many factors underpinning national competitiveness. From the onset, the goal has been to provide insight and stimulate discussion among all stakeholders about the best strategies and policies to help countries to overcome the obstacles to improved competitiveness. In the current challenging economic environment, our work is a critical reminder of the importance of sound structural economic fundamentals for sustained growth.

Since 2005, the World Economic Forum has based its competitiveness analysis on the Global Competitiveness Index (GCI), a comprehensive tool that measures the microeconomic and macroeconomic foundations of national competitiveness.

Going forward, the World Economic Forum will further support countries in their quest for higher competitiveness by compiling and publishing a repository of public-private practices that countries have implemented in order to improve their competitiveness. Together with the Index results, these practices will inform a series of structured multi-stakeholder dialogues (see Box 1) that will be piloted over the coming year. We hope that this new initiative will support transformations toward higher competitiveness at regional and national levels.

## THE 12 PILLARS OF COMPETITIVENESS

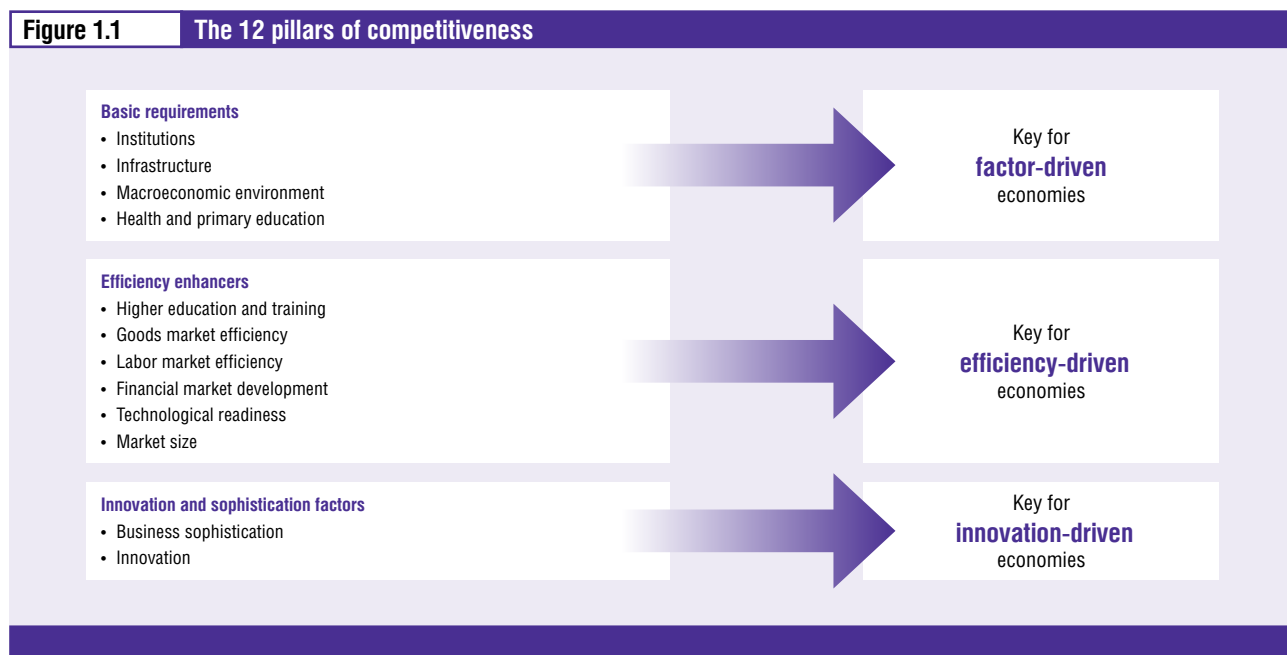
We define competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country. The level of productivity, in turn, sets the level of prosperity that can be reached by an economy. The productivity level also determines the rates of return obtained by investments in an economy, which in turn are the fundamental drivers of its growth rates. In other words, a more competitive economy is one that is likely to grow faster over time.

The concept of competitiveness thus involves static and dynamic components. Although the productivity of a country determines its ability to sustain a high level of income, it is also one of the central determinants of its returns on investment, which is one of the key factors explaining an economy's growth potential. Many determinants drive productivity and competitiveness. Understanding the factors behind this process has occupied the minds of economists for hundreds of years, engendering theories ranging from Adam Smith's focus on specialization and the division of labor to neoclassical economists' emphasis on investment in physical capital and infrastructure, and, more recently, to interest in other mechanisms such as education and training, technological progress, macroeconomic stability, good governance, firm sophistication, and market efficiency, among others. While all of these factors are likely to be important for competitiveness and growth, they are not mutually exclusive – two or more of them can be significant at the same time, and in fact that is what has been shown in the economic literature.

This open-endedness is captured within the GCI by including a weighted average of many different components, each measuring a different aspect of competitiveness. These components are grouped into 12 pillars of competitiveness (Figure 1.1).

### First pillar: Institutions

The institutional environment is determined by the legal and administrative framework within which individuals, firms, and governments interact to generate



## Box 1: The Competitiveness Lab and Competitiveness Practices Repository

A country's competitiveness is widely accepted as the key driver for sustaining prosperity and raising the wellbeing of its citizens. Enhancing competitiveness is a long-term process that requires improvement across many areas as well as long-lasting commitments from relevant stakeholders to mobilize resources, time, and effort. Accordingly, to make the right decisions, these stakeholders need information and data.

For more than 30 years, the World Economic Forum has studied and benchmarked competitiveness. From the outset, our goal has been to provide insight and stimulate discussion among all stakeholders to determine the best strategies, policies, and activities for overcoming the obstacles to improving competitiveness. Against this backdrop, the Forum is taking the next step and will embark on two new initiatives – **the Competitiveness Lab and Competitiveness Practices Repository** – to orchestrate an informed multi-stakeholder process for better understanding and shaping the competitiveness agenda of a country or region. The Competitiveness Lab will create a safe space for sustained dialogue in order to encourage better decision making and to help

define an action plan with priorities that supports the competitiveness transformation of a country or region.

As part of this initiative, and in order to provide additional knowledge inputs into the dialogue, the Forum is also **building a repository of competitiveness practices**. Given the crucial importance of supporting the coordinated efforts of different agents to improve competitiveness, the Forum's expertise in building public-private strategic collaborations, and the relative knowledge gap in this area, the repository will focus on providing information about competitiveness-driven public-private collaborations. The information covered in this repository will include a definition of specific contexts and competitiveness challenges that have been faced by a particular country or region, a description of the actions that were adopted, and the implementation process of those actions, including the identification of key barriers and enablers that allow the practice to succeed. The objective of compiling this information is to support cross-country learning and to help stakeholders better assess the possibility of scaling up and replicating any specific practice in their own country or region.

wealth. The importance of a sound and fair institutional environment has become all the more apparent during the recent economic and financial crisis and is especially crucial for further solidifying the fragile recovery, given the increasing role played by the state at the international level and for the economies of many countries.

The quality of institutions has a strong bearing on competitiveness and growth. It influences investment decisions and the organization of production and plays a key role in the ways in which societies distribute the benefits and bear the costs of development strategies and policies. For example, owners of land, corporate shares, or intellectual property are unwilling to invest in the improvement and upkeep of their property if their rights as owners are not protected.

The role of institutions goes beyond the legal framework. Government attitudes toward markets and freedoms and the efficiency of its operations are also very important: excessive bureaucracy and red tape, overregulation, corruption, dishonesty in dealing with public contracts, lack of transparency and trustworthiness, inability to provide appropriate services for the business sector, and political dependence of the judicial system impose significant economic costs to businesses and slow the process of economic development.

In addition, the proper management of public finances is also critical for ensuring trust in the national business environment. Indicators capturing the quality of government management of public finances are therefore included here to complement the measures of macroeconomic stability captured in pillar 3 below.

Although the economic literature has focused mainly on public institutions, private institutions are also an

important element of the process of creating wealth. The global financial crisis, along with numerous corporate scandals, have highlighted the relevance of accounting and reporting standards and transparency for preventing fraud and is management, ensuring good governance, and maintaining investor and consumer confidence. An economy is well served by businesses that are run honestly, where managers abide by strong ethical practices in their dealings with the government, other firms, and the public at large. Private-sector transparency is indispensable to business; it can be brought about through the use of standards as well as auditing and accounting practices that ensure access to information in a timely manner.

### Second pillar: Infrastructure

Extensive and efficient infrastructure is critical for ensuring the effective functioning of the economy, as it is an important factor in determining the location of economic activity and the kinds of activities or sectors that can develop within a country. Well-developed infrastructure reduces the effect of distance between regions, integrating the national market and connecting it at low cost to markets in other countries and regions. In addition, the quality and extensiveness of infrastructure networks significantly impact economic growth and reduce income inequalities and poverty in a variety of ways. A well-developed transport and communications infrastructure network is a prerequisite for the access of less-developed communities to core economic activities and services.

Effective modes of transport – including quality roads, railroads, ports, and air transport – enable entrepreneurs to get their goods and services to market in a secure and timely manner and facilitate the movement of workers to the

most suitable jobs. Economies also depend on electricity supplies that are free from interruptions and shortages so that businesses and factories can work unimpeded. Finally, a solid and extensive telecommunications network allows for a rapid and free flow of information, which increases overall economic efficiency by helping to ensure that businesses can communicate and decisions are made by economic actors taking into account all available relevant information.

### Third pillar: Macroeconomic environment

The stability of the macroeconomic environment is important for business and, therefore, is significant for the overall competitiveness of a country. Although it is certainly true that macroeconomic stability alone cannot increase the productivity of a nation, it is also recognized that macroeconomic disarray harms the economy, as we have seen in recent years, notably in the European context. The government cannot provide services efficiently if it has to make high-interest payments on its past debts. Running fiscal deficits limits the government's future ability to react to business cycles. Firms cannot operate efficiently when inflation rates are out of hand. In sum, the economy cannot grow in a sustainable manner unless the macro environment is stable. Macroeconomic stability captured the attention of the public most recently when some advanced economies, notably the United States and some European countries, needed to take urgent action to prevent macroeconomic instability when their public debt reached unsustainable levels in the wake of the global financial crisis.

It is important to note that this pillar evaluates the stability of the macroeconomic environment, so it does not directly take into account the way in which public accounts are managed by the government. This qualitative dimension is captured in the institutions pillar described above.

### Fourth pillar: Health and primary education

A healthy workforce is vital to a country's competitiveness and productivity. Workers who are ill cannot function to their potential and will be less productive. Poor health leads to significant costs to business, as sick workers are often absent or operate at lower levels of efficiency. Investment in the provision of health services is thus critical for clear economic, as well as moral, considerations.

In addition to health, this pillar takes into account the quantity and quality of the basic education received by the population, which is increasingly important in today's economy. Basic education increases the efficiency of each individual worker. Moreover, often workers who have received little formal education can carry out only simple manual tasks and find it much more difficult to adapt to more advanced production processes and techniques, and therefore contribute less to devising or executing innovations. In other words, lack of basic education can become a constraint on business development, with firms finding it difficult to move up the value chain by producing more sophisticated or value intensive products.

### Fifth pillar: Higher education and training

Quality higher education and training is crucial for economies that want to move up the value chain beyond

simple production processes and products. Box 2 outlines the linkages between fostering cross-border value chains and competitiveness in more detail. In particular, today's globalizing economy requires countries to nurture pools of well-educated workers who are able to perform complex tasks and adapt rapidly to their changing environment and the evolving needs of the production system. This pillar measures secondary and tertiary enrollment rates as well as the quality of education as evaluated by business leaders. The extent of staff training is also taken into consideration because of the importance of vocational and continuous on-the-job training – which is neglected in many economies – for ensuring a constant upgrading of workers' skills.

### Sixth pillar: Goods market efficiency

Countries with efficient goods markets are well positioned to produce the right mix of products and services given their particular supply-and-demand conditions, as well as to ensure that these goods can be most effectively traded in the economy. Healthy market competition, both domestic and foreign, is important in driving market efficiency, and thus business productivity, by ensuring that the most efficient firms, producing goods demanded by the market, are those that thrive. The best possible environment for the exchange of goods requires a minimum of government intervention that impedes business activity. For example, competitiveness is hindered by distortionary or burdensome taxes and by restrictive and discriminatory rules on foreign direct investment (FDI) – which limit foreign ownership – as well as on international trade. The recent economic crisis has highlighted the high degree of interdependence of economies worldwide and the degree to which growth depends on open markets. Protectionist measures are counterproductive as they reduce aggregate economic activity.

Market efficiency also depends on demand conditions such as customer orientation and buyer sophistication. For cultural or historical reasons, customers may be more demanding in some countries than in others. This can create an important competitive advantage, as it forces companies to be more innovative and customer-oriented and thus imposes the discipline necessary for efficiency to be achieved in the market.

### Seventh pillar: Labor market efficiency

The efficiency and flexibility of the labor market are critical for ensuring that workers are allocated to their most effective use in the economy and provided with incentives to give their best effort in their jobs. Labor markets must therefore have the flexibility to shift workers from one economic activity to another rapidly and at low cost, and to allow for wage fluctuations without much social disruption. The importance of the latter has been dramatically highlighted by events in Arab countries, where rigid labor markets were an important cause of high youth unemployment, sparking social unrest in Tunisia that then spread across the region. Youth unemployment is also high in a number of European countries, where important barriers to entry into the labor market remain in place.

Efficient labor markets must also ensure clear strong incentives for employees and efforts to promote meritocracy at the workplace, and they must provide

## Box 2: Benefiting from globalizing value chains by raising competitiveness

As the relevance of international value chains continues to grow within the global economy, international trade is increasingly taking place within the production networks of multinational corporations. According to estimates from the Organisation for Economic Co-operation and Development (OECD), imported intermediate inputs account for about one-quarter of OECD members' exports. For China, this share is about 30 percent; it is about twice that for India and Brazil. From a national perspective, participation in value-chain trade has many benefits. Beyond export revenue, these include employment and indirect spillovers in areas such as management, technical know-how, and access to new technologies.

The rise of cross-border value chains has important implications for countries' economic and trade policies as well as for development efforts. One consequence is that crossborder trade in goods has become increasingly intertwined with trade in services and cross-border investment flows, as well as with the international movement of labor. For countries at more basic stages of development, the key question is not so much how to enter the value chain at the lowest level, but how to move up to more advanced steps of production. So what can countries do to benefit from this changing pattern of trade?

As intermediate products may cross borders many times before being assembled into the final good, trade facilitation and other measures that reduce the transaction costs of trade – especially the cost of logistics – are key for production location. Participating successfully in international value chains requires ease in importing, which in many countries is still constrained by tariffs and other, more practical barriers such as customs procedures or high transport costs.

Whether a country can participate in cross-border value chains crucially depends on a number of factors that include its productivity and, therefore, the factors that determine competitiveness as captured by the Global competitiveness Index (GCI). Among these factors are the availability of healthy and educated workforce, robust infrastructure, deep penetration of information and communication technologies, a solid and efficient institutional framework, and efficient labor markets. Although all these factors are needed to enter the value chain, they rise in importance as the country wishes to move up. The higher a country moves up the value chain, the greater the importance of efficiency enhancers and innovation and sophistication factors.

A specific feature of value-added trade is its strong link with services trade. Transactional services – such as logistics to transport the good to destination or telecommunications to stay in touch and obtain information – must be available for a country to enter and move up the value chain. Making these services available necessitates a dynamic and open business environment that benefits from healthy levels of domestic competition and openness to international trade and investment, issues that are captured by the goods markets efficiency pillar of the GCI.

Overall, from a national policy perspective, the fact that most global trade is now increasingly taking place in value chains strengthens the link between trade and competitiveness policies and raises the stakes for competitiveness-enhancing measures even further. Competitiveness-enhancing policies are particularly important for countries to move up the value chain. In other words, by implementing competitiveness-enhancing policies, countries can reap higher benefits that will result in economic development and employment opportunities.

equity in the business environment between women and men. Taken together these factors have a positive effect on worker performance and the attractiveness of the country for talent, two aspects that are growing more important as talent shortages loom on the horizon.

### **Eighth pillar: Financial market development**

The financial and economic crisis has highlighted the central role of a sound and well-functioning financial sector for economic activities. An efficient financial sector allocates the resources saved by a nation's citizens, as well as those entering the economy from abroad, to their most productive uses. It channels resources to those entrepreneurial or investment projects with the highest expected rates of return rather than to the politically connected. A thorough and proper assessment of risk is therefore a key ingredient of a sound financial market.

Business investment is also critical to productivity. Therefore economies require sophisticated financial markets that can make capital available for private-sector

investment from such sources as loans from a sound banking sector, well-regulated securities exchanges, venture capital, and other financial products. In order to fulfill all those functions, the banking sector needs to be trustworthy and transparent, and – as has been made so clear recently – financial markets need appropriate regulation to protect investors and other actors in the economy at large.

### **Ninth pillar: Technological readiness**

In today's globalized world, technology is increasingly essential for firms to compete and prosper. The technological readiness pillar measures the agility with which an economy adopts existing technologies to enhance the productivity of its industries, with specific emphasis on its capacity to fully leverage information and communication technologies (ICTs) in daily activities and production processes for increased efficiency and enabling innovation for competitiveness. ICTs have evolved into the "general purpose technology" of our time, given their



critical spillovers to other economic sectors and their role as industry-wide enabling infrastructure. Therefore ICT access and usage are key enablers of countries' overall technological readiness.

Whether the technology used has or has not been developed within national borders is irrelevant for its ability to enhance productivity. The central point is that the firms operating in the country need to have access to advanced products and blueprints and the ability to absorb and use them. Among the main sources of foreign technology, FDI often plays a key role, especially for countries at a less advanced stage of technological development. It is important to note that, in this context, the level of technology available to firms in a country needs to be distinguished from the country's ability to conduct blue-sky research and develop new technologies for innovation that expand the frontiers of knowledge. That is why we separate technological readiness from innovation, captured in the 12th pillar, described below.

#### **Tenth pillar: Market size**

The size of the market affects productivity since large markets allow firms to exploit economies of scale. Traditionally, the markets available to firms have been constrained by national borders. In the era of globalization, international markets have become a substitute for domestic markets, especially for small countries. Vast empirical evidence shows that trade openness is positively associated with growth. Even if some recent research casts doubts on the robustness of this relationship, there is a general sense that trade has a positive effect on growth, especially for countries with small domestic markets. Thus exports can be thought of as a substitute for domestic demand in determining the size of the market for the firms of a country. By including both domestic and foreign markets in our measure of market size, we give credit to export-driven economies and geographic areas (such as the European Union) that are divided into many countries but have a single common market.

#### **Eleventh pillar: Business sophistication**

There is no doubt that sophisticated business practices are conducive to higher efficiency in the production of goods and services. Business sophistication concerns two elements that are intricately linked: the quality of a country's overall business networks and the quality of individual firms' operations and strategies. These factors are particularly important for countries at an advanced stage of development when, to a large extent, the more basic sources of productivity improvements have been exhausted. The quality of a country's business networks and supporting industries, as measured by the quantity and quality of local suppliers and the extent of their interaction, is important for a variety of reasons. When companies and suppliers from a particular sector are interconnected in geographically proximate groups, called clusters, efficiency is heightened, greater opportunities for innovation in processes and products are created, and barriers to entry for new firms are reduced. Individual firms' advanced operations and strategies (branding, marketing, distribution, advanced production processes, and the production of unique and sophisticated products) spill over into the economy and lead to sophisticated and modern business processes across the country's business sectors.

#### **Twelfth pillar: Innovation**

Innovation can emerge from new technological and nontechnological knowledge. Non-technological innovations are closely related to the know-how, skills, and working conditions that are embedded in organizations and are therefore largely covered by the eleventh pillar of the GCI. The final pillar of competitiveness focuses on technological innovation. Although substantial gains can be obtained by improving institutions, building infrastructure, reducing macroeconomic instability, or improving human capital, all these factors eventually run into diminishing returns. The same is true for the efficiency of the labor, financial, and goods markets. In the long run, standards of living can be largely enhanced by technological innovation. Technological breakthroughs have been at the basis of many of the productivity gains that our economies have historically experienced. These range from the industrial revolution in the 18th century and the invention of the steam engine and the generation of electricity to the more recent digital revolution. The latter is not only transforming the way things are being done, but also opening a wider range of new possibilities in terms of products and services. Innovation is particularly important for economies as they approach the frontiers of knowledge and the possibility of generating more value by only integrating and adapting exogenous technologies tends to disappear.

Although less-advanced countries can still improve their productivity by adopting existing technologies or making incremental improvements in other areas, for those that have reached the innovation stage of development this is no longer sufficient for increasing productivity. Firms in these countries must design and develop cutting-edge products and processes to maintain a competitive edge and move toward even higher value-added activities. This progression requires an environment that is conducive to innovative activity and supported by both the public and the private sectors. In particular, it means sufficient investment in research and development (R&D), especially by the private sector; the presence of high-quality scientific research institutions that can generate the basic knowledge needed to build the new technologies; extensive collaboration in research and technological developments between universities and industry; and the protection of intellectual property, in addition to high levels of competition and access to venture capital and financing that are analyzed in other pillars of the Index. In light of the recent sluggish recovery and rising fiscal pressures faced by advanced economies, it is important that public and private sectors resist pressures to cut back on the R&D spending that will be so critical for sustainable growth going into the future.

#### **The interrelation of the 12 pillars**

Although we report the results of the 12 pillars of competitiveness separately, it is important to keep in mind that they are not independent: they tend to reinforce each other, and a weakness in one area often has a negative impact in others. For example, a strong innovation capacity (pillar 12) will be very difficult to achieve without a healthy, well-educated and trained workforce (pillars 4 and 5) that is adept at absorbing new technologies (pillar 9), and without sufficient financing (pillar 8) for R&D or an efficient goods market that makes it possible to take new innovations to market (pillar 6).

**Table 1.1** Subindex weights and income thresholds for stages of development

	Stage 1: Factor-driven	Transition from stage 1 to stage 2	Stage 2: Efficiency-driven	Transition from stage 2 to stage 3	Stage 3: Innovation-driven
<b>GDP per capita* (USD) thresholds**</b>	<b>&lt;2 000</b>	<b>2 000-2 999</b>	<b>3 000-8 999</b>	<b>9 000-17 000</b>	<b>&gt;17 000</b>
Weights for basic requirements subindex, %	60	40-60	40	20-40	20
Weights for efficiency enhancers subindex, %	35	35-50	50	50	50
Weights for innovation and sophistication factors subindex, %	5	5-10	10	10-30	30

\* For economies with a high dependency on mineral resources, GDP per capita is not the sole criterion for the determination of the stage of development. See text for details.

\*\* There is inverse dependence between GDP per capita and weight in the range of subindex weights. For example, for a country with GDP per capita of USD 2999 the weight used for subindex "Basic Requirements" is 40%.

**Table 1.2** Countries/economies at each stage of development

Stage 1: Factor-driven (38 economies)	Transition from stage 1 to stage 2 (17 economies)	Stage 2: Efficiency-driven (33 economies)	Transition from stage 2 to stage 3 (21 economies)	Stage 3: Innovation-driven (35 economies)
Bangladesh	Algeria	Albania	Argentina	Australia
Benin	Angola	Bosnia and Herzegovina	Barbados	Austria
Burkina Faso	Armenia	Bulgaria	Brazil	Bahrain
Burundi	Azerbaijan	Cape Verde	Chile	Belgium
Cambodia	Bhutan	China	Costa Rica	Canada
Cameroon	Bolivia	Colombia	Croatia	Cyprus
Chad	Botswana	Dominican Republic	Estonia	Czech Republic
Cote d'Ivoire	Brunei Darussalam	Ecuador	Hungary	Denmark
Ethiopia	Gabon	Egypt	Kazakhstan	Finland
Gambia, The	Honduras	El Salvador	Latvia	France
Ghana	Iran, Islamic Rep.	Georgia	Lebanon	Germany
Guinea	Kuwait	Guatemala	Lithuania	Greece
Haiti	Libya	Guyana	Malaysia	Hong Kong SAR
India	Moldova	Indonesia	Mexico	Iceland
Kenya	Mongolia	Jamaica	Oman	Ireland
Kyrgyz Republic	Morocco	Jordan	Panama	Israel
Lao PDR	Philippines	Macedonia, FYR	Poland	Italy
Lesotho	Saudi Arabia	Mauritius	Russian Federation	Japan
Liberia	Sri Lanka	Montenegro	Seychelles	Korea, Rep.
Madagascar	Venezuela	Namibia	Slovak Republic	Luxembourg
Malawi		Paraguay	Turkey	Malta
Mali		Peru	Uruguay	Netherlands
Mauritania		Romania		New Zealand
Mozambique		Serbia		Norway
Myanmar		South Africa		Portugal
Nepal		Surinam		Puerto Rico
Nicaragua		Swaziland		Qatar
Nigeria		Thailand		Singapore
Pakistan		Timor-Leste		Slovenia
Rwanda		Tunisia		Spain
Senegal		<b>Ukraine</b>		Sweden
Sierra Leone				Switzerland
Tanzania				Taiwan, China
Uganda				Trinidad and Tobago
Vietnam				United Arab Emirates
Yemen				United Kingdom
Zambia				United States
Zimbabwe				

Although the pillars are aggregated into a single index, measures are reported for the 12 pillars separately because such details provide a sense of the specific areas in which a particular country needs to improve. The appendix describes the exact composition of the GCI and technical details of its construction.

## STAGES OF DEVELOPMENT AND THE WEIGHTED INDEX

While all of the pillars described above will matter to a certain extent for all economies, it is clear that they will affect them in different ways: the best way for Cambodia to improve its competitiveness is not the same as the best way for France to do so. This is because Cambodia and France are in different stages of development: as countries move along the development path, wages tend to increase and, in order to sustain this higher income, labor productivity must improve.

In line with well-known economic theory of stages of development, the GCI assumes that, in the first stage, the economy is factor-driven and countries compete based on their factor endowments – primarily unskilled labor and natural resources. Companies compete on the basis of price and sell basic products or commodities, with their low productivity reflected in low wages. Maintaining competitiveness at this stage of development hinges primarily on well-functioning public and private institutions (pillar 1), a well-developed infrastructure (pillar 2), a stable macroeconomic environment (pillar 3), and a healthy workforce that has received at least a basic education (pillar 4).

As a country becomes more competitive, productivity will increase and wages will rise with advancing development. Countries will then move into the efficiency-driven stage of development, when they must begin to develop more efficient production processes and increase product quality because wages have risen and they cannot increase prices. At this point, competitiveness is increasingly driven by higher education and training (pillar 5), efficient goods markets (pillar 6), well-functioning labor markets (pillar 7), developed financial markets (pillar 8), the ability to harness the benefits of existing technologies (pillar 9), and a large domestic or foreign market (pillar 10).

Finally, as countries move into the innovation-driven stage, wages will have risen by so much that they are able to sustain those higher wages and the associated standard of living only if their businesses are able to compete with new and unique products. At this stage, companies must compete by producing new and different goods using the most sophisticated production processes (pillar 11) and by innovating new ones (pillar 12).

The GCI takes the stages of development into account by attributing higher relative weights to those pillars that are more relevant for an economy given its particular stage of development. That is, although all 12 pillars matter to a certain extent for all countries, the relative importance of each one depends on a country's particular stage of development. To implement this concept, the pillars are organized into three subindexes, each critical to a particular stage of development. The basic requirements subindex groups those pillars most critical for countries in the factor-driven stage. The efficiency enhancers subindex

includes those pillars critical for countries in the efficiency-driven stage. And the innovation and sophistication factors subindex includes the pillars critical to countries in the innovation-driven stage. The three subindexes are shown in Figure 1.1.

The weights attributed to each subindex in every stage of development are shown in Table 1.1. To obtain the weights shown in the table, a maximum likelihood regression of gross domestic product (GDP) per capita was run against each subindex for past years, allowing for different coefficients for each stage of development. The rounding of these econometric estimates led to the choice of weights displayed in Table 1.1. Implementation of stages of development. Two criteria are used to allocate countries into stages of development. The first is the level of GDP per capita at market exchange rates. This widely available measure is used as a proxy for ages because internationally comparable data on wages are not available for all countries covered. The thresholds used are also shown in Table 1.1. A second criterion is used to adjust for countries that, based on income, would have moved beyond stage 1, but where prosperity is based on the extraction of resources. This is measured by the share of exports of mineral goods in total exports (goods and services), and assumes that countries that export more than 70 percent mineral products (measured using a five-year average) are to a large extent factor driven. However, for some resource-based economies that have reached very high levels of income, the capacity to increase the productivity of any other sector beyond mineral production will be based on the country's capacity to boost innovation, as adopting technology from abroad is not sufficient to increase productivity to a degree that can sustain their high wage levels.

At the same time these countries can afford to invest in innovation, given their high income. Consequently, countries that are resource driven and significantly wealthier than economies at the technological frontier are classified in the innovation-driven stage. Any countries falling in between two of the three stages are considered to be "in transition." For these countries, the weights change smoothly as a country develops, reflecting the smooth transition from one stage of development to another. This allows us to place increasingly more weight on those areas that are becoming more important for the country's competitiveness as the country develops, ensuring that the GCI can gradually "penalize" those countries that are not preparing for the next stage. The classification of countries into stages of development is shown in

## DATA SOURCES

To measure these concepts, the GCI uses statistical data from the State Statistics Service and others, including internationally recognized agencies (notably the World Bank, the International Monetary Fund (IMF), the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the World Health Organization (WHO)). Also GCI uses data from the World Economic Forum's annual Executive Opinion Survey (the Survey) to capture concepts that require a more qualitative assessment or for which internationally comparable statistical data are not available for the entire set of economies.



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## ADJUSTMENTS TO THE GCI

The composition of the GCI 2013 is detailed in the appendix of this chapter. This year only minor adjustments were made to the Index:

- from the first pillar, we removed the indicator Government services for improved business performance
- We replaced the indicator effect of taxation on incentives to work and invest (indicator 6.04) with two new indicators derived from the Survey: the first captures the effect of taxation on incentives to invest and is included in the sixth pillar as indicator 6.04; the second measures the effect of taxation on incentives to work and enters the seventh pillar as indicator 7.05
- We replaced the indicator brain drain (indicator 7.07) with two new indicators derived from the Survey, measuring the capacity of a country to retain talent (indicator 7.08) and to attract talent (indicator 7.09), respectively.

## COUNTRY COVERAGE

The coverage this year has increased from 144 to 148 economies. The newly covered countries are Myanmar, Bhutan, and Lao PDR. We have also re-instated Tunisia and Angola into the Index, two countries that were not included in last year's edition. Tajikistan is not covered in this year's Report as Survey data could not be collected this year.

## Annex A. Structure and Calculation of the Global Competitiveness Index 2013

This appendix presents the structure of the Global Competitiveness Index 2013 (GCI). The same structure and calculation procedure are used for Ukrainian National Competitiveness Index. The numbering of the variables matches the numbering of the data tables. The number preceding the period indicates to which pillar the variable belongs (e.g., variable 1.11 belongs to the 1st pillar and variable 9.04 belongs to the 9th pillar).

The computation of the GCI is based on successive aggregations of scores from the indicator level (i.e., the most disaggregated level) all the way up to the overall GCI score. Unless mentioned otherwise, we use an arithmetic mean to aggregate individual variables within a category<sup>a</sup>. For the higher aggregation levels, we use the percentage shown next to each category. This percentage represents the category's weight within its immediate parent category. Reported percentages are rounded to the nearest integer, but exact figures are used in the calculation of the GCI. For example, the score a country achieves in the 9th pillar accounts for 17 percent of this country's score in the efficiency enhancers subindex, irrespective of the country's stage of development. Similarly, the score achieved on the subpillar transport infrastructure accounts for 50 percent of the score of the infrastructure pillar.

Unlike the case for the lower levels of aggregation, the weight put on each of the three subindexes (basic requirements, efficiency enhancers, and innovation and sophistication factors) is not fixed. Instead, it depends on each country's stage of development, as discussed in the chapter<sup>b</sup>. For instance, in the case of Burundi – a country in the first stage of development – the score in the basic requirements subindex accounts for 60 percent of its overall GCI score, while it represents just 20 percent of the overall GCI score of Sweden, a country in the third stage of development.

Variables that are not derived from the Executive Opinion Survey (Survey) are identified by an asterisk (\*) in the following pages. For Technical Notes and Sources please refer to the Appendix B. To make the aggregation possible, these variables are transformed onto a 1-to-7 scale in order to align them with the Survey results. We apply a min-max transformation, which preserves the order of, and the relative distance between, country scores<sup>c</sup>.

Indicators that are followed by the designation “1/2” enter the GCI in two different pillars. In order to avoid double counting, we assign a half-weight to each instance<sup>d</sup>.

Weight (%)  
within immediate  
parent category

### BASIC REQUIREMENTS

<b>1st pillar: Institutions</b> .....	<b>25%</b>
<b>A. Public institutions</b> .....	<b>75%</b>
Property rights.....	20%
1.01 Property rights	
1.02 Intellectual property protection <sup>1/2</sup>	
Ethics and corruption.....	20%
1.03 Diversion of public funds	
1.04 Public trust of politicians	
1.05 Irregular payments and bribes	
Undue influence.....	20%
1.06 Judicial independence	
1.07 Favoritism in decisions of government officials	
Government inefficiency.....	20%
1.08 Wastefulness of government spending	
1.09 Burden of government regulation	
1.10 Efficiency of legal framework in settling disputes	
1.11 Efficiency of legal framework in challenging regulations	
1.12 Transparency of government policymaking	
Security.....	20%
1.13 Business costs of terrorism	
1.14 Business costs of crime and violence	
1.15 Organized crime	
1.16 Reliability of police services	
<b>B. Private institutions</b> .....	<b>25%</b>
Corporate ethics.....	50%
1.17 Ethical behavior of firms	
Accountability.....	50%
1.18 Strength of auditing and reporting standards	
1.10 Efficacy of corporate boards	
1.20 Protection of minority shareholders' interests	
1.21 Strength of investor protection*	
<b>2nd pillar: Infrastructure</b> .....	<b>25%</b>
<b>A. Transport infrastructure</b> .....	<b>50%</b>
2.01 Quality of overall infrastructure	
2.02 Quality of roads	
2.03 Quality of railroad infrastructure	
2.04 Quality of port infrastructure	
2.05 Quality of air transport infrastructure	
2.06 Available airline seat kilometers (in a week, mln places × km)*	
<b>B. Energy and telephony infrastructure</b> .....	<b>50%</b>
2.07 Quality of electricity supply	
2.08 Mobile telephone subscriptions (per 100 population) * <sup>1/2</sup>	
2.09 Fixed telephone lines (per 100 population) * <sup>1/2</sup>	
<b>3rd pillar: Macroeconomic environment</b> .....	<b>25%</b>
3.01 Government budget balance (% GDP) *	
3.02 National savings rate (% GDP) *	
3.03 Inflation (%) * <sup>e</sup>	
3.04 Government debt (% GDP) *	
3.05 Country credit rating*	
<b>4th pillar: Health and primary education</b> .....	<b>25%</b>
<b>A. Health</b> .....	<b>50%</b>
4.01 Business impact of malaria <sup>f</sup>	
4.02 Malaria incidence (cases per 100 000 population)* <sup>f</sup>	
4.03 Business impact of tuberculosis <sup>f</sup>	
4.04 Tuberculosis incidence (cases per 100 000 population)* <sup>f</sup>	
4.05 Business impact of HIV/AIDS <sup>f</sup>	
4.06 HIV prevalence (% of adult population)* <sup>f</sup>	
4.07 Infant mortality (deaths per 1000 live births)*	
4.08 Life expectancy (years)*	
<b>B. Primary education</b> .....	<b>50%</b>
4.09 Quality of primary education	
4.10 Primary education enrollment rate*	

## EFFICIENCY ENHANCERS

**5th pillar: Higher education and training** ..... 17%

**A. Quantity of education** ..... 33%

5.01 Secondary education enrollment rate (gross %)\*

5.02 Tertiary education enrollment rate (gross %)\*

**B. Quality of education** ..... 33%

5.03 Quality of the educational system

5.04 Quality of math and science education

5.05 Quality of management schools

5.06 Internet access in schools

**C. On-the-job training** ..... 33%

5.07 Local availability of specialized research and training services

5.08 Extent of staff training

**6th pillar: Goods market efficiency** ..... 17%

**A. Competition** ..... 67%

**Domestic competition** ..... 75%<sup>g</sup>

6.01 Intensity of local competition

6.02 Extent of market dominance

6.03 Effectiveness of anti-monopoly policy

6.04 Extent of taxation on incentives to invest

6.05 Total tax rate (% profits)\*

6.06 Number of procedures required to start a business\*<sup>h</sup>

6.07 Time required to start a business (days)\*<sup>h</sup>

6.08 Agricultural policy costs

**External competition** ..... 25%<sup>g</sup>

6.09 Prevalence of trade barriers

6.10 Trade tariffs\*

6.11 Prevalence of foreign ownership

6.12 Business impact of rules on FDI

6.13 Burden of customs procedures

6.14 Imports as a percentage of GDP\*<sup>i</sup>

**B. Quality of demand conditions** ..... 33%

6.15 Degree of customer orientation

6.16 Buyer sophistication

**7th pillar: Labor market efficiency** ..... 17%

**A. Flexibility** ..... 50%

7.01 Cooperation in labor-employer relations

7.02 Flexibility of wage determination

7.03 Hiring and firing practices

7.04 Redundancy costs (weeks of salary)\*

7.05 Extent and effect of taxation

**B. Efficient use of talent** ..... 50%

7.06 Pay and productivity

7.07 Reliance on professional management<sup>1/2</sup>

7.08 Capacity to retain talent

7.09 Capacity to attract talent

7.10 Female participation in labor force\*

**8th pillar: Financial market development** ..... 17%

**A. Efficiency** ..... 50%

8.01 Availability of financial services

8.02 Affordability of financial services

8.03 Financing through local equity market

8.04 Ease of access to loans

8.05 Venture capital availability

**B. Trustworthiness and confidence** ..... 50%

8.06 Soundness of banks

8.07 Regulation of securities exchanges

8.08 Legal rights index\*

**9th pillar: Technological readiness** ..... 17%

**A. Technological adoption** ..... 50%

9.01 Availability of latest technologies

9.02 Firm-level technology absorption

9.03 FDI and technology transfer

**B. ICT use** ..... 50%

9.04 Internet users\*

9.05 Broadband Internet subscriptions\*

9.06 Internet bandwidth\*

9.07 Mobile broadband subscriptions\*

2.08 Mobile telephone subscriptions\*<sup>1/2</sup>

2.09 Fixed telephone lines\*<sup>1/2</sup>

**10th pillar: Market size** ..... 17%

**A. Domestic market size** ..... 75%

10.01 Domestic market size index\*<sup>i</sup>

**B. Foreign market size** ..... 25%

10.02 Foreign market size index\*<sup>k</sup>

## INNOVATION AND SOPHISTICATION FACTORS

**11th pillar: Business sophistication** ..... 50%

11.01 Local supplier quantity

11.02 Local supplier quality

11.03 State of cluster development

11.04 Nature of competitive advantage

11.05 Value chain breadth

11.06 Control of international distribution

11.07 Production process sophistication

11.08 Extent of marketing

11.09 Willingness to delegate authority

7.07 Reliance on professional management<sup>1/2</sup>

**12th pillar: Innovation** ..... 50%

12.01 Capacity for innovation

12.02 Quality of scientific research institutions

12.03 Company spending on R&D

12.04 University-industry collaboration in R&D

12.05 Government procurement of advanced technology products

12.06 Availability of scientists and engineers

12.07 Utility patents\*

1.02 Intellectual property protection<sup>1/2</sup>

## REFERENCES

a. For each category  $i$  that consist from  $K$  indicators:

$$category_i = \frac{\sum_{k=1}^K indicator_k}{k}$$

b. As described in the chapter, the weights are the following:

Stage of development				
Stage 1: Factor-driven	Transition from stage 1 to stage 2	Stage 2: Efficiency- driven	Transition from stage 2 to stage 3	Stage 3: Innovation- driven
GDP per capita* (USD) thresholds**				
<2 000	2 000-2 999	3 000-8 999	9 000-17 000	>17 000
Weights for basic requirements subindex, %				
60	40-60	40	20-40	20
Weights for efficiency enhancers subindex, %				
35	35-50	50	50	50
Weights for innovation and sophistication factors subindex, %				
5	5-10	10	10-30	30

\* For economies with a high dependency on mineral resources, GDP per capita is not the sole criterion for the determination of the stage of development. See text for details.

\*\* There is inverse dependence between GDP per capita and weight in the range of subindex weights. For example, for a country with GDP per capita of USD 2999 the weight used for subindex "Basic Requirements" is 40%. Ukraine is on the 2nd stage of development.

c. The standard formula for converting hard data is the following:

$$6x \frac{(\text{country score} - \text{sample minimum})}{(\text{sample maximum} - \text{sample minimum})} + 1$$

The "sample minimum" and "sample maximum" are, respectively, the lowest and highest country scores in the sample of countries covered by the GCI. In some instances, adjustments were made to account for extreme outliers. For those hard data variables for which a higher value indicates a worse outcome (eg, disease incidence, government debt), we rely on a normalization formula

that, in addition to converting the series to a 1-to-7 scale, reverses it, so that 1 and 7 still corresponds to the worst and best possible outcomes, respectively:

$$-6 \times \frac{(\text{country score} - \text{sample minimum})}{(\text{sample maximum} - \text{sample minimum})} + 7$$

d. For those groups of variables that contain one or several half weight variables, country scores for those groups are computed as follows:

$$\frac{(\text{sum of scores on full weight variables}) + 0.5 \times (\text{sum of scores on half weight variables})}{(\text{full weight variables}) + 0.5 \times (\text{count of full weight variables})}$$

e. In order to capture the idea that both high inflation and deflation are detrimental, inflation enters the model in a U-shaped manner as follows: for values of inflation between 0.5 and 2.9 percent, a country receives the highest possible score of 7. Outside this range, scores decrease linearly as they move away from these values.

f. The impact of malaria, tuberculosis, and HIV/AIDS on competitiveness depends not only on their respective incidence rates, but also on how costly they are for business. Therefore, in order to estimate the impact of each of the three diseases, we combine its incidence rate with the Survey question on its perceived cost to businesses. To combine these data we first take the ratio of each country's disease incidence rate relative to the highest incidence rate in the whole sample. The inverse of this ratio is then multiplied by each country's score on the related Survey question. This product is then normalized to a 1-to-7 scale. Note that countries with zero reported incidence receive a 7, regardless their scores on the related Survey question.

g. The "Competition" sub-pillar is the weighted average of two components: "Domestic competition" and "Foreign competition". In both components, the included variables provide an indication of the extent to which competition is distorted. The relative importance of these distortions depends on the relative size of domestic versus foreign markets. This interaction between the domestic market and the foreign market is captured by the way we determine the weights of the two components. Domestic competition is the sum of consumption (C), investment (I), government spending (G), and exports (X), while foreign competition is equal to imports (M). Thus we assign a weight of  $(C+I+G+X)/(C+I+G+X+M)$  to "Domestic competition" and a weight of  $M/(C+I+G+X+M)$  to "Foreign competition". For Ukraine, the calculation yields a weight of 0.75 for the Domestic competition component and of 0.25 for the Foreign competition component.

h. Variables 6.06 and 6.07 combine to form a single variable.

i. The values of this variable are normalized.

j. The size of the domestic market is constructed by taking the natural log of the sum of the gross domestic

product valued at PPP, plus the total value (PPP estimates) of imports of goods and services, minus the total value (PPP estimates) of exports of goods and services. Data are then normalized on a 1-to-7 scale. PPP estimates of imports and exports are obtained by taking the product of exports as a percentage of GDP and GDP valued at PPP.

k. The size of the foreign market is estimated as the natural log of the total value (PPP estimates) of exports of goods and services, normalized on a 1-to-7 scale. PPP estimates of exports are obtained by taking the product of exports as a percentage of GDP and GDP valued at PPP.

# Annex B. Ukrainian National Competitiveness Index 2013

## 1st pillar: Institutions

### 1.01 Property rights

Property rights, including over financial assets (1 = are poorly defined and not protected by law, 7 = are clearly defined and well protected by law)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.02 Intellectual property protection

Intellectual property protection in your region (1 = is weak and not enforced; 7 = is strong and enforced)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.03 Diversion of public funds

In your region diversion of public funds to companies, individuals, or groups due to corruption (1 = is common, 7 = never occurs)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.04 Public trust of politicians

Public trust in the financial honesty of politicians is (1 = very low, 7 = very high)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.05 Irregular payments and bribes

In your region, how common is it for firms to make undocumented extra payments or bribes connected with the following:

- Import and export permits?
  - Public utilities (e.g., telephone or electricity)?
  - Tax payments?
  - Awarding of public contracts and licenses?
  - Obtaining favorable judicial decisions?
- (1 = common, 7 = never occurs)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.06 Judicial independence

Is the judiciary in your region independent from political influences of members of government, citizens, or firms? (1 = no – heavily influenced, 7 = yes – entirely independent)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.07 Favoritism in decisions of government officials

When deciding upon policies and contracts, government officials (1 = usually favor well-connected firms and individuals, 7 = are neutral)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.08 Wastefulness of government spending

Public spending in your region (1 = is wasteful, 7 = provides necessary goods and services not provided by the market)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.09 Burden of government regulation

Complying with administrative requirements (permits, regulations, reporting) issued by the government in your region is (1 = burdensome, 7 = not burdensome)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.10 Efficiency of legal framework in settling disputes

How efficient is the legal framework in your region for private businesses in settling disputes? (1 = extremely inefficient, 7 = highly efficient)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.11 Efficiency of legal framework in challenging regulations

How efficient is the legal framework in your region for private businesses in challenging the legality of government actions and/or regulations? (1 = Extremely inefficient, 7 = Highly efficient)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.12 Transparency of government policymaking

Are firms in your region usually informed clearly by the government on changes in policies and regulations affecting your industry? (1 = never informed; 7 = always informed)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.13 Business costs of terrorism

The threat of terrorism in your region (1 = imposes significant costs on business, 7 = does not impose significant costs on business)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.14 Business costs of crime and violence

The incidence of common crime and violence (e.g., street muggings, firms being looted) (1 = imposes significant costs on businesses, 7 = does not impose significant costs on businesses)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.15 Organized crime

Organized crime, such as mafia-oriented racketeering, extortion in your region (1 = imposes significant costs on businesses, 7 = does not impose significant costs on businesses)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.16 Reliability of police services

Police services (1 = cannot be relied upon to protect businesses from criminals, 7 = can be relied upon to protect businesses from criminals)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.17 Ethical behavior of firms

The corporate ethics (ethical behavior in interactions with public officials, politicians, and other enterprises) of firms in your region are (1 = among the world's worst, 7 = among the best in the world)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.18 Strength of auditing and reporting standards

In your country, how strong are financial auditing and reporting standards? (1 = extremely weak; 7 = extremely strong)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.19 Efficacy of corporate boards

Corporate governance by investors and boards of directors in your region is characterized by (1 = management has little accountability, 7 = investors and boards exert strong supervision of management decisions)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.20 Protection of minority shareholders' interests

Interests of minority shareholders in your region are (1 = not protected by law and seldom recognized by majority shareholders, 7 = protected by law and actively enforced)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 1.21 Strength of investor protection\*

Strength of investor protection, 0–10 (best), 2012

Source: *The World Bank, Doing Business 2013*

## 2nd pillar: Infrastructure

### 2.01 Quality of overall infrastructure

General infrastructure (transport, telephony and energy) in your region is (1 = underdeveloped, 7 = as extensive and efficient as the world's best)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 2.02 Quality of roads

Roads in your region are (1 = underdeveloped, 7 = extensive and efficient by international standards)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*



### 2.03 Quality of railroad infrastructure

Railroads in your region are (1 = underdeveloped, 7 = as extensive and efficient as the world's best)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 2.04 Quality of port infrastructure

Port facilities and inland waterways in your region are (1 = underdeveloped, 7 = as developed as the world's best) \* For landlocked regions, this measures the ease of access to port facilities and inland waterways.

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 2.05 Quality of air transport infrastructure

Passenger air transport in your region is (1 = infrequent, limited, and inefficient, 7 = as frequent, extensive, and efficient as the world's best)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 2.06 Available seat kilometers\*

Air transport passenger turnover in a region per week, million seat kilometers

Source: State Aviation Service of Ukraine. Calculations: Foundation for Effective Governance

### 2.07 Quality of electricity supply

The quality of electricity supply in your region (lack of interruptions and lack of voltage fluctuations) is (1 = worse than in most other countries, 7 = meets the highest standards in the world)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 2.08 Mobile telephone subscriptions\*

Mobile telephone subscribers per 100 population, 2012

Source: National Commission for Communications Regulation of Ukraine

### 2.09 Fixed telephone lines\*

Main telephone lines per 100 population, 2012

Source: National Commission for Communications Regulation of Ukraine

## 3rd pillar: Macroeconomic environment

### 3.01 Government budget balance\*

Central government gross surplus/deficit as a percentage of GDP, 2012

Source: IMF, Global Economic Prospects, 2013

### 3.02 Gross national savings\*

National savings rate as a percentage of GDP

Source: IMF, Global Economic Prospects, 2013

### 3.03 Inflation\*

Annual percent change in consumer price index, 2012

Source: State Statistics Committee of Ukraine

### 3.04 General government debt\*

Government gross debt as a percentage of GDP, 2012

Source: IMF, Global Economic Prospects, 2013

### 3.05 Country credit rating\*

Country credit rating, 2012

Source: World Economic Forum

## 4th pillar: Health and primary education

### 4.01 Business impact of malaria

How serious do you consider the future impact of malaria on your company in the next 5 years? (1 = extremely serious, 7 = not a problem)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 4.02 Malaria incidence\*

Number of malaria cases per 100,000 population, 2012

Source: State Statistics Committee of Ukraine

### 4.03 Business impact of tuberculosis

How serious do you consider the future impact of tuberculosis on your company in the next 5 years? (1 = extremely serious, 7 = not a problem)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 4.04 Tuberculosis incidence\*

Number of tuberculosis cases per 100,000 population, 2012

Source: State Statistics Committee of Ukraine

### 4.05 Business impact of HIV/AIDS

How serious do you consider the future impact of HIV/AIDS on your company in the next 5 years? (1 = extremely serious, 7 = not a problem)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 4.06 HIV prevalence\*

HIV prevalence as a percentage of adults aged 15-49 years, 2012

Source: Ukrainian Center for AIDS Prevention of the Ministry of Health of Ukraine

### 4.07 Infant mortality\*

Infant (children aged 0-12 months) mortality per 1,000 live births, 2012

Source: State Statistics Committee of Ukraine

### 4.08 Life expectancy\*

Life expectancy at birth (years), 2012

Source: State Statistics Committee of Ukraine

### 4.09 Quality of primary education

Primary schools in your region are (1 = of poor quality, 7 = among the best in the world)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 4.10 Primary education enrollment\*

Net primary education enrollment rate, 2012

Source: State Statistics Committee of Ukraine

## 5th pillar: Higher education and training

### 5.01 Secondary education enrollment\*

Gross secondary education enrollment rate, 2012

Source: State Statistics Committee of Ukraine

### 5.01 Tertiary education enrollment\*

Gross tertiary education enrollment rate (18-23), 2012

Source: State Statistics Committee of Ukraine, Calculation: Foundation for Effective Governance

### 5.03 Quality of the educational system

The educational system in your region (1 = does not meet the needs of a competitive economy, 7 = meets the needs of a competitive economy)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 5.04 Quality of math and science education

Math and science education in your region's schools (1 = lag far behind most other countries, 7 = are among the best in the world)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 5.05 Quality of management schools

Management or business schools in your region are (1 = limited or of poor quality, 7 = among the best in the world)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 5.06 Internet access in schools

Internet access in schools is (1 = very limited, 7 = extensive - most children have frequent access)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 5.07 Availability of research and training services

In your region specialized research and training services are (1 = not available, 7 = available from world-class local institutions)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 5.08 Extent of staff training

The general approach of companies in your region to human resources is (1 = to invest little in training and employee development, 7 = to invest heavily to attract, train, and retain employees)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

**6th pillar: Goods market efficiency****6.01 Intensity of local competition**

Competition in the local market is (1 = limited in most industries, 7 = intense in most industries)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**6.02 Extent of market dominance**

Corporate activity in your region is (1 = dominated by a few business groups, 7 = spread among many firms)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**6.03 Effectiveness of anti-monopoly policy**

Anti-monopoly policy in your region is (1 = lax and not effective at promoting competition, 7 = effective and promotes competition)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**6.04 Effect of taxation on incentives to invest**

The level of taxes in your region (1 = significantly limits the incentives to invest, 7 = has little impact on the incentives to invest)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**6.05 Total tax rate\***

This variable is a combination of profit tax (% of profits), labor tax and contribution (% of profits), and other taxes (% of profits), 2012

Source: *The World Bank, Doing Business 2013*

**6.06 Number of procedures required to start a business\***

Number of procedures required to start a business, 2012

Source: *The World Bank, Doing Business 2013*

**6.07 Time required to start a business\***

Time required to start a business, 2013

Source: *The World Bank, Doing Business 2013*

**6.08 Agricultural policy costs**

Agricultural policy in your region (1 = is excessively burdensome for the economy, 7 = balances the interests of taxpayers, consumers, and producers)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**6.09 Prevalence of trade barriers**

In your region, tariff and non-tariff barriers significantly reduce the ability of imported goods to compete in the domestic market (1 = strongly agree, 7 = strongly disagree)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**6.10 Trade-weighted tariff rate\***

The average rate of import tariff, 2012

Source: *International Trade Centre*

**6.11 Prevalence of foreign ownership**

Foreign ownership of companies in your region is (1 = rare and limited, 7 = prevalent and encouraged)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**6.12 Business impact of rules on FDI**

In your region, rules governing foreign direct investment (1 = discourage foreign direct investment, 7 = encourage foreign direct investment)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**6.13 Burden of customs procedures**

Customs procedures (formalities regulating the entry and exit of merchandise) in your region are (1 = extremely slow and cumbersome, 7 = rapid and efficient)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**6.14 Imports as a percentage of GDP\***

Imports as a percentage of GDP

Source: *State Statistics Committee of Ukraine. Calculations: Foundation for Effective Governance*

**6.15 Degree of customer orientation**

Customer orientation: Firms in your region (1 = generally treat their customers badly, 7 = are highly responsive to customers and customer retention)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**6.16 Buyer sophistication**

Buyers in your region make purchasing decisions (1 = based solely on the lowest price, 7 = based on a sophisticated analysis of performance attributes)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**7th pillar: Labor market efficiency****7.01 Cooperation in labor-employer relations**

In your region, how would you characterize labor-employer relations? (1 = generally confrontational; 7 = generally cooperative)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**7.02 Flexibility of wage determination**

In your region, wages are (1 = set by a centralized bargaining process, 7 = up to each individual company)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**7.03 Hiring and firing practices**

The hiring and firing of workers is (1 = impeded by regulations, 7 = flexibly determined by employers)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**7.04 Redundancy costs, weeks of salary\***

Firing costs (in weeks of wages)

Source: *The World Bank, Doing Business 2013*

**7.05 Effect of taxation on incentives to work**

The level of taxes in your region (1 = significantly limits the incentives to work, 7 = has little impact on the incentives to work)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**7.06 Pay and productivity**

In your region, pay is (1 = not related to worker productivity, 7 = strongly related to worker productivity)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**7.07 Reliance on professional management**

Senior management positions in your region are (1 = usually held by relatives or friends without regard to merit, 7 = mostly held by professional managers chosen based for their superior qualification)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**7.08 Capacity to retain talent**

Does your region retain talented people? (1 = the best and brightest leave to pursue opportunities in other regions or countries; 7 = the best and brightest stay and pursue opportunities in the region)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**7.09 Capacity to attract talent**

Does your region attract talented people from other regions or abroad? (1 = not at all; 7 = attracts the best and brightest from other regions or abroad)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

**7.10 Women in labor force\***

Female participation in the labor force as a percentage of male participation, 2012

Source: *State Statistics Committee of Ukraine*

## 8th pillar: Financial market development

### 8.01 Availability of financial services

The level of sophistication of financial markets in your region is (1 = poor by international standards, 7 = excellent by international standards)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 8.02 Affordability of financial services

Does the financial sector in your region provide a wide variety of financial products and services to businesses? (1 = not at all, 7 = provides a wide variety)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 8.03 Financing through local equity market

Raising money by issuing shares on the stock market in your region is (1 = impossible, 7 = very easy)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 8.04 Ease of access to loans

How easy is it to obtain a bank loan in your region with only a good business plan and no collateral? (1 = impossible, 7 = very easy)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 8.05 Venture capital availability

In your region, how easy is it for entrepreneurs with innovative but risky projects to find venture capital? (1 = impossible, 7 = very easy)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 8.06 Soundness of banks

Banks in your region are (1 = insolvent and may require a government bailout, 7 = generally healthy with sound balance sheets)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 8.07 Regulation of securities exchanges

Regulation of securities exchanges in your region is (1 = not transparent, ineffective and subject to undue influence from industry and government, 7 = transparent, effective and independent of undue influence from industry and government)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 8.08 Legal rights index\*

Strength of legal rights index on a 0–10 (best) scale

Source: *The World Bank, Doing Business 2013*

## 9th pillar: Technological readiness

### 9.01 Availability of latest technologies

In your region, the latest technologies are (1 = not widely available or used, 7 = widely available and used)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 9.02 Firm-level technology absorption

Companies in your region are (1 = not able to absorb new technology, 7 = aggressive in absorbing new technology)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 9.03 FDI and technology transfer

Foreign direct investment in your region (1 = brings little new technology, 7 = is an important source of new technology)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 9.04 Internet users\*

Internet users per 100 population, 2012

Source: *Gemius/GfK-Ukraine*

### 9.05 Broadband Internet subscriptions\*

Broadband internet subscribers per 100 population, 2012

Source: *IKS-consulting*

### 9.06 Internet bandwidth\*

Internet bandwidth, kb/s per capita, 2012

Source: *International Telecommunications Unit*

### 9.07 Mobile broadband subscriptions\*

Mobile broadband subscriptions per 100 population, 2012

Source: *World Economic Forum*

## 10th pillar: Market size

### 10.01 Domestic market size index\*

Sum of gross domestic product plus value of imports of goods and services, minus value of exports of goods and services, normalized on a 1–7 (best) scale

Source: *Calculations: Foundation for Effective Governance. See Annex A*

### 10.02 Foreign market size index\*

Value of exports of goods and services, normalized on a 1–7 (best) scale

Source: *Calculations: Foundation for Effective Governance. See Annex A*

## 11th pillar: Business sophistication

### 11.01 Local supplier quantity

Local suppliers in your region are (1 = largely nonexistent, 7 = numerous and include the most important materials, components, equipment, and services)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 11.02 Local supplier quality

The quality of local suppliers in your region is (1 = very poor, 7 = very good)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 11.03 State of cluster development

In your region's economy, well-developed and deep clusters are (1 = rare or absent, 7 = widespread in many fields)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 11.04 Control of international distribution

Competitiveness of your region's companies in international markets is primarily due to (1 = low-cost or local natural resources, 7 = unique products and processes)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 11.05 Value chain breadth

Exporting companies in your region are (1 = primarily involved in individual steps of the value chain, e.g., resource extraction or production, 7 = present across the entire value chain, e.g., do not only produce but also perform product design, marketing sales, logistics and after-sales services)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 11.06 Control of international distribution

International distribution and marketing from your region (1 = take place through foreign companies, 7 = are owned and controlled by local companies)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 11.07 Production process sophistication

In your region, production processes use (1 = labor-intensive methods or previous generations of process technology, 7 = the world's best and most efficient process technology)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 11.08 Extent of marketing

In your region, the extent of marketing is (1 = limited and primitive, 7 = extensive and employs the world's most sophisticated tools and techniques)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

### 11.09 Willingness to delegate authority

In your company, willingness to delegate authority to subordinates is (1 = low – top management controls all important decisions, 7 = high – authority is mostly delegated to business unit heads and other lower-level managers)

Source: *Foundation for Effective Governance, Executive Opinion Survey, 2013*

## 12th pillar: Innovation

### 12.01 Capacity for innovation

In your region, companies obtain technology (1 = exclusively from licensing or imitating foreign companies, 7 = by conducting formal research and pioneering their own new products and processes)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 12.02 Quality of scientific research institutions

Scientific research institutions in your region (e.g., university laboratories, government laboratories) are (1 = nonexistent, 7 = the best in their fields internationally)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 12.03 Company spending on R&D

Companies in your region (1 = do not spend money on research and development, 7 = spend heavily on research and development relative to international peers)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 12.04 University-industry collaboration in R&D

In the area of R&D, collaboration between the business community and local universities is (1 = minimal or nonexistent, 7 = intensive and ongoing)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 12.05 Gov't procurement of advanced tech products

In your region, government procurement decisions result in technological innovation (1 = strongly disagree, 7 = strongly agree)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 12.06 Availability of scientists and engineers

Scientists and engineers in your region are (1 = nonexistent or rare, 7 = widely available)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 12.07 Utility patents granted\*

Number of utility patents (i.e., patents for invention) granted by the Patents Co-operations Treaty, per million population, 2012

Source: World Intellectual Property Organization and the Organisation for Economic Co-operation and Development (OECD), State Statistics Committee of Ukraine. Calculations: Foundation for Effective Governance

## Additional questions for article

### Abilities to adapt to external shocks

How do you evaluate your company's ability to adapt to external shocks? (for example, crisis, extreme and crucial changes in the legislation)? (1 = extremely low, 7 = very high)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### 5 years dynamics of expenses on modernisation of fixed assets

For the last 5 years how did expenses on modernisation of fixed assets change in your company? (1 = considerably shortened, 7 = considerably increased)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### Sophistication of procurement system (strategic alliances with suppliers, risk management, quality standards, etc.)

How developed system of procurement have businesses in your region (strategic alliances with suppliers, risk management, quality standards, etc.)? (1 = completely undeveloped, 7 = well developed)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### Variety of non-financial incentives in motivation system

Motivation system in your company: (1 = limited by material remuneration only, 7 = contains various non-financial incentives)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### Prevalence of e-document flow in companies

How widely is e-document flow used in your company?: (1 = isn't used at all, 7 = used all over with specific e-document flow systems)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

Prevalence of automatic control systems, such as – ERP, CRM and so on  
Your company has implemented and is currently using automatic control systems, such as – ERP, CRM and so on: (1 = automatic control systems are not used, 7 = business processes are completely automatized)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### Frequency of attraction of external consultants (such as strategy, marketing, IT)

Your company attracts external consultants for its operations (such as strategy, marketing, IT): (1 = external consultants have never been engaged, 7 = external consultants have been engaged on a regular basis)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### Prevalence of complex analysis using modern technologies for business planning

Business planning in your company: (1 = based on own intuition and experience, 7 = based on complex analysis using modern technologies)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### Prevalence of international standards of quality control (for example, ISO 9000)

Your company has implemented and is currently using international standards of quality control (for example, ISO 9000): (1 = quality control systems are not used, 7 = all business processes are certified)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### Ease of finding the necessary specialists to business

In your region is it easy to find the necessary specialists to business? (1 = it is extremely difficult, 7 = very easy)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### Equality in salaries of women and men performing the same job

In your region are women's salaries similar to the salaries of men performing the same job? (1 = they are not similar – women are paid significantly less than men, 7 = they are exactly the same – women are paid the same as men)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### Equality of women's and men's opportunities to move up the career ladder

To what extent do business in your area provides women the same opportunities as men to move up the career ladder? (1 = women have little or no opportunity to move up the career ladder, 7 = women and men have equal opportunities to advance the ladder)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### Compliance with the agreements of business partners/contractors

During last 5 years how often did your business partners/contractors not fulfill their commitments? (1 = many times, 7 = no cases)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### Importance of reputation among businesses

How is reputation important for your business?: (1 = doesn't matter, 8 = the main asset)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

Extent of spendings on social events: a. Internal projects: social programs for employees; b. Spatial development projects (in a town or area of business presence): infrastructure, ecology; c. Community development projects: health and sport, education and culture, social care

Does your company spend money on social events?

a. Internal projects: social programs for employees  
b. Spatial development projects (in a town or area of business presence): infrastructure, ecology  
c. Community development projects: health and sport, education and culture, social care  
(1 = doesn't spend at all, 7 = spends significant amounts of money on a regular basis)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

### Long-term initiatives to support local communities

Does your company participate in long-term initiatives to support local communities (1 = never participates, 7 = participates very actively as initiator)

Source: Foundation for Effective Governance, Executive Opinion Survey, 2013

