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PUBLIC–PRIVATE COOPERATION IN HIGHER EDUCATION

Panel

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Moderator:

Edward Crawley, Founding President, Skolkovo Institute of Science and Technology

Panellists:

John Chambers, Chairman and Chief Executive Officer, Cisco

Edward Crawley, Founding President, Skolkovo Institute of Science and Technology

Laura Ipsen, Corporate Vice President, Microsoft Corporation

Yaroslav Kuzminov, Rector, National Research University of the Higher School of Economics

Dmitry Livanov, Minister of Education and Science of the Russian Federation

Alexander Oganov, General Director, Uniweb

Rafael Reif, President, Massachusetts Institute of Technology

Jan Dirk Waiboer, Senior Partner, Head of BCG CIS

Front row participants:

Mikhail Eskindarov, Rector, Financial University under the Government of the Russian Federation

Enderson Guimaraes, Chief Executive Officer, PepsiCo Europe

Denis Konanchuk, Head of Education Development Center, Moscow School of Management SKOLKOVO

Dmitry Peskov, Director of Young Professionals Stream, Agency for Strategic Initiatives

Evgeny Yasin, Academic Supervisor, Higher School of Economics at the National Research University

E. Crowley:

I would like to welcome you to our discussion today. I am Edward Crowley. I am the president of the Skolkovo Institute of Science and Technology, Skoltech, the new technical institute being built in Skolkovo outside of Moscow. I spent 40 years of my life at MIT where I learned something about public–private partnerships between universities and industry, or universities, industry, and government. Let me briefly introduce the panellists. Yaroslav Kuzminov is the Rector of the National Research University, Higher School of Economics. Alexander Oganov is the Director General of Uniweb, a company in the online education business. Marthin De Beer is the Senior Vice President of Cisco. Dmitry Livanov, as you all know, is the Minister of Education and Science of the Russian Federation. Laura Ipsen is the Corporate Vice President for Microsoft. Jan Dirk Waiboer is a Senior Partner and Head of the Moscow office covering Northern Europe of BCG, the consulting firm. In addition, we have several discussants in this meeting, whom I will introduce when we come to them. Thank you all for coming today. The discussion topic today is Public–Private Partnerships in Higher Education. It occurred to me that it is not obvious who are the private members and who are the public members. The common assumption, especially in Russia, is that the private partner is industry and the public partner is the university. However, I am the president of an institution that is a private university, where the public partner is the government, who is our very important source of funding and partner for growth of the university. This points out that public and private partnerships can work both ways. However, I suspect that today, most of the comments will be about viewing the university as the public partner and the private partners coming in. I would like to keep the discussion a bit focused by trying to identify one or two examples of recent success in Russia or pilot programmes that we might suggest to the Minister so that we can enhance the public–private partnership. In other words, I will think of this meeting is successful if there is actually an outcome of some increased understanding or something new we can try. And I am sure that there are enough rectors and university leaders and members from industry in the room that we could actually negotiate such a thing

before the end of the day. I will turn to my good colleague, Rector Kuzminov from the Higher School of Economics, an expert and long-serving rector of a Russian university, my senior and elder by far, to set the context of how private–public partnerships in Russia and in Russian universities currently function. Rector Kuzminov.

Y. Kuzminov:

Thank you. In order for my answer to be understandable to those who are not from Russia, I will explain how we have arrived at the current situation. About half of the Russian education system is still based on the Soviet system. A key feature of the Soviet higher education system was the close link between universities and industry. These industries have since been privatized, so we had the first phase of public–private partnership during the 1990s. In this situation, the universities are part of the relevant industry – oil and gas, railways, textiles, or healthcare – and they receive requests for specific engineering and specialist positions. Ideally, these requests specify that students should gain experience with a particular technology. Students undertake a lengthy period of work experience in the last few years of their course. Ideally, a specialist is prepared for a particular role, for which the university has received a request. This is really a wonderful tale, but we have seen it collapse over the last 15 years. I think, by around 2005, 15 years after the start of privatization in Russia, it was already the case that the vast majority of employers stated that they did not need universities. This was because they were forced to retrain the people that they had recruited irrespective of any formal ties with universities. From 2005 onwards, we saw business begin to sever its ties with universities. The exodus was at a rate of about 20–30% a year, according to surveys of employers. In Russia today, about 20% of higher education institutions still have some connection to industry, at least in name.

In what forms does this relationship manifest itself? Almost no requests for particular types of specialist education are submitted to universities anymore; this has all been redirected towards the vocational training sector. From time to time,

there are requests for applied developments, but they make up a very small part of the budget, even at specialized universities. Post-Soviet industrial cooperation between business and universities continues to decline, evidently because its scale and format were inherited from an economic system that has ceased to exist.

In addition, between 2005 and 2007, the process of creating new relationships between business and universities began. These relate to endowments – charitable projects within universities, whereby some proactive managers are able to persuade business to make donations. Although these endowments do not exceed a few percent of the budgets of Russian universities, charitable projects and endowments within the sector are nevertheless growing. If they keep growing at current rates, then, by about 2020, they will make up about 7% of the higher education budget, in my opinion.

Finally, my last point: at some universities, several attempts have been made to involve businesses in university management. I believe that the vast majority of such examples are private initiatives at the level of individual departments. I do not know of any university where the management system could be effectively transformed with the involvement of business. I am sorry for offering such a pessimistic introduction, but I hope that my colleagues will be able to offer a cheerier outlook.

E. Crowley:

Thank you, Professor Kuzminov – and I say ‘Professor’ with honour. I think the summary is that, like many parts of the Russian higher education system, this is one in a state of transition and in a dynamic state. I think that one of the exciting parts of working in Russian universities is that it is a time of dynamic change. Let us turn to our two or three corporate commentators starting with Laura Ipsen. From the perspective of multinational corporations such as Microsoft, what are some models of successful public–private partnerships that you have encountered?

L. Ipsen:

One thing I would say is that, when we are talking about higher education, we are looking at the ecosystem of education starting with primary, secondary, and tertiary education, where Russia has the most degrees, even over the US. And when we look at it – I am going to quote our founder and Chairman, Bill Gates, shortly – we have to think about the ways that we tie it to both economic sustainability and societal change. We cannot look at this merely through the lens of a parent – I, myself, am a mother of three – or an academic, or a business lens but through all of those. Bill Gates said, “I look at education through the eyes of a business leader, and I see the critical importance of a skilled and highly trained workforce. In my philanthropic work, I look at education and see it as a powerful way to promote economic and social equity. As a parent, I see how important quality education is in inspiring children to have a passion for learning and to have the foundation they need to lead a fulfilling and productive life.” So we see the urgency of societal change and of economic sustainability. When you look at jobs of the future, according to a McKinsey report, two thirds of the new jobs that will be created over the next eight years do not even exist today. Moreover, 50% of all jobs require ICT skills, and by the next decade this will have increased to 77%, according to a report by IDC just a year ago. So when we look at developing the partnerships, whether in primary education or higher education, it is through the lens of one question: how do we make sure that we match skill sets of today using ICT as a lever, developing those new degrees while embedding technology in them and developing the partnerships not just in K–12 grades but also retraining workers for the future, which is one of the successful partnerships that we have had in Russia. We created over 100 digital learning centres in 70 cities, working with higher institutions to create those new skill sets for the future and develop ICT skills, both for people who already have those higher education degrees and for people who are looking to modernize for the jobs of the future. It is really about having those models that will scale. We have a “Partners in Learning” model that is for K–12, but we use that model to engage on a platform with our technologies that will create new opportunities for students and teachers, and best practices using technology. So we

are creating degrees around technology for future jobs that are just appearing, such as data sciences, for example. Those are the programmes that we look to scale and build on. Certainly, we are really excited about the Imagine Cup, which will be held next month here in St. Petersburg. Those finals are about innovation and the next start-ups and entrepreneurs. There will be three teams from Russia competing in Imagine Cup. Those are places where we look to put our resources and funding into start-up technologies. One of the winners last year in Russia was using technology for the visually impaired. So that is looking at the next big companies and the next new innovations and really tying more holistically the goals that we have with the technology of the company, investing, and creating innovative models for the future. So those are a few ways that we think public–private partnerships are working to spur innovation, to make sure that we attach to those new jobs that we have not even created yet.

E. Crowley:

If you are keeping score, we have one vote against governance from Kuzminov, two votes in favour of what I would call ‘flexible preparation’, one for reflection on the dissolution of the previous Soviet model, and one for the need to prepare people for jobs of the future. We have one vote also for scalable workforce training, and one for competitions to fund start-ups. We will now turn to Marthin De Beer from Cisco.

M. De Beer:

Thank you, Ed. At Cisco, our relationship with higher education has been a very deep and important one. In fact, the company was born when two professors from Stanford University formed Cisco about 30 years ago. The story did not end there; over the years, Cisco has trained more than 4 million students across 10,000 academies in 165 countries on ICT technologies. We are deeply invested in training and education. In fact, we will not be successful as companies if we cannot draw upon great talent that comes from the best universities around the world. However, there are more things that can be done. Here in Russia, Cisco will be launching in

August our Russia Research Programme, where we will provide grants and funds to local universities to do research in specific areas of technology that are important to our business. Often, those same students become interns or potentially employees of our company in the future here in Russia. Another interesting and innovative programme we have is our international intern programme. What we do with that is, starting this summer, we will have 12 top students from Russian universities – from both the Bauman University and the Technical University of Communications and Informatics – come to Silicon Valley and work for a year at Cisco. Once that is complete, they will then come back and continue their training here in Russia. That will expose them to a completely different environment; they will see what the Valley is like, and we are very excited to have them working at Cisco. This summer, we will also launch a local internship programme with Skoltech through which we will actually enable a group of top students to come and work on engineering and innovation programmes here in Russia. So those are four ways that Cisco is involved and can contribute. I always see this as a win–win situation for all: it is beneficial to the higher education institution, the student, and the business.

E. Crowley:

I very much agree with this model. If we want to enhance the innovative capabilities of our students in Russia, we have to, at least for a short period of time, place them in an environment where they get a different view of innovation and of risk, and the perception of risk in particular. I had a young man on my staff last June come to me and say, “I have a terrible problem, Ed.” He was one of my students here for whom I was a mentor. He said, “I have been accepted to Singularity University in Silicon Valley, but I really want to come work for you at Skoltech.” I said, “There is no problem here. Go to Singularity University and then come to Skoltech because both of these things are wonderful preparations.” We have to change the attitudes of young people. A lot of being willing to be an innovator and an entrepreneur is attitudinal. So Alexander, tell us a bit about what your company does and how it fits into the public–private partnership?

A. Oganov:

Thank you very much. Among this distinguished group of panellists, we have very wide and very high competency in terms of macro analysis. And being an entrepreneur and a responsible CEO, I feel it is my duty to rely heavily on micro issues because in a sense I am a micro manager. So in that sense, I would like to ground the discussion a little bit and focus on very specific attributes of the whole public–private issue in a very pragmatic landscape. The first thing I would like to mention is that there is no specific formal outline of what public–private partnership in education is. It is not only education; there are a number of industry sectors where a public–private partnership is declared, but is realized in an informal manner, which creates a number of legislative and administrative issues when it really comes to getting the job down. In the wide sense of the word, of course, we have already heard that a public–private partnership can take the form of public–private cooperation: endowments, various exchange programmes, etc. However, in the economic sense of the word a public–private partnership, in my understanding, should rely heavily on a joining of assets that need to somehow create either additional value or a tangible outcome. And today, that is not exactly possible in terms of the current legislation. Having discussed micro issues, we can now move on to finding solutions. What are we going to do about this? We can discuss this and criticize it as much as we want, but the whole purpose of having a panel such as the one we are having right now is to propose various solutions. I see that implementing proper legislation would be a great place to start because at the end of the day, if you are an entrepreneur or a private sector representative and you are looking to sign some kind of contract or establish a form of economically viable cooperation with a university or a state-funded university, you are looking at a very wide array of barriers that you will have to overcome. And overcoming those barriers creates a number of issues when it comes to moving towards the end goal. Should we, for example, have some kind of legislative or formal backing in terms of being able to establish a viable form of cooperation? Then, of course, things would

move forward much quicker. This, in the global sense of public–private partnership in education, will allow us to expedite a number of issues because we do live in an environment that is very fast-paced and that is changing by the minute. Global education today is a highly competitive environment, and stimulating the Russian education system to be competitive in this environment is essential. One of the ways that we can achieve this goal is through establishing various public–private partnerships that can expedite the learning curve. The learning curve has proven a bit difficult for the Russian education system of today. It is really no secret; everyone knows exactly why. So if I was to boil it down to the facts and play it to the bone, I would say that we really need to have proper legislation that will allow the private sector to expedite relationships with state-funded universities. Thank you.

E. Crowley:

Well, I see my colleague, Dmitry Livanov, who is the Minister of Education here, writing carefully. I happen to know that they are in the midst of redrafting the law on education. So any advice that we might give today is not just hypothetical but might actually have some direct influence. So thank you very much for your remarks.

A. Oganov:

We do give advice on a regular basis. We participate in the various expert committees, and we have seen a lot of feedback from the Ministry of Education in terms of actually implementing some of our suggestions. So I think that everyone is on the right track.

E. Crowley:

Yaroslav, do you have a view on whether the legislation and the existing regulatory system is a barrier in this area?

Y. Kuzminov:

It seems to me that a regulatory framework has now been established that allows business to cooperate actively with educational institutions. I am referring to the laws governing resource capital and endowments, as well as the laws on boards of trustees and supervisory boards of independent institutions. In principle, business currently has the opportunity to have a huge impact through offering funding. What business does not have today is the opportunity to manage state assets in the education sector. We regularly talk about the possible return of public–private partnerships and we have repeatedly discussed legislative proposals in this area with the academic and business communities. We have recently drafted a letter to the Russian President about the feasibility of creating public–private partnerships and providing businesses with buildings as part of public–private partnerships. Our proposal primarily concerns real estate and secondly touches on equipment infrastructure, healthcare, and education. Our proposal is not intended for universities, but rather for the intermediate vocational education sector, where business can very clearly articulate what it needs, where state and municipal assets are often poorly used, and where equipment is outdated. Students can be trained using modern technology. Businesses would be willing to invest in modern technology and advanced equipment, but they are not ready to build colleges from scratch. I think, in terms of the regulatory framework, this would be the most reasonable way forward for the upcoming year.

E. Crowley:

Thank you. I think Alexander made an obvious but important statement of strategy, that, as in any transaction, the resulting utility should be higher than at the beginning. That is to say we should think of this as a transactional process of a partnership between public and private, that something is transacted and, as a result of that, both sides are better for it. Therefore, we should filter the list of ideas that are emerging and keep the ones where there is clearly an exchange, where something is offered and something is received, and where there is a perception of a strong win–win as a result of that. Let me turn now to our three special guests. Let

me call on you for a brief example of where you have seen public–private partnerships being successful. We will start with Denis Konanchuk, who is the Head of the Education Development Centre at the Moscow School of Management, Skolkovo – a separate organization from Skolkovo Tech, but a no less distinguished one.

D. Konanchuk:

Thank you, Edward.

It is a great pleasure for me to be here. We are talking here about public–private partnership (PPP), which is one form of cooperation. In my opinion, there is a need for cooperation when a common and very pressing need arises that neither party can solve on its own. In this sense, PPP and cooperation in higher education are very interesting things, because universities are always organizations with long histories and great intellectual potential. There is always the temptation to do everything alone, provided, of course, that there is adequate funding. But, nevertheless, I would like to provide a couple of examples of cooperation.

The most famous example that has been cited frequently at SPIEF this year is the edX cooperative project, involving Harvard and MIT, which is seeking to compete on the global market. The first such projects have also begun in Russia. One example is the project that we are participating in together with United Aircraft Corporation. This project has an overarching purpose: to ensure that, by 2025, the corporation has entered the global marketplace and become the third largest company, behind Airbus and Boeing. Naturally, this objective requires a change in technological structure and industrial model. The corporation's own expertise must also be such that it can compete with Boeing and Airbus. What could serve as the basis for cooperation in this case? We conducted a study using the latest technology: we went to LinkedIn, took a thousand profiles of Boeing and Airbus employees, and then rated their expertise (in other words, we worked out which skills occurred most frequently). In addition, we held discussions with experts who determined which of these skills were relevant to Russian aerospace manufacturing. As a result, we

were able to identify 40 skills that were either lacking or needed by the company. After this exercise, we went to Russian universities and asked them to evaluate these skills and indicate whether they provide training in them and, moreover, whether that training was at the required international standard.

The results were both what we anticipated, and yet unusual. First of all, of course, no single higher education institution can address the entire skill set by itself. What is more, exactly half of the skills on the list are not generally taught at any Russian university. I will provide some examples of these missing skills: component design, system engineering, and aviation programme management. It became clear that cooperation was necessary and that universities had to create partnerships in order to achieve this overarching goal. We then realized that a new way of working was needed to develop the educational strategy required in order to launch this cooperation. In particular, a rationale for managing the skill chain (by analogy with the private sector, where there is a value chain) was required. In fact, it is already possible to assign specific universities, both Western and Russian, that are strong in particular disciplines, to separate parts of this chain. We believe that this model will set the mechanism of cooperation and partnership in motion.

What is the role of business in all of this? In this case it is quite important because the educational pathways that are built into this new approach must coincide with future career paths in corporations. Otherwise, students will have nowhere to apply their skills. The role of business in this cooperative model will therefore become very important.

It goes without saying that the role of government is also very important. It must create the infrastructure and a legitimate field for building these new skills. This overarching goal and the educational project which goes with it, the creation of a skills cluster for aerospace manufacturing, can, in my opinion, serve as an example of PPP in the Russian education system. Thank you.

E. Crowley:

Denis has correctly pointed out that an important framework for this type of partnership is a competency or learning outcome framework. I admire this diligent piece of work done by the School of Management to look through the LinkedIn documents and extract competency deficiencies. Our university actually did a little bit more of a traditional exercise last year, talking with 40–50 stakeholders within the Russian government, industry, and the higher education system, to develop our competency framework. Perhaps this is something that we might encourage in the upcoming change in legislation: that universities be allowed to develop their own competency framework, as long as they do it in cooperation with industry. I will now call on Dmitry Peskov, the Director of Young Professionals Stream of the Agency for Strategic Initiatives, to see if he has a suggestion or recommendation.

D. Peskov:

In our view, there are some really simple measures that can actively encourage public–private partnerships in the field of higher education. We know that in Russia today, businesses invest very little in education. Despite an increase in absolute numbers, the total volume of such investments is still completely insufficient. Models diverge depending on the type of business and the industry. Intermediate vocational education uses the simplest model and we are now conducting a wider pilot project to implement it in Russia. The model is based on the principle of dual education, which is where a student studies theory for two days each week and then gains experience at a company, under the direction of a vocational training manager, for three days each week. Companies that are not ready to invest in ordinary colleges and vocational schools are happy to invest in the dual education model, although the third key player here, of course, is regional government. In Russia, the regional authorities determine public spending budgets.

Another important point is this: in order to promote public–private partnerships properly, you have to distinguish the big fish from the small fish. The same types of measures will not work in both traditional large enterprises and rapidly growing start-ups. The measures aimed at small, rapidly expanding industries should differ

significantly from those used for public–private partnerships at companies such as Russian Railways. We would like to encourage situations where high-tech businesses invest in the university and give money to a specific educational programme so that the Government can make a matching contribution. We could implement the principle of ‘1+1’, based on the fact that industries such as nanobiotechnology, for example, will grow tenfold in the next few years. The first company to conclude such a partnership will be followed by a number of others. This is not only held back by the lack of technology, but also the lack of valuable human resources in specialities that are generally absent in Russia. A state-supported ‘1+1’ model will lure in small businesses and we would encourage the use of this principle.

The second principle is the creation of a network of masters degree programmes in cooperation with businesses that could take the lead in this area. For example, in Russia, there is a rapidly changing situation in the chemical industry due to the replacement of conventional reactor technology with microreactors. Businesses want to invest in microreactors, but there is no single university where they can be concentrated. A network of masters degree programmes in microreactor technology or biotechnology could be developed under the auspices of several rapidly growing start-ups.

The third point is this: it is clear that, if a business makes an investment, then it should be rewarded with clear financial incentives. Incentives vary around the world from tax incentives to the provision of direct subsidies. In Russia, incentives are very limited and the law should expand what can be done in this regard.

Furthermore, if we want businesses to invest in universities, then they should have the right to control how their investments are used. This means that the boards of trustees at institutions which provide training for a particular industry could be transformed into something similar to the board of directors of a company. I should note that my recommendation does not apply to liberal arts colleges or federal universities; only to institutions that train employees for an industry. This is the classic situation for a company that is state-owned. In this situation, government can

stimulate business. Every standard board of directors has a strategy committee, a human resources committee, and an audit committee. Business and university management could work together within these committees to implement development strategies for their graduates.

For business to buy into this model, it will need access to the skills profile of each individual student. If a business is going to invest in a person, then, starting from the second or third year of the course, the business will need to know details of their educational performance. Access to this information is currently restricted.

In new industries, universities should be established in accordance with industry foresight and requirements. This model has proven very successful in South Korea. It matches Russia's needs, including politically, with universities established directly within industrial parks as a key component of employee training for these new industries. In addition, if business is not ready, then it must be given the opportunity to create its own universities, emphasizing technological entrepreneurship. Yaroslav Kuzminov stated that business does not want to build walls. On the other hand, today it is clear to the whole world that new forms of education do not spring up where new buildings are constructed, but rather where old industrial buildings are refitted for educational purposes. In English, there is the term 'red brick', which was coined to describe a new type of university. Businesses happily invest in institutions like these. We know about a few pilot projects, for example, the project spearheaded by the Chelyabinsk Pipe Rolling Plant (CPRP) in Almetyevsk, which has transformed the former factory administration building into a college of the future that teaches new skills.

Finally, the last point. There must be a feedback effect. We need to include university management in business processes. At the Agency for Strategic Initiatives, we are now implementing an extensive programme to integrate our leaders into the boards of directors of state-owned companies. The first 244 companies completed this stage in the spring. We will complete a pilot project with one of the Russian universities in the autumn, where we will place university leaders on the board of directors of private and state-owned companies. In this way, they

will be able to benefit from what is called a horizontal transfer of skills between industries. Thank you.

E. Crowley:

Thank you very much, Dmitry, for your thoughtful comments. I think it is interesting that 35 minutes into the discussion, the first suggestion of more money going to the universities appeared and it came from a member of government – or the presidential administration in this case. I think there is a lot to learn, as you stated in your last point, for university leaders to become involved and knowledgeable about corporate governance. Before I ended up taking several of the jobs that I had over the years at MIT, I was on the board of directors of several companies. Getting visibility into how business makes decisions certainly influences the way you think about a university. Evgeny Yasin is the Academic Supervisor at the Higher School of Economics. I wonder if we could call on you for a comment, and then we will move on to Jan Dirk for a first attempt at summing up.

E. Yasin:

Thank you. I will briefly discuss a different aspect. The fact is that the Russian and US education systems are very different in terms of how quality is defined. Generally speaking, in the US, the richest universities are private institutions that are able to attract substantial amounts of money and have a good business reputation. In Russia, as has traditionally been the case, universities are mainly public. They are stronger institutions by virtue of their teachers, professors, and the quality of their staff. I will now explain why it is necessary to incorporate another culture here in Russia. We are confronted with the fact that, in order to get a high-quality education, it is necessary to spend a lot more than the Government can afford to allocate for education. But, for business, it may be not just a way to train competent people, but a kind of mission. This may be the challenge of our modern era: this is the century of innovation and high-quality education, when there are simply no other means to advance the economy and create new technology.

Focusing on traditional educational methods, which dominate in public universities, is a hopeless task. I say this with knowledge of the situation because I myself graduated from a construction institute and I know that I received very good training. In any case, I received better training in the necessary skills there than I did at Moscow State University, where I was taught Marxism-Leninism. But I have to say that, later, many people who have received narrowly focused training are not suitable for retraining and cannot meet the requirements, and not just those of businesses that want to adopt technology or improve their performance. We must encourage business to take on a higher mission. I have received an honorary doctorate from the University of Birmingham. The chairman of the board of trustees is also the owner of a major corporation. I saw how happy he was when people walked up at graduation to receive their diplomas and become specialists. The graduates feel the responsibility they have taken on, thanks to the attention they have received from their professors, from the academic community, and from business. The parties here do not just have a material interest. It is something greater. I think that we must account for this circumstance, even in Russia. I ask you, colleagues from other countries, to consider our special qualities.

Today, we are getting used to the fact that universities can earn a lot of money through their dealings with major companies and other businesses. But this is not necessarily in order to gain specific expertise. This is, of course, another goal. But if, in today's society, people do not feel that, by getting a higher education, they will achieve the highest level of expertise, one that will put them ahead of other people, then no sense of mission will ever appear. I would like to see people assume such a mission. We have examples of this in Russia. I will not name names because I do not want to brag, but the scale of this phenomenon is still very small and I would like to see the process become more widespread. And, of course, we are interested in the experience of other countries.

E. Crowley:

Thank you, Evgeny. It is not uncommon throughout the world, as you point out, for people from industry to be on governing boards and even to be the chairman or chancellor of universities, as in Birmingham. Laura wanted to respond to your comments.

L. Ipsen:

I am actually on an energy board at UC Davis, which is a top research institution in California. The comment I would like to make is that the economics of higher education have changed and that they are being disrupted by new models using technology, such as MOOC technology (massive open online courses) and the Khan Academy, providing education in new ways. One of the questions is how do we bridge the economic models of higher education of today and not think about putting more money into the same things? How do we do more with less and use new technologies that are being created that your institute is looking at? Stanford University had one of the founders of MOOC. And how do we use those technologies in a more integrated way, creating interdisciplinary degrees, which is one of the goals that many institutes have. I think you, at MIT, were a leader in that. That is really what is going to drive new jobs. When we bring in interns to our Microsoft research organization, we look all the time at the skill sets of the future and trying to drive those back and connect them more to institutions. I think that is our responsibility as businesses. Universities are critically important to society. They produce economic growth; they produce jobs. We need those tighter connections and we need to invest more. We need to use those technologies that many of us are developing to do things differently, to do new things with fewer resources, which is a problem we all seem to have.

E. Crowley:

Since the spectre of MOOCs has been raised, I will quote Clayton Christensen, who in his 2011 book, “The Innovative University”, pointed out that throughout the 20th century – now, you have to remember Clayton is from the Harvard Business School

– he thought that the single most important strategy of universities around the world was ‘imitate Harvard’ – that all around the world, universities strove to be broadly based, research-based universities. One of the things that worked successfully for some of these universities was public–private partnerships. He argues in that book that for the first time, arguably since the printing press, there is now a technology available to disrupt the existing universities. This is another thing that we university rectors worry about. So now I will finally turn to Jan Dirk Waiboer, the expert in strategy here, to see if he can give us a strategic view on what we have been discussing.

J. Waiboer:

Thank you for this easy question. I will try to summarize but also take a step back and add some of my own experience and thinking. The Boston Consulting Group hires what we believe are the best and the brightest people, not only abroad but also in Russia. We hire from the top Russian universities but also hire quite a few Russians who have done MBAs at Harvard and the like. If you take a step back and look at higher education in Russia, the first thing that struck me is that the number of people with a university degree in Russia between 25 and 39 years old is actually, as a percentage, is much higher than in Germany, for example. So it is not about the number of people. On paper, you have a very educated population. If you look at the expense to the individual and the perceived quality, that is where the challenge begins. When we try to pull the different things together, it is about improving quality, and quality does not only have to do with how much people know, but also with whether this knowledge matches a ‘job of the future’, as Laura calls it. Does it match the competences that are being required, and does it match somehow the demand in terms of numbers? At the same time, budgets are not unlimited and you need to somehow manage cost. Private involvement can play an important role there. I did not hear anyone here say that it is only about money; it is also about competences, definitions, etc. One thing that you might consider when looking at some of the educational models of other countries is to de-average a bit

the academic degrees that you have today because one the one hand, you may say if you want to increase the overall level, the question is: do you increase the average or do you increase the top? I think the dual education system that you have in some countries prepares people much better for the bachelor level, or level below an academic degree, where you have companies being involved in perhaps mandatory internships and providing more on-the-job training. At the same time, you could then maybe redirect some of the funding to the real academic degrees where you have the challenge of providing modern ways of learning. There have been many examples of that. Technology plays a role there, of course, but I think we should also not underestimate the role of the professor. If we look at statistics, we also see that the salary level of university professors in Russia, compared to whatever benchmark you use, is very low. And if you look at the average age, professors in Russia are quite old. Now, you might think 'old' means more experience, yes. But I think that if you want to make sure that there is a link to the here-and-now of what business needs, you might need to invest more in that. The other thing that has been mentioned many times has to do with making sure that there is a match between what companies and business need and what universities are actually teaching. There are several ways of tackling that. There are purely private educational institutions, as you can find abroad; there are programmes within institutions. In Russia, there are many examples of technical universities developing programmes for system engineering, which really match the kind of requirements that we were talking about. There is also an additional element that has been mentioned where, apart from internships and the like, Russian academics and business might need each other. That is the kind of contract research, the technology transfer that is so prominent in the US and at MIT, which has been mentioned as a prime example of a successful partnership. And if you look at Russia, there are not that many academic institutions that have the kind of technology transfer offices that you would find in other countries. I think that if you can get business and academics to cooperate there, you might get a spin-off effect

because then you are also talking about intellectual property development, which would allow academia to also earn a living from the research that they are doing.

E. Crowley:

Thank you, Jan Dirk. I have saved the Minister for last. Dmitry Livanov was the first university rector that I met when I came almost two years ago now to consider moving to Moscow and founding a new university. He is a man whom I respect a great deal as an agent of constructive change, which in the university world is not always an easy position to hold. I invite him to comment and reflect on what we have discussed today that is feasible and what might appear in the upcoming changes in education law.

D. Livanov:

Thank you very much, Ed.

I will begin with a general point. I believe that strong universities are an essential attribute of any state that aspires to global intellectual and economic leadership. It follows directly from this statement that strengthening the higher education system in Russia is an imperative that we will have to face in the near future. I agree with Yaroslav Kuzminov's assessment of the current state of Russian higher education, and that it is still a relic of the Soviet education system. I would add that it is an extremely outdated system that has lost much of its human potential.

In the next five years, our higher education system will have to confront a number of extremely serious shocks. I am talking about the demographic situation: in the next five years, there will be 30% fewer Russian citizens between the ages of 18 to 30, which is the age range of people attending university. I am talking about the serious qualitative changes to requirements which will be imposed by the economy and the Government on universities, and which many universities will not survive. The final factor is the digital revolution, which is creating global competition between universities. When a student anywhere in the world has access to the educational resources of the world's best universities, competition becomes a key factor in

survival. I would conclude from this that, within a relatively short period of, say, 10 years (and for such a traditional, conservative system as education, 10 years is an extremely short period of time), our higher education system will change drastically. We will witness an active process of mergers and acquisitions between universities, or processes that are much more active than those seen today. They will not occur as a result of administrative pressure, but rather as a result of the objective factors that I have mentioned. We will witness the mass closure of pseudo higher education institutions, which are mostly branches of universities that are not in a position to offer high-quality educational programmes and lack the resources to implement them. Cases where government and business jointly invest serious amounts of money in the development of intermediate vocational education will also play their role. Advanced training centres, which already exist and are growing in number, will also draw potential students away from universities.

In Russia today, companies are investing as much as the state in the development of human resources. These investments are comparable in size. Of course, companies are investing in more than just higher and professional education. They are investing in retraining courses and short training programmes, but the size of their investments is comparable. My view is that this trend will only increase with time, because Russian companies are experiencing an ever-increasing demand for well-trained professionals.

What are the characteristics of the higher education system that will develop in Russia? I think that we have been discussing them today: public–private partnerships. The state will continue to invest where it is currently investing. But private businesses will participate in the implementation of specific educational projects, including the creation of special-purpose funds, endowments, and other tools to support cutting-edge educational institutions. These are qualitative changes to the content of educational programmes and educational technology. Educational programmes will become more practical and technology will become more modern. I am talking about the implementation of modern management practices at universities. Naturally, these practices will arrive together with people, which means

that the quality of university management will be refreshed. In addition, as a consequence of improving the quality of cooperation between universities and the economy, we will have a meritocracy in terms of student selection and selection of teachers and researchers for positions at universities. A transition to the meritocratic principle will allow the best to get even better. Universities will finally become centres of both fundamental and applied research, as well as centres for disseminating innovation and advanced technology throughout the economy. Speaking generally, this is the future shape of the Russian higher education system. This cannot be realized without close cooperation between the Government and private capital, business, philanthropists, etc.

Public–private partnerships will play a fundamental role as these future changes take place in Russia, including in building substantive, administrative, and economic links between higher education institutions and economic institutions. Thank you.

E. Crowley:

Thank you, Dmitry. I think that, in view of the hour and in view of the fact that the Minister has to leave in about 10 minutes, we have time for maybe one or two questions from the floor.

L. Sorkin:

I have a question for the Minister. Mr. Livanov, you will recall that the last time we met was at the meeting of the Board of Trustees of the Moscow Institute of Physics and Technology (MIPT). My name is Leonid Sorkin; I am General Director of Honeywell Russia as well as a Department Head at MIPT. Do you not think that the Moscow Institute of Physics and Technology, however small it may be, is an example of an existing, functioning public–private partnership in education? To what extent should this example be copied elsewhere?

D. Livanov:

Of course, the MIPT model, which involves cooperation between the university and businesses as well as other research institutes, can serve as an example to others. It also allows MIPT to maintain its competitiveness among both prospective students and partners. It is hard to say whether this model will remain competitive in the future. We understand that the economic situation has changed a lot compared with 20, or certainly 30 years ago. Right now, MIPT is actively focusing on its own core research and it does not rely solely on the fact that student teaching will be handled by its core departments, as has always been the case. Time will tell whether this new strategy will be effective.

From the floor:

Everyone seems to be impressed with the efforts at Skolkovo. However, there is also a sense that this focus on the prestige model of Skolkovo is sucking the air out of the room for raising all the other boats, metaphorically speaking. There is this idea that there would be a Skolkovo in every town or every university in Russia and I am wondering about that policy. How do you raise all the boats? Or is a focus on prestige that is somehow going to universalize high-quality education?

E. Crowley:

I will start, and then maybe Dmitry can come in.

I think, first, you have to recognize that Skolkovo has a role to play in the Russian Federation's ecosystem of universities, and that is, that it is not just another research university. There are many great institutions of research universities and academies in Russia, and ours is one focused on bringing together, on building bridges between the science base of Russia, and commerce, industry, and innovation. So it is a special type of place – it is somewhat more of an institute, than a university. I do not really think that, based on my interactions, the other university rectors or university bodies consider us to be sucking the air out of the system. I think that we are viewed as an agent of change, which many leaders of the education system appreciate – the need for an example, something which is able to

be flexible with the rules, because we are a private university, we are able to be so, unlike the strict rules that so many Russian universities have to follow. So I, honestly speaking, have found nothing but a welcoming feel from the other university rectors from around the Russian Federation since we have arrived, and in view of this rather unique role that we are going to play.

Let me summarize your take-away points from today's lively discussion. I will start at the top and say that we have to focus on the competencies and outcomes that our students need the university for. This is an important area. In many ways, certainly for technical universities, industry is the ultimate consumer in some sense. It can have an important role to play in setting up the description of the competences. There are various ideas about how to do this: one is internships. Internships benefit both sides. Of course, the companies view universities as producers of talent, and therefore, if they attract students as interns, they will likely attract them as long-term employees. The other idea is the idea of master courses involving people from industry into the teaching. Particularly in Russia, I think that as Russian industry grows and more national multinational industries appear, we can have something like the French system where there are industrial relationships. There is the idea of co-investment alongside research grants that are given out by government. Let me thank the panel and commenters, colleagues, and the very quiet and attentive audience. Thank you all for coming.