ST. PETERSBURG INTERNATIONAL ECONOMIC FORUM
JUNE 21–23, 2012

Responding to Impact Technologies
BIG DATA FOR BIG DECISIONS – BUILDING 'DIGITAL EQUITY' TO SHAPE CORPORATE STRATEGIES
Panel Discussion

JUNE 22, 2012 — 16:45–18:00, Pavilion 5, Hall 5.1

St. Petersburg, Russia

2012

In cooperation with SAP

Moderator:

Pal Erik Sjatil, Senior Partner, McKinsey & Company, Moscow; Director, McKinsey & Company Eastern Europe

Panelists:

Jon Fredrik Baksaas, President, Chief Executive Officer, Telenor Group

Denis Bugrov, Senior Vice-President, Sberbank

Alexei Illarionov, Director for Information Technologies, Head of the Department of Informatization and Corporate Processes Management, Russian Railways

Maxim Nogotkov, President, Svyaznoy Group of Companies CJSC

Jim Hagemann Snabe, Co-Chief Executive Officer, SAP AG

Ren Zhengfei, Chief Executive Officer, Huawei Technologies Co., Ltd

P.E. Sjatil:

Dear audience, dear panelists, welcome to this session on big data. First I will give you some practical information: this session will be run in Russian, English, and Chinese. Unless you have mastered all three languages, I recommend that you use one of these interpreters.

What we mean by 'big data' is, effectively, the convergence of three main trends: generational data, the fact that we can store more and more data, and lastly, the fact that we can process a lot more data today than we were able to do before. This leads to huge opportunities in terms of analysing and leveraging this data. The purpose of this panel is to discuss the opportunities, but also some of the challenges related to this. With that, I suggest the panelists introduce themselves. We shall start with you, Alexei.

A. Illarionov:

Thank you. My name is Alexei Illarionov and I am the Director for Information Technologies and Head of the Department of Informatization and Corporate Processes Management for Russian Railways.

J.F. Baksaas:

My name is Fredrik Baksaas. I am Head of the Telenor Group, which is a telecommunications company which really tries to drill into a lot of this data collection that is going on. Having heard that we will do this in three languages, how about the Norwegian language on top of that? No? I understand. Thank you.

J. H. Snabe:

My name is Jim Hagemann Snabe and I am the Co-CEO of SAP. SAP is a global leader in business software and, of course, we are excited about the opportunity to solve the problems relating to big data, and see what we can do to change businesses through the analysis of large volumes of data.

P.E. Sjatil:

My name is Pal Erik Sjatil. I am the Managing Partner of McKinsey in Eastern Europe.

D. Bugrov:

Hello, my name is Denis Bugrov. I am the Senior Vice-President at Sberbank, and I am also responsible for the development strategy.

Z. Ren:

I am the CEO of the Chinese company Huawei Technologies, and our main issue is collaboration with Russia.

M. Nogotkov:

I am the founder and the President of the Svyaznoy Group of Companies and a number of other projects.

P.E. Sjatil:

We can see that big data is a very important trend and, as I said, there are three drivers that are leading to this. The first is generational data, which is completely different today than just a few years ago. To give you one example, at YouTube, they now upload the same amount of content in two months as the three main TV broadcasters in the United States (I think these are NBC, ABC, and CBS) would broadcast in one century.

The second trend which is driving big data is, as I said, storage. Again, to give you an example, today you can buy a hard disk for USD 500, and on this hard disk, you can store all the music that has been produced in the world.

Last but not least is the ability to process this data. Through new devices and with all the innovation around processing capacities, we can today process data with different devices in a completely different way from what we did in the past. Again, to give you one last example, the iPhone that many now have is actually a million

times cheaper, 100,000 times smaller, and 1,000 times more powerful than the supercomputers they had at MIT in the late 1960s. It is a little bit easy to forget that this thing was launched less than five years ago. Now, everybody is used to iPhones, iPads, and other HTC and Samsung devices, but these devices are less than five years old, even as a technology, in terms of when they were launched. Therefore, we at McKinsey believe that the usage of big data will be very important in terms of determining winners and losers in sectors, and if you leverage this opportunity right, you can create a lot of value. Equally importantly, if you do not, it will be a challenge. With this, I hand the floor over to you, Jim.

J. H. Snabe:

Thank you very much, Pal. It is a pleasure and an honour for me to be here; this is a topic that is close to my heart, or should I say, to my brain. SAP is celebrating its fortieth anniversary this year. The company was created based on a vision of real time information. What can we do if we have real time information available to people in organizations? Interestingly enough now, forty years later, we are trying to redefine 'real time' in the context of big data.

We believe that, on the technology side, there are actually three main technologies that will drive a massive change in how we work, how we live, and how business is conducted. Pal mentioned mobile devices. I think in its first wave, it is a consumer-oriented device, with lots of games and lots of interactions. We think that this device has huge potential to change the way you interact, not just with your employees, but also with your consumers. It is cloud computing, which is an opportunity to simplify access to advanced technologies, and with that, create solutions and opportunities for everyone to participate, not just the large companies that have the money to invest, and reach, of course, the mobile devices in cheaper ways. Finally, big data will be important: this challenge of enormous amounts of data that can be analysed, and what that means for how we can understand what is going on and optimize business.

Each of these technologies are significant individually, but when you bring them together, you can solve problems in a business context that were unsolvable before. Therefore, rather than having a technology talk, I would very much like to have a business talk and start with the business problems that we are trying to solve. Then we can see how these technologies can help solve this.

Let us take two steps back and look at the world we are in today. I would claim that it is, in many ways, a resource-constrained world. If we look at the next forty years, we estimate that there will be two billion people more than there are today, and most of those people will be in urban areas. There will be an explosion of cities. There will be an additional 1,000,000 square kilometres of urban space in this world, which is the size of France, Spain, and Germany all together. That will all be cities. There is the challenge of an aging population, with more people above 60 than children for the first time in our history. Then there is a new middle class which has tremendous expectations, in particular in the Asian market. All of these trends make us believe that we are in a very resource-constrained, tight situation in many, many sectors – not just raw materials, where the oil era may eventually end, but also, for instance, in food, where some people estimate that in the next 40 years, we will have to produce the same amount of food as we have done in the last thousand years.

This makes you understand that we have a pretty significant challenge in front of us, not to mention the issues around health care, pensions and taxation, with an aging population and too few young people to carry the burden. If we do not make significant improvements in productivity, then we will be facing some significant challenges.

The good news is that technology has proven to be a huge opportunity to solve problems in new ways, and with that, create new opportunities. Pal mentioned advancements in mobile technology. There are many technologies that, over just the last five years, have totally changed the opportunities we have. We are looking at this challenge of a constrained world, with lots of new demands, with a positive attitude, because technology may be able to solve some of these problems.

The two first technologies I mentioned (mobile and cloud) are in fact enabling a number of things. You have today billions of people connected in real time through a mobile device that is more powerful than the most advanced computers from 40 years ago. They are connected in real time. When we think of mobility, it is not just about the mobile users: it is the sensors that will be everywhere. With this technology, you will basically digitize the entire supply chain, which means you will know where the container is, where the consumers are, what they are doing, what their preferences are, and when the shelf runs out of goods. All of this information will be created on mobile-type devices and will be enabled through a cloud, so that you can collect this information at very low cost.

This gives the opportunity of insights into the individual preferences of your customers, but also an opportunity for completely new ways of optimizing not just each company, but entire value chains. You know exactly what is going on through the entire value chain, more or less from the raw material to the end consumer, and with this knowledge, you can optimize things we could not optimize before. If you look at the amount of empty trucks that run around in Europe, because they cannot be re-planned in real time, you will understand how big an opportunity we have to deliver more value in more real time and with that also save significant resources.

What is the challenge of that visionary world? The challenge is big data. It is the fact that we double the amount of data produced by mankind every 18 months. It is the fact that we are getting a pollution of information. There is too much data. I think Google taught us to find the needle in the haystack. We actually need to make sense of all this data and come not just to conclusions, but to decisions. We think we can add significant intelligence in that decision-making process.

The problem we have technologically is that all systems up to now were based on the assumption that data is stored on disks. We at SAP are challenging this assumption. The reason is very simple: the disk is the slowest part in a computer. It is in fact very slow, even though we have high-speed disks today. The amount of time it takes to read data from a disk is so long that systems are created with a lot of complexity to overcome the slowness of the disk. What does that mean? It means

we take the same data and store it in many different ways, so that we can answer questions within a reasonable response time because we have already computed the answer. If we had to compute the answer from scratch by reading all the data, it would be impossible.

The good news is that the main memory of a computer is somewhere between 10,000 and 100,000 times faster than disks in terms of reading data. If you add the advancements that we are seeing in processing, reading data from main memory and taking full advantage of processing, you suddenly have a quantum leap such as we have not seen ever before in technology. This is called memory computing, and we have experimented with it at SAP for the last five years. We are today able to manage enormous amounts of data, to read billions and billions of records on the fly and make mathematically advanced analyses of the data without pre-fabricating any answer – and we are doing all of this in seconds. Customers who used to take hours or days, now can do the same in less than a second.

The question is, what can we do if that is the case? If we break the assumption that data is no longer stored on disks but in the main memory, and if you can hold all the data of a company in the main memory and include all other data, like Twitter analyses and so on, what kind of problems can we solve that we could not solve before? I will give you a couple of examples. We believe that with this technology, we get a speed that allows us to simulate strategies. If it takes two hours to get an answer back from a system, you do not want to simulate too many examples. If it takes less than a second, you can start simulating various strategies. For example, which trade promotions will you have? Which offers to your bank customers will be more likely to have a successful outcome? You can, in real time, manage risk in a bank or fraud detection in insurance. With this, you begin to enable the prediction of the future with a higher likelihood, instead of just reporting what happened in the last quarter.

On top of that, as was also very well described in the McKinsey report, you can start understanding the individual preferences of your customer and deliver on those individual preferences at zero cost, because it is all done in technology.

Here are a couple of examples: in retail, the obvious example is understanding your customers, loyalty customer cards and, with that, enabling individual promotions that make sense for the individual customer. If you combine that with face detection, you can actually give that proposal to the retail customer when he or she enters the store or goes on the online store, if he or she allows that.

In banking, the same thing can be applied: they could not only allow for an understanding of the individual requirements of a bank customer – knowing that my daughter is turning 18, for example, and that I might need better insurance on my car – but they could also go to new customers who were not customers before, who all have a mobile device and who you can certainly reach at zero cost.

We think we can optimize energy by looking at the electric car as a way of storing energy at night, and enabling the intelligent household to start optimizing the demand and the supply of energy. Each household will sell energy from the electric car when the peak demand is there and store windmill energy at night when nobody else is using it.

Finally, in healthcare there is probably the biggest breakthrough, which is necessary in a world of too many old people: with memory computing and our technology, we are able to do DNA analysis, for instance in cancer treatment. The DNA of one person is a two-terabyte data set. It is a very large data set. If you can analyse the DNA of the cancer cell compared with the healthy cell, you will be able to understand the exact mutation happening in an individual patient. With an unstructured search of medicine, you will be able to find the right treatment for exactly that patient, which is very different to how cancer treatment is generally done today. It is currently an analysis that is today done over two days. It costs more than USD 100,000 per patient, whereas with memory computing, we can do this in one minute, at a cost level that is below USD 4,000.

In summary, we are on the cusp of a significant revolution. The data that is being produced can be used in new ways, and we believe that only through memory computing can we solve this. I challenge the audience to come up with problems that were unsolvable until this moment, because I think that there are new

technologies that will enable us to solve problems and, with that, create a world where we can manage the resource constraints of the future. Thank you very much.

P.E. Sjatil:

Thank you. You have both explained all about some great technology, as well as the opportunities that it could lead to. I think I should pass the floor to you, Denis, to see if you agree as to whether that is actually something with leverage for a big institution like Sberbank.

D. Bugrov:

Thank you very much. I completely share your enthusiasm for what we in Russia call 'supermassive data'. We are convinced that the opportunities presented by accumulating, storing, processing, and most importantly making practical use of data, are truly huge. We do not even fully understand yet what exactly we are capable of doing. Let me give you two examples.

We have calculated that at Sberbank we store at least twice as much data as is stored at the famous American Library of Congress. At best, we use 2.5% of that information. Each day it grows in volume, and the most tragic issue is that when we try to sort it out somehow, to prepare and standardize and pigeonhole it, and when we use standard approaches to processing this data, very important components are lost. We lose many of the parameters which are contained in the raw data.

Our vision, the alternative paradigm that we need to find, is quite the opposite: we want to accumulate, store, and be able to process that data in all its richness, in its raw and completely saturated state.

We can see an enormous number of completely practical applications from the perspective of our business. We completely share that point of view which states that the future is about mass personalization of the services that we provide, at the most detailed, granular level possible. The point of our business (that is to say the banking business) is, first and foremost, control over a large volume of information. Apart from the enthusiasm we feel as a large company which is trying to do

something tangible in that direction, we are already encountering an entire range of particularly practical problems, which we will all have to resolve.

The first problem is that the existing storage and data processing technologies do not have sufficient capacity to work with all that data effectively.

The second problem is that large organizations do not currently have sufficient skills and capabilities to work with this volume of information. We do not have enough staff, the staff we have do not have the required qualifications, and we do not have the necessary organizational solutions for full implementation of the enormous potential which exists in this situation.

The third problem which we encounter is related to the fact that, as mass personalization of services becomes possible, it requires a thorough rebuilding of the fundamental processes of organizational operations: for example, the way you offer your clients a line of credit or collect outstanding debts.

Finally, there is a risk that in chasing after a nice idea, we will get too excited about new things and forget about practical applicability. Therefore, the issue is not about whether it is difficult to work with the data super-archives, but that if we take this work seriously – and we are convinced that it is the foundation of the future competitive advantages of companies such as ours – it will require a thoughtful and thorough rebuilding of corporate methods of working with information.

We would need a different IT architecture. We are currently thinking about how we can do this. We would need a completely different approach to collecting information. We would need investments, primarily in people who are able to work with these tasks and large quantities of data. I believe that, in relation to this, our demand for physics and technical university graduates will grow. The main issue is that we will need to completely switch to the paradigm of mass personalization of our services, and this is a completely different approach to working with clients.

The use of very large data sets is one of the most important and interesting tasks for the next 50 years. I do not think that any large company, especially those that work with a large number of clients, can ignore this area and or avoid investing significant funds in it.

P.E. Sjatil:

Just one question, Denis. What do you think about competition? Do you think that big data could also enable new and more nimble competitors online, for instance?

D. Bugrov:

We are large, and that is why we will win this competition.

P.E. Sjatil:

That is a good answer. Fredrik, we just heard from a bank, so as a telecom operator, do you see this in the same way, or do you see it very differently?

J.F. Baksaas:

There are at least some aspects that we can give some reflections upon. First of all, the telecom sector is known as an enabler. We heard in the mobile health session previously today that there are a lot of concepts out there, and that the telecom sector basically enables, because things are getting connectivity. People are more in mobile positions and want to access their data. In this session, I will further touch upon how telecom operators, and in this case, Telenor, use our data and how we think and try to opt into that scene, in which the top players have shown that data insight can also create business potential in a new way.

The competition in the telecom sector was, in its initial phases, very easy. There was no connectivity being offered. Then we created the technology we understood to be deployed according to radio waves and radio planning, and we started the service. Of course, since voice and SMS were so easy for everyone to both understand and to connect to, we did not need to know that much about the market. In a way it was easily said: you roll out your network and you arrange the queue of customers that want to get on board. It was an easy and very happy period in the life of the telecoms.

But now that the world is basically connected, with six and a half billion SIM cards out there, that competition has turned into a different game. How do you nurture and develop your customer base, and how do you compete for customers that are already customers with another operator, for example? There is a completely new situation among the telecom players. On top of that, the customers have got an enormous amount of offers to choose from. The Smartphone opens up a whole range of new, competitive business models that bring new attractions and new possibilities. Again, how you understand your market plays a role in that. As a telecommunications company, we believe that if we can handle our customers across the different platforms, but also across the different touch points, where the customers come into connection with our services, that is what is important. This could either be in the handset itself, or when you move into a dealer shop where you want to explore the next handsets and so forth.

We are in the midst of looking at how to deal with customer data. I fully understand the SAP's ambition, when you are opting into working with people like us with your ideas on how to deal with the big data structure. However, we will also probably want to do this in our own ways. Let me then give you a couple of examples. As a distributor, we really want to make an individual business proposition to our customers, but not so individual that we as a customer feel the offer coming too close. I will give you two small examples of this. We want to make new price plans, for example, in one particular area, in one particular country, because we see that our competitive position in that geographic area might be weak. In that case, we can basically use the data analysis of our customer records in that region, in order to really pinpoint a new offer. We can even do it as an SMS to that specific customer. How specific you can be and where the privacy threshold is needs to be taken into account. In that sense, we are similar to a bank, because a bank knows where we have been, they know where we have spent our money and they have all the information on how we behave in society. The question is to which extent we can use those details.

If you think about it, Google and others do exactly that. They do not follow you physically, but they follow you on the net. They know where you have been, and they use where you have been. I think Amazon was the first one that really brought forward our reading habits and book-buying habits in order to trigger our interests for the next book. That was the way it was done initially. Here, the understanding of this and of the balance to be struck against the privacy threshold, which will be defined in every society by local rules and local settings, needs to be taken into account.

How can we measure these things? In Telenor, we strongly believe that the aim is to get to the status where we create relevance for our customers to the extent that this customer becomes our agent, our good word distributors. But I also see the possibilities of overstepping this by putting too much irrelevant information onto the handset or the PC. You need to strike that balance on how you use this data without overstepping and feeding too much into each and everyone. I am sure we have examples of personal experiences in this room. I remember one example of this from when Google took Street View and made that visible in Germany. They overstepped the line, because I am OK with seeing my house from up there, from a satellite, and knowing my car is parked in my garage, but I am not OK seeing myself waving to the Street View car when it was there. There we have got an expression of where privacy thresholds are.

P.E. Sjatil:

I have one question. You mentioned Google and other innovators. Telenor is competing against these players in this space. We all know – and you mentioned this, Denis – that this space is maybe one of the most bottlenecked in terms of coming up with new services. How are you able to construct a value proposition that competes with a company like Google effectively?

J.F. Baksaas:

I do not think we are at the end of an answer to that question. It is, for sure, a dynamic answer as well. But remember that in this IP world, as it is developing, there is a shared challenge of realizing these new things. It is not a question of remuneration alone anymore; it is also about other motivating factors. In particular, that goes for the challenges. I think there is a whole package of trigger points that you have to use. If you think in the old-fashioned way for the next five years, then you will be left like the ship owners that stuck to sailing ships in the 1920s when the steamers came around.

P.E. Sjatil:

Thank you. We will move onto one of the leading companies that actually build the networks that are being used to transport all this data. I hand over the floor to you, Zhengfei.

Z. Ren:

Russia and China possess strong economic bases for development. We have been working in Russia for 15 years to date. We would like to respond to Mr. Putin's challenge to increase the number of investments in Russia, in the development of its IT industry. We have a very strong foundation for long-term cooperation. After 15 years of working in Russia, our company, Huawei, has become an integral part of the Russian market. Under President Putin's leadership, Russia is going to have an even brighter future, and Russia–China relations will enter a golden age. By using this opportunity, we are planning, in accordance with a government plan for Russia's development, to increase our investments in the development of the electronics and IT industries. The key direction for future development in the IT industry is the development of mobile technologies: this is a new strategic territory. The difference is that during the competitive fight for cyberspace, we must not use occupation methods to form closed spaces, because network structure is based on openness. Considering the advantages in Russia, Huawei is continuing to increase

investments in research activities and industry, in order to contribute what we can to Russia's future as a leading power.

Information should provide freedom to humanity. One must approach its rapid growth from a proactive, proper position. We should not think of it as a problem. In the next 30–50 years, the development that takes place will be much greater than the development that humanity has undergone in the last 5000 years. We believe that the explosively growing volumes of information must be controlled; however, humanity is incapable of creating an absolutely safe protective boundary. The bottled-up information will easily overcome it, in the same way that the waters of the Volga or the Amazon will overcome a small dam.

The speed of development of IT technology is much greater than the progress in security systems. There is a high possibility of a general breach of the dam by data streams, and of a general flood. In such a situation, any security measures would be useless. The information flood would be like the one in the film *2012*, with one important difference: it would never stop. The construction of new, stronger, higher dams would not resolve this problem; they would all be overwhelmed. Our task is to create a much more powerful data pipeline than would be needed for the waters of the entire Volga or even the Pacific Ocean; this pipeline would provide the opportunity for interaction and data transfer.

The specific nature of information is defined by its openness. We can use this characteristic in the best possible way, and act according to the situation. When the speed at which information is distributed is significantly faster than the speed of the development of security technology, our industry will have to face the issue of ensuring information security.

Network security is a common problem which we need to face together proactively. Russia has a powerful defence sector, rich experience, enormous accumulated knowledge, and a large number of highly prepared specialists. This foundation gives particular advantages for the development of the IT industry and presents enormous potential for future development. Therefore, Huawei, as a leading high-tech IT company, will continually work towards creating a harmonious commercial

environment. We will create an integral network within the sector, consisting of enterprises in the areas of system integration, localized production, and local research and developments which will be actively used in establishing the Russian IT market. We will also train new specialists and increase the overall competitiveness of the Russian industry. To this end, Huawei will increase its investments and contribute to the rapid development of the Russian IT industry.

P.E. Sjatil:

Thank you. Now we will move from telecoms to another industry – the transportation industry. Jim told us that it is possible to digitize the whole supply chain, and I guess that would mean all the wagons on Russian Railways – you would have control of them. It is interesting to hear what you would say about how you would leverage big data.

A. Illarionov:

Thank you for the opportunity to share the Russian Railways position in this area with you. For us, 'big data' or 'supermassive data' is not an issue for tomorrow or a question of expediency. This is a completely practical issue; we have already been dealing with it for a long time.

With regard to the Russian Railways' business, it would be best to describe in a few numbers the potential which we currently have in the IT area, and which we use for addressing our own business issues and serving our clients. It can be illustrated simply. Currently, the size of our archives is about 3.5 petabytes. In the last five years, we have increased this volume by more than 250%. These numbers cannot be compared to the growth in the number of our users, which is just 30%. It is obvious that business in these conditions demands new data and, at the same time, more careful and professional treatment of the existing information, because the surplus of data can often lead to a lack of responsibility and even careless treatment of this data.

I would like to talk about several trends which we are currently observing, not just at Russian Railways but also at other companies. The majority of information which we create, process, and store is information about our current production activities, our transactions. It is possible that in the very near future there will be a significant shift, which we desperately need. The proportion of data related to the strategic assessment of the external environment and relationships with our clients will grow. This data set will become our primary data set. It is possible that, due to a reduction in data on current industrial activity and to the new technologies which have been discussed here today, we will be able to significantly improve the quality of data, make it simpler, and remove the excessive replication which currently exists only because our transactional systems are not very suited to business analysis tasks. At the moment, we are forced to download data into secondary storage and analyse it from there. I believe that the shift that I mentioned will be fundamental. We will be working more with information on external environment factors which influence our business, and the behaviour of our clients, and making it more detailed and personalized.

I would like to say a few words about the factor which, I believe, critically influences the solutions to the problems of 'big data'. Business assumes that information will be protected: not simply that the threat of leaks will be removed, but that there will be no chance of falsification, and that protection will include special measures for scrubbing the data and increasing its reliability. This is a very important issue for us, and in this respect we implement many technical, technological, and organizational measures. I cannot say that we have completely resolved our issues, but I can state that we have not suffered any significant losses related to breaches in IT security. It is possible that, as the volume of our data grows, the issue of protecting this information will become more complex and even more significant.

There is another factor that was mentioned today: the widespread accessibility of mobile devices. It is important to consider not only the general mobilization of information, but the fact that relatively cheap everyday devices significantly influence user training. We can sense that. The more mobile devices our employees

have, the easier it is for them to use IT systems in their everyday work. It makes life easier... However, it increases their demands on the systems they use, the data they process, and the data processing methods they utilize. Therefore, we are forced to implement the GUI conveniences they have in their mobile applications in our industrial systems.

The conversation about working with data could be endless. We are ready for growth in the volume of processed information, which will benefit our business. There is one last point that I wanted to mention. As we have large volumes of data, it is expedient to set up information exchange that is valid from the point of view of technology and business development. This could be of interest to the large companies which operate in the Russian market. Information exchange can significantly reduce accompanying costs. These costs include the need for data replication, as well as the production or duplication of data by the client and then by the producer (for us, this is the consigner), the transport company, the freight carrier, and the freight receiver. I believe that mutual integration of IT systems and their mutual conformity are significant tools in terms of increasing business efficiency.

P.E. Sjatil:

One quick question. You talked about the increasing usage of mobile devices. What do you think about this in terms of data security for a company like Russian Railways?

A. Illarionov:

Widespread distribution of mobile devices is a part of modern life. To try to oppose them is on the one hand almost impossible, but on the other hand, quite detrimental. It is obvious that we need additional security measures, but the market already has all the technical solutions; they just need to be properly applied. The user who has a mobile device and knows how to use it is used to particular responsibility. If he saves his personal data on the device and he is concerned about the safety of the

data, then he will also be concerned about the information he uses at his workplace. Mobile devices teach and train people.

P.E. Sjatil:

Thank you. It is now time to look at the last sector, although it may well be the first sector that comes to mind when you think about big data, and that is retail. Indeed, with big data it is clear that we can do a lot more tailoring, and there are big changes happening in retail. I shall hand over to Maxim Nogotkov.

M. Nogotkov:

What is important to us in relation to big data? It is the ability to understand the client and his individual requirements. In the modern world, people are using the Internet more and more. Information on those users is being accumulated, and the traces of their behaviour on the Internet are becoming more obvious. For now, this information is held by each organization separately: for example, banks accumulate information about expenditures, credit, and cards. Mobile operators and other software creators have information about geolocation and movements. There is also information about how people react to advertising and what they respond to. There is information about what books, music, and films users look at on the Internet. Soon we will be able to tell what users are watching on TV: in fact, we will be able to distinguish each individually.

The relationship between the people and the government is slowly moving onto the Internet. Today we can find out who a user's friends are, and we know about his social personality. E-sales are very informative; in developed countries, they already make up more than 10% of retail sales. We can find out what services and goods a user prefers. Obviously, all this data will be slowly integrated. This process is already happening. And as this data is integrated, the user's profile becomes clearer.

How can that information be used? Right now the most common method for using individual information about people is targeted advertising on the Internet. There are

real-time bidding platforms which practically tailor advertising to each user. Both in the USA and the UK, 15% of banner advertising is placed precisely in this way. There are no projects in Russia just yet, but we think that they will soon appear. The response to individually tailored advertising is 2–3 times higher than it is to random advertising. This is only the beginning; with time these numbers will grow. This means that, by using personal information about a potential client's consumption profile, we can make a several-fold reduction in marketing expenditures on that client.

This information is very useful in risk assessment as well. If we have information not only on how the user borrowed and paid off credit, but also on his everyday movements, his consumption profile, and daily payments, then we can assess risks much better. According to our assessment, the cost of banking and insurance companies' risks could be reduced by an order of more than 10%. We have carried out a number of experiments that demonstrated that if we use additional information about a user's profile, we can reduce risks by 10% or more.

You might recall the anecdote about three blind men touching an elephant for the first time; they could not figure out what they were touching. I think that a consumption profile allows us to create a complete, comprehensive understanding of a user.

One very important application of this for us has become e-sales. The key indicator in this area is conversion: how many visitors to the site turn into customers? On average, the rate of conversion on the Internet is barely 2%, at least on the Russian Internet. If we could build personalized shop windows (that is to say, to show the user what he is interested in), then if we could increase conversion by even 20–30%, this would create a colossal competitive advantage and become the key difference between profitable and unprofitable companies.

These are the key applications of the technology that we can see right now. There is a colossal lack of analysts: people educated in the right field who know statistics. We believe that demand for these professions will increase several times over in the near future.

P.E. Sjatil:

Thank you. When you think about Russia and retail, to what extent do you fear competition from Amazon and the rest of the world for leveraging big data? To what extent do you fear big Russian online retailers and the competition from them?

M. Nogotkov:

We are one of the top five online retailers in the country. One of our projects will probably be number one next year in commerce, so we should fear ourselves.

P.E. Sjatil:

What about foreign companies, from the United States for instance, like Amazon?

M. Nogotkov:

We do not fear Amazon, but they, of course, would be a very serious competitor if they decided to come to Russia. We have not heard about this yet.

P.E. Sjatil:

Fredrik, please go ahead.

J.F. Baksaas:

I think there is an interesting relationship between, for example, the telecoms sector and Maxim's activities in retail. If he, as a retail chain, says to me, as a telecoms operator, "I can demonstrate that I will get you above average customers for the next period. I know enough with my data and my customers and if I couple it with my data on the same type of customers, it is a winning business proposition", then you have used the capacities of the data that you have. But of course you need some intelligence that clicks together, the intelligent parts of these information pieces that are out there, and you need to exclude a lot of information that is not relevant for the conclusion. If you can demonstrate a good link between them, then

we that need to distribute the physical things which are in command of the digital channel ourselves. On the other hand, we need the touch point with the retail that is there. Then we would have a utilization which would pinpoint and segment the market much more visibly for us, and hopefully also be much more beneficial in the long run for both of us. He would deliver a higher value kind of distribution product to us as an operator.

P.E. Sjatil:

Do you agree?

M. Nogotkov:

Of course I think that the data involved should be person-centric data, and we should combine more and more data about particular people. Honestly, I think people in the future will openly share more data about themselves, answering quizzes and questionnaires, just to get better focused deals, coupons and so on. I think there will be more and more open information about a particular person.

P.E. Sjatil:

What do you think about the opt-in and opt-out question?

M. Nogotkov:

I think there will be a level of information one can share with everybody, and there will be a level of information like Google Street View, which people will keep closed. But I think that with the information that people are ready to share with companies we can improve our marketing efforts two, three or four fold. It is a very important source of data.

D. Bugrov:

I have one question: to what extent do people have to agree to the collection and use of their personal information? This is a key question, in particular from the

legislative point of view. That is to say, whether the users give their agreement by default or not, opt in or opt out. Here we can see a situation in which even for the existing volume of data (especially taking into account the Law on Personal Information Protection), getting a clear agreement for the use of this information is a truly enormous task which perhaps does not even have a technological solution at this stage. It seems that the appropriate next step would be to resolve this issue at the regulatory level. And we think that the 'opt out' option is the correct way to move forward, because people need to make independent and informed decisions of this sort.

P.E. Sjatil:

SAP, where do you see the whole world when it comes to how governments deal with this? Have you seen any good practices?

J. H. Snabe:

This is one key element. Unfortunately we are in a situation where the rules and regulations around data privacy and protection are done by country, yet the Internet knows no physical boundaries. Therefore, there is an effort needed to harmonize this. I am in the European Parliament next week to discuss privacy rules and how we can drive pragmatic and fast harmonization. At least we should get some rules that are consistent.

To solve the problem, I believe that you need to empower the consumer with the choice of how much they are willing to give away, and you need to do that in a very transparent way. If you do so, I agree with Maxim that the consumer will choose a level of data collection, because you do get more relevant information. Today, we get spammed by all kinds of irrelevant offers. I believe that there is a category of consumers that will say, "I want it to be more relevant, and to come from trusted partners."

I want to emphasize the word "trust". I believe that this will only work when trust is high. That is why, when we think of these technologies, we think also of the

importance of, for instance, bringing the banking industry into this equation, the transportation industry into this equation, and the postal services into this equation. These are companies that we have trusted for many years, and that enable a level of trust in a network that is very important in order for us to achieve that future.

There was a question on security. I agree that there will be a constant challenge on security, but we should not forget that that challenge is already there today. The moment we start connecting our devices and our systems to the Internet, there is a security challenge. In this new or next wave of Internet which I call a 'business web' – not a consumer web, but a business web, because it is created based on enterprise qualities of software, not gadgets for consumers – we believe that there is an opportunity, for instance, to argue that if you want to be in that business web, then you are willing to give data and privacy: you have to identify who you are. That is not the case on the Internet today. On the Internet today, you cannot tell who you are, or you can even pretend you are someone you are not. We think there is, again, a voluntary level of quality where users act like they do in traditional business systems: they have access rights, they are identified in secure ways and, with that, they get a level of service which you cannot achieve with the current consumer levels of quality.

P.E. Sjatil:
Fredrik, do you agree?

J.F. Baksaas:
I would just like to make a small comment. I think this is really quite easy, if we think of it in the following way. If I buy a magazine, that is a magazine which is targeting many people, and I would gladly accept that there are ads in that magazine. If I am in the mood for this, I might be triggered. But my mobile phone, my Smartphone, is mine. It is mine, and so I want to control what comes onto that mobile phone. If I am in the mood for getting to understand what kind of restaurant is in the neighbourhood, I might say yes, I am willing to receive some information about

restaurants, or building materials, or yachts, or whatever, for a period of time in my life. But I would not generally accept that I will be spammed. Then, I would opt for another service probably, that would shelter me from that.

Then, of course, again, we are different. On an individual level, some people want it in that fashion, and others in another package. Since the phenomenal strength of the mobile phone or the iPad, it is a personal thing. You want to decide more of it yourself.

P.E. Sjatil:

Thank you. Are there any questions from the audience? I suggest that if you have a question, stand up and say who you are, and address your question to the people on the panel.

From the audience:

May I ask a question to Huawei and to Ren Zhengfei? You mentioned cyber security: how does Huawei manage the inter-vendor questions that arise between the big vendors of the world on security issue? I guess there needs to be some standardization here?

Z. Ren:

In the future, we will have problems on a scale that we can hardly imagine right now. We provide technical solutions for broadband. We are like a railway company: we provide the rails, but we cannot be responsible for the cargo transported on that railway. In some situations, we can establish some sort of filter to protect the safety of transported goods, but we simply cannot assure the safety of everything that is being transported on our railway. At the very least, this task is too much for us at the moment. However, the technology will be developed, and we will slowly find the solution to these issues. I do not know whether you find my answer satisfactory. We can make one exception. If this stream is larger than the Volga, if it is more like the Pacific Ocean, then how can we resolve the problem of IT security, even if we have

the most advanced technical solutions? Of course, we can assume that the growth of information streams is not going to be that explosive, but we still have to be aware that it is going to be big.

D. Sanatov:

My name is Dmitry Sanatov; I am from the Centre for Strategic Research North-West. I once asked a representative of one international company how they select the technology that they would like to implement. At the time, his company was flooded with suggestions. He told me that they only looked at the technologies which gave them an obvious competitive advantage on the world market. I would like to ask a question of the Russian Railways representative. What is your benchmark for success when implementing various technologies, and how do you select them?

A. Illarionov:

Unfortunately, we do not have suggestions to resolve a lot of our issues, because the tasks which we work on are often very complex and large-scale. I would like to have a healthy stream of ideas, but currently the stream is quite thin.

However, selection is easy: from the entire range of proposals that we see, we try to select the proposals that meet our business requirements, that allow us to reach maximum efficiency. We select the proposals which seem to be most feasible from the point of view of our staff and our resources. Obviously, we select technologies which have long-term prospects. For a number of tasks, the decisive factor is the developer's readiness for long-term collaboration and successful cooperation with us. This criterion is particularly important, as the projects we implement are usually long-term ones, and stability in partnerships is very important to us.

From the audience:

Mr. Nogotkov, you said that in the future, we are looking at combining large stores of information. Is it possible that this collation will be large-scale: for instance, large

cross-industry data banks, or information about clients from banks and social networks? Are they already working together? That is my first question. Second, are large players such as Google going to share information with someone else about their users if they have to?

M. Nogotkov:

There will certainly be some exchange. If we are talking about social networks, then I think that at present, Facebook is limiting the use of its information. It is limiting the possibility of importing this information without the user's consent. But despite this, Facebook has recently implemented a platform which allows it to personalize advertising. That is what is called a real-time bidding platform. This is how Facebook works at the present time. In practice, there is already an online auction for the most relevant advertising proposals.

In a number of situations, the exchange would only take place with the user's consent. It is quite possible that in many countries, the keepers of this information will be credit organizations. In Russia, these organizations currently mostly store information on defaults and borrowers. But in Britain or the USA, marketing information has become their business, maybe as much as half of it already. They have been working in that direction for long time. In Russia, this is all still at the beginning of the process, but it will develop quickly.

P.E. Sjatil:

If nobody else has any more questions, I will ask Denis Bugrov just one more thing. We have spoken a lot about the opportunity today from the customer's perspective. However, I think Mckinsey also sees big data as a huge opportunity for improving productivity, automation, decision making, etc. For a big bank like Sberbank covering a vast territory like Russia, how do you see big data from that angle?

D. Bugrov:

There are plenty of examples of this in our work. Earlier, we had a question about selecting proposals. In essence, this is a topic which we, as an organization, are actively promoting, like crowdsourcing. How do we deal with the huge volume of ideas and proposals that we see? How do we select the best ones out of this lot? Within Sberbank we have a platform called the Ideas Exchange. I know that Russian Railways has a very similar approach; we are exchanging experiences. In the last two years we have received about 100,000 ideas and proposals, and by implementing them we have made a little under RUB 10 billion in pure economic terms. This profit is due to the fact that we have learned how to collect a huge volume of proposals from almost 140,000 people, all registered on this platform.

There are many examples of how big data can be used in different situations. We have discussed client information. Obviously, this is key, but this information is used in any part of our business, whether it is optimization of advertising costs or control over workloads in operational contact centres or cost of risks. I completely agree with Mr. Nogotkov that risk assessment can be taken to a new level, and basically, this is what we are doing now. In the last four years, our final losses, that is to say the chance that we will lose some funds on credit, have been reduced to 20% of what they were simply because we have been able to aggregate a huge volume of data about our clients. This initially allowed us to sift out fraud artists, and now it permits us to make individualized proposals to our borrowers. Big data is a totally universal issue that can be used in client activities or everyday business operations.

P.E. Sjatil:

Thank you. This session has come to an end. I will not try to make a long summary. I believe the whole panel tends to agree that this is a huge opportunity, but also with some challenges ahead. The one thing we should not forget, I believe, is that 10 years ago, 75% of all data was analogue. If you reflect, actually, this is a very new thing. Doing what we are talking about in terms of this type of data process is very hard when almost all the data is analogue. It is less than five years ago, as I said, since the first iPhone was launched. The iPad was launched less than four years

ago, so many of the devices that are driving this trend are all new. I think we should not underestimate the effect this trend will have if you take a longer-term view, just progressing forward from the development we have seen in the last five years. With that, thank you very much. Thank you, panelists. Thank you, audience, and have a nice trip back from St. Petersburg.