Western CIS • Belarus

Providing Affordable Health Care to the Poor: Telemedicine in Belarus

Prepared by • Alesia Krupenikava
Reviewed by • Aline Kraemer
Sector • Healthcare, ICT
Enterprise Class • Large Domestic Company
Executive Summary

Cardiovascular diseases are common among the population of Belarus. Belarus lacks quick cardiac diagnostic services in many remote areas outside of major cities. Smaller towns and rural areas of Belarus have few, if any, medical personnel that possess the necessary qualifications to provide an accurate diagnosis and treatment of cardiovascular disease, particularly in case of emergency such as a heart attack.

Telemedicine offers a solution to this problem by connecting a doctor in a local hospital with a cardiac specialist in a central hospital. This cardiac specialist can be instantly sent test data, such as an electrocardiogram (ECG), and can then quickly provide a diagnosis and recommend a treatment. The provision of these kinds of services is also extremely valuable outside of emergency cases, as patients are not required to travel to the central hospital to receive tests, or to wait long periods to receive results.

Though many of the elements to provide telemedicine were available in Belarus, provisions had never been made to connect rural hospitals to the Internet. MobileTeleSystems (MTS), the largest cell phone provider in Belarus, recognized an opportunity to both enter a new market by providing telecommunication services to hospitals, while also improving the health care of the poor. A pilot project was undertaken in 2008 by MTS, along with the UN Initiative Global Compact in Belarus and the Belarus Ministry of Health. Its main objective was to demonstrate to both the government and populace the possibility of offering telemedicine services in Belarus as well as to demonstrate its value for underserved areas. For this purpose, MTS equipped the rural hospital in Ratomka, an underserved village near Minsk, with a handheld ECG device that could transmit test data digitally, as well as free internet access and a free mobile phone specially equipped to transmit electrocardiograms. In addition, the region’s central hospital was given free Internet access for a personal computer equipped with special software that could receive the data. As a result, patients living in Ratomka and requiring cardiac services can now be diagnosed and treated locally, rather than traveling to the central hospital. The latter can be time consuming and expensive for the poor, and may not even be possible for patients who are elderly or whose health is unstable. During the first eight months of its operation, around 270 patients used this service.

Belarus operates a state financed health care system, and as such, the government makes all purchasing decisions for state hospitals. The free equipment and Internet services were provided by MTS as an investment meant to attract the attention of the government and prove the social benefits of using mobile cardiographs in remote areas. Now, as of November 2009, four more hospitals in remote areas of Belarus have started using the mobile cardiology systems for providing cardiac consultation to patients. Most of these hospitals are now paying MTS for using their services.

Public-private partnerships, such as this one between MTS and the Ministry of Health have been rare in Belarus and much of the credit for brokering this partnership is given to the UN’s Global Compact initiative. The Global Compact, which is intended to promote Corporate Social Responsibility (CSR), and of which MTS is a member, provided a framework in which both parties, MTS and the Ministry of Health, could come together in order to create such a partnership. While telemedicine is still in the early stages of development, it has quickly gained the attention of the population and the media, as well as government leaders. Furthermore, it has already demonstrated positive social, economic and environmental results. More than 300 people, most of them being in life-threatening situations, have
received quick ECG interpretation during a period of 9 months, which in some cases saved their lives. In addition to the reduction of travel costs for the poor, telemedicine positively impacts the environment due to the reduction of travel related carbon emissions.

The mobile telemedicine complex used in this project, the Cardian-PM, has been developed domestically and is highly competitive with similar products in the world. While many hospitals in Belarus have received this equipment through a separate government program to support small towns, their mobile capabilities were not being utilized. Rather, doctors either interpreted the results themselves, or printed out the results and hand-delivered them to a cardiac specialist in a central hospital. One of the primary reasons for not transmitting the data was a lack of Internet connection.

MTS is now extending this telemedicine model to other regions of the country, including to the territories most affected by the Chernobyl accident. If most hospitals in Belarus begin using this equipment, MTS stands to profit from increased sales, while helping to solve an acute problem with cardiac treatment in remote areas. According to financial projections for 2009-2013, the revenue from services and the gross profit from the sale of devices for MTS could average $17,182 USD a year.¹

¹ Source: MTS financial projections
Introduction

On a summer day in the village of Ratomka, Belarus, a 65-year old woman fell ill. The local emergency service brought her to a nearby hospital, where she told the doctor that her heart felt like it was jumping up and down. The doctor performed an Electrocardiogram (ECG) on her right away but was puzzled by the results. The ECG had abnormal readings that he had never seen before. Without hesitation, he sent this ECG to an experienced cardiologist in a central hospital over a cell phone with an Internet connection. The cardiologist in the central hospital looked at it and immediately sent her diagnosis back to the doctor in the village. The whole process took less than 10 minutes. Based on the cardiologist’s diagnosis, the local doctor was able to quickly administer the proper treatment, saving the woman’s life.

“Thank God the local hospital had a mobile cardiograph. If they didn’t, the doctor would have to drive me in the ambulance car to the Central Hospital in Borovliany. And it’s a long trip. It would take us around 40 minutes to travel in the ambulance on bumpy roads. In the best scenario, they would put me in the hospital there and give me the right medicine, but only an hour later. In the worst scenario, I wouldn’t have been able to make it to the hospital. It’s the heart; you never know what can happen in several minutes when it’s in critical condition.”

Galina Rogovtsova, 65-year old patient

“The patient had a very difficult case of arterial fibrillation arrhythmia. She needed urgent medical consultation from a cardiologist. The mobile cardiograph the local hospital has in Ratomka was crucial. It was the best scenario for her. It saved her life. When ECGs in similar cases are not interpreted right and quickly, patients can die.”

Elizaveta Medvetskaya, cardiologist at the Central Minsk Regional Hospital

This woman’s story had a happy ending due to a mobile cardiograph, a modern piece of cardiac diagnostic equipment that can send ECG data over an Internet enabled cell phones. The cardiograph, produced by Cardian, a Belarusian company, was purchased by MTS, the largest mobile operator in Belarus, in a joint partnership project with the Belarus Ministry of Health and the UN Global Compact.

This case study will depict how this life saving idea evolved, provide further information on the context of the business, an analysis of the constraints MTS faced and how it overcame them and a review of the business model and financial projections. In the penultimate chapter, the case study analyses the actors that contributed to making this business model work. The last chapter analyses the economic, social and environmental results generated through providing telemedicine in rural Belarus, as well as the outlook for the future of telemedicine.
The Idea – Journey of Diverse Partners

MTS joined the Belarus Local Network of the Global Compact, a UN initiative aimed at promoting Corporate Social Responsibility (CSR), in 2007. The Chief Advisor of the Global Compact encouraged each member company to develop a project that would allow them to use their expertise and core business – in the case of MTS, mobile telecommunication – to contribute to solving social problems and reaching the Millennium Development Goals in the country. The General Director of MTS, Vladimir Karpovich and his team began searching for a project they could develop to produce a noticeable impact for Belarusians, but that could also be good for his company.

The Chief Advisor of the Global Compact in Belarus, Taisiya Eletskikh, suggested the idea of telemedicine to MTS. In March 2008, Taisiya, with the support of the United Nations Development Program (UNDP), organized a meeting that brought together all the stakeholders that would likely be involved in the telemedicine project - the government (represented by the Ministry of Health), health care researchers, doctors and MTS. The participants brainstormed about how cell phone communication can contribute to developing telemedicine in Belarus and discussed how all the key actors could facilitate the development of telemedicine. Several areas were considered, including education for rural doctors as well as services for cancer and heart diseases. Cardiology was ultimately selected to be developed as a pilot project since heart disease is one of the most acute health problems in Belarus. In addition, from a technical standpoint, transferring ECGs does not require extremely high-speed Internet or complicated technology. It was also agreed that if the pilot was successful, this model could easily be replicated and expanded to include more technologically complex services.

Through collaboration with the government and the UN Global Compact, MTS thus put its resources to work in order to provide telemedicine services in the rural areas of Belarus.

“We started this pilot as a social investment, and at that time we did not think about the financial sustainability of this idea. We were happy to be able to help people with the resources we had. However, with time, we realized that while helping people we can also open new markets for our company and make this business profitable. This partnership showed us that it is possible for businesses to create a win-win situation for business and society, solving a social problem and creating a financially sustainable business.”

Vladimir Karpovich, General Director of MTS

2 Source: interview with the Head of the department of medical statistics and information technologies of the Ministry of Health, Boris Androsyuk, September 16, 2009 at the Ministry of Health, Minsk
Market and Location Context

The Joint Limited Liability Company (LLC) “Mobile TeleSystems” (MTS) has been operating in the Belarusian market since 2002. The large Russian open joint-stock telecommunications company “Mobile TeleSystems” owns 49% of the company and 51% is owned by the Belarusian National Unitarian enterprise “Beltelecom” (joint LLC). MTS conducts its business in the field of communications and is the biggest mobile operator in Belarus. Its network covers almost 97% of the territory of Belarus, operating in 21,908 cities, towns and villages. Its services are available to 99.6% of the population. It provides services to more than 4.5 million users, which comprise around 47% of the population. The revenue for the company was $463.7 million for 2008.3 There are three other mobile operators in Belarus.4

The main office of MTS is located in the capital of Belarus, Minsk, which is the largest political, economic, scientific and cultural center of the Republic. Minsk offers better health care, schools, and job opportunities as compared to other regions of the country. In other regions of the country, there is a higher proportion of the population living in poorer conditions with limited access to high-quality health care, education or employment.

27% of the population of Belarus lives in rural areas.5 20% of the rural population lives in poverty, which is almost twice the number of the urban population living in poverty (see Table 3 in Annex).6 The living conditions in rural areas of the country are significantly inferior to those in urban areas. Most of the villages in Belarus do not have basic living and recreation infrastructure, such as clinics, libraries, etc. A significant number of Belarusian people fall into the low-income category, and the number of people living on less than the minimum subsistence budget exceeds 1.7 million or 17.8% of the total population.7

Belarus has a relatively well-developed system of free medical care provided by the government to all citizens. As of 2008, there were 1,444 clinics (“poliklinika”) and 649 hospitals (“bolnitsa”) (386 in cities and 263 in rural areas) in Belarus.8 However, the Belarusian health care system lacks trained specialists and state of the art diagnostic equipment in rural hospitals and clinics, which deprives much of the population of access to high quality health care. Although the government has been modernizing its rural hospitals over the last decade, most of them still lack the necessary equipment or skilled personnel to

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4 BelCel is a state company and the only mobile operator that works in CDMA format in Belarus. It has been on the market since 1993, but has a fairly small customer base in comparison to the other operators. Foreign Enterprise Velcom was the first mobile GSM operator in the country and has been operating on the Belarusian market since 1999. Its network covers 93.2% of the territory of Belarus and the company provides services to 3.7 million users (38% of the population) Velcom has generally been able to attract the richest parts of the population. A fourth mobile operator, Life, owned by a Turkish cell phone company, has entered the Belarusian market in 2009. It runs a very aggressive marketing campaign and can become a real competitor for MTS and Velcom. Its network already covers 82.5% of the territory of Belarus.
handle difficult cases. In rural hospitals, doctors and other healthcare workers are underpaid, the hospitals and clinics are chronically understaffed, and the quality of care is considered to be low for all but the most basic of treatments. In case of emergency, such as a heart attack or a stroke, people living in rural areas have far fewer chances to receive the necessary medical help quickly. However, hospitals in bigger cities of Belarus do have trained specialists and modern equipment. Therefore, anyone from a rural area that needs advanced treatments or diagnostics must travel to a large city. Not only can these trips be expensive and time consuming, making them prohibitive for the poor, but they may not even be possible for elderly patients or those whose health is unstable.  

Cardiovascular disease is one of the most common causes of death among the population of Belarus. The mortality rate for cardiovascular disease for Belarus is very high: 592 cases per 100,000 people, while the corresponding number in Belgium is 162 cases per 100,000 people (Table 1). The World Health Organization (WHO) states, “over 80% of cardiovascular disease deaths take place in low- and middle-income countries”. The low socio-economic status and living conditions in rural areas in Belarus, characterized by poor nutrition, unsafe drinking water, potentially unsafe food in regions affected by the Chernobyl accident, constant stress and uncertainty about the future contribute to an increased risk of cardiovascular disease among the low-income population. If medical assistance is not provided immediately, heart attacks can be fatal. Ease of access to health care, therefore, becomes one of the most important ways to combat heart-related problems.

Table 1. Mortality rate for different diseases, Belarus, 2002

<table>
<thead>
<tr>
<th>Location</th>
<th>Age-standardized mortality rate for cancer (per 100 000 population)</th>
<th>Age-standardized mortality rate for cardiovascular diseases (per 100 000 population)</th>
<th>Age-standardized mortality rate for injuries (per 100 000 population)</th>
<th>Age-standardized mortality rate for non-communicable diseases (per 100 000 population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barbados</td>
<td>535</td>
<td>245</td>
<td>135</td>
<td>30</td>
</tr>
<tr>
<td>Belarus</td>
<td>143</td>
<td>592</td>
<td>154</td>
<td>839</td>
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<tr>
<td>Belgium</td>
<td>427</td>
<td>162</td>
<td>148</td>
<td>45</td>
</tr>
</tbody>
</table>


History of Telemedicine in Belarus

The Belarus Ministry of Health has long recognized that the health of the population is important for the growth and development of the country, and has sought ways to continue to improve the access to and the quality of healthcare. Telemedicine is seen to offer a solution to many of the deficiencies in the Belarusian health care system, as it allows more rural patients to receive care from specialists without having to go to a central hospital or specialists to have

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9 Besides the public system, there are a number of private clinics in large cities, which are mostly used by well-off Belarusians for routine care and diagnosis. However, medical insurance is very uncommon, and there are no private hospitals offering treatment for serious medical conditions.


11 Atlas of Heart Disease and Stroke.
to travel to them. However, implementing telemedicine comes with a variety of costs, which must be included in the national budget. Among these costs are the purchases of telemedicine capable equipment and telecommunications services to connect hospitals. While several telemedicine initiatives had been proposed in Belarus, none had actually been acted on, and as such, there was no market for telemedicine in Belarus.

As Belarus has a public health system that is entirely publicly financed, this also means that essentially there is only one customer for telecommunication services provided to healthcare entities - the Belarus government. Engaging any large customer, let alone a government, to enter into new markets can be a long and arduous process, with many levels of authority to navigate. In order to speed up this process, it may be in a business’s best interest to create a pilot program that demonstrates the value of their product or service both to the government and those directly benefitting from the service, in this case the rural population. Through this, the business can both prove a need and demonstrate a solution, while also gaining publicity that helps to move the issue further up the chain of government decision makers.

This is the path that MTS chose in trying to open the market for selling the broadband services necessary for telemedicine to hospitals in Belarus.

**THE PILOT**

In order to approve funding for telemedicine, government leaders had to be convinced of its value. Understanding this need, the Global Compact Belarus Network sought to bring together both business and government in order to seek solutions. The Global Compact provided a unique framework for this partnership primarily because it was seen as an honest broker. In addition the Global Compact does not seek solutions based on charity, but rather aims to find a win-win scenario for business, the government and the people of Belarus. Thus, the initial goal of the partnership members was to demonstrate the value of telemedicine through a pilot case in order to help it gain widespread support for replication.

The village of Ratomka, located in a rural area a short distance from Minsk was chosen as the location for the pilot. While its proximity to the capital made it easy to monitor the project and attract media attention, Ratomka is very similar both in character and socio economic status to most other small rural villages in Belarus.

As part of the pilot, MTS bought a Cardian-PM complex for the local hospital in the town of Ratomka. Cardian, the producer of the Cardian-PM, is a Belarusian company and was greatly supportive of MTS’ efforts. This purchase included software that allowed the Central Minsk Region Hospital in Borovliany to receive ECG data on their computer. MTS also provided free Internet connections through MTS Connect, a special Internet plan for cell phones and computers, to both Ratomka and Borovliany. Providing this connection not only allowed doctors in Ratomka to instantly transmit ECG data in emergency situations, but also permitted patients to undergo routine ECG tests in their hometown, rather than traveling to the Central Hospital.
With the support of the Global Compact, the pilot was featured in the Belarusian media and has become well known among the population. This has started to put pressure on the government to consider expanding telemedicine nationwide.

“We would not have been able to do the telemedicine pilot without the constant support of the Global Compact, which facilitated the discussion and brought all the interested parties to the table. Also, the UN is a recognized brand name that can put pressure on governments to act. With the support of the Global Compact, we have been able to demonstrate how telecommunications can contribute to improving living standards, erasing borders between cities and villages, and implementing government programs for the development of small and medium towns and rural areas. The project allowed meeting the interests of business and the government.”

Vladimir Karpovich, General Director of MTS

BEYOND THE PILOT

Following the success of the pilot program, MTS pursued the opportunity to provide paid telecommunications services to other hospitals. In a fortunate turn of events, Cardian had already supplied 375 mobile cardiographs capable of transmitting ECGs (Cardian-PM complexes) to local hospitals in remote areas in Belarus through a government program to support small towns (as of November 1, 2009). However, the units were not chosen for their mobile capabilities, but rather because they were a modern Belarusian product and better than the equipment hospitals had previously used. As such, government funding was not provided for mobile connections, meaning hospitals would have to pay for those out of their small discretionary budgets. While this left MTS with a ready market for services, hospitals - citing a lack of funds - did not utilize the mobile capabilities of their new equipment.

Now, with the much publicized success story from Ratomka to support their case, MTS was in a much better position to promote the value of telemedicine. MTS representatives, along with an IT specialist from Cardian, began traveling to the hospitals that had Cardian-PMs to describe the advantages of using mobile cardiographs and to sell MTS mobile services. The IT specialist answered questions and offered training to doctors on how to utilize the mobile capabilities of the cardiographs.

As of November 1st 2009, four more hospitals in Belarus have connected their mobile cardiographs through MTS and have begun sending ECGs to cardio specialists. All four hospitals are located in the Chernobyl area (Mogilev, Stolin, Zhlobin and Mozyr). In total, these hospitals have interpreted around 60 ECGs since June 2009 (as of November 1, 2009). MTS is now extending its marketing efforts to other regions of the country. Furthermore, the Ministry of Health is considering issuing a tender for the provision of mobile services, meaning that hospitals will not have to use their discretionary funds.

12 Data received from Cardian.
Without the MTS pilot, it is likely that the mobile capabilities of the Cardian-PMs would have continued to remain unused, and thus a potential business opportunity would have been lost, along with the potential for better health care.

“Our main goal in promoting responsible business is to open new markets that are good for business and help solve social problems at the same time.”

Taisiya Eletskikh, Chief Advisor of the UN Initiative Global Compact in Belarus

Business Model

Providing a way for specialists in central hospitals to analyze the ECGs of patients located in rural areas offers not only social benefits, but a business opportunity as well. Several elements are necessary to make this possible, two of which are already in place throughout most of Belarus (Figure 1 in the annex). These are an ECG unit capable of transmitting data over the Internet (in this case the Cardian-PM mobile electrocardiogram complex), and a computer connected to the Internet and equipped with software provided by Cardian to receive the data in the central hospital. The missing element is connecting the Cardian-PMs in the rural hospitals to the Internet. While the Cardian-PM can connect to the Internet in a variety of ways, hospitals in rural areas typically have few options for high speed Internet. Mobile broadband provided by a cellular company, in this case MTS, is the best available solution.

MTS provides mobile broadband Internet to hospitals by selling them a USB modem that plugs into a computer and connects it to the Internet (called MTS-Connect), or an Internet enabled mobile phone that can connect to the Cardian-PM either through a cable or through a Bluetooth wireless connection. The hospitals then pay MTS for the actual amount of Internet traffic they use; however, there are other access plans they can choose if their Internet usage grows.

When an ECG needs to be analyzed by a cardiac specialist, a doctor in the rural hospital connects the Cardian-PM through their MTS mobile Internet service, which transmits the data to the central hospital. The specialist in the central hospital receives the data in a special software program provided by Cardian that allows them to immediately read the ECG in full detail. The specialist can then phone the doctor in the rural hospital to discuss the case, or send back a complete diagnosis over email to their mobile phone.

FINANCIAL MODEL

The connection of one mobile complex through MTS results in a one-time fee of $55 for “MTS-Connect” (a cellular modem for connecting to the internet) and $150 for a specialized mobile phone for transmitting ECGs. Recurring fees for the service are a minimum of $10 per month per connection. All fees are paid by the local hospital and the service is provided for free to patients.
FINANCIAL PROJECTIONS

Due to the pilot character of the first operations, MTS has not yet been able to show a profit. Access to telemedicine is currently only available in five rural hospitals, thus greatly limiting the number of patients that can benefit from this service.

However, financial projections of the project are quite promising. If telemedicine were to become widespread in Belarus, there would be significant business opportunities on several fronts. There are 649 hospitals (386 in cities and 263 in rural areas) in Belarus, which could all be connected to a mobile network, providing a steady income stream. Moreover, the uses for telemedicine go far beyond ECGs, and once the infrastructure is put into place, there is potential for a wide array of equipment and services to be sold to hospitals.

According to projections developed by a working group of MTS and the Global Compact - which were revised by MTS in November 2009 - (Table 4 in the annex) the number of connections is supposed to increase by at least 200% yearly. It can be estimated that 172 connections will be established by 2013, which will provide total revenue of $40,912.5.

Constraints and Solutions

Every business that aims to include the poor faces challenges, and overcoming them with innovative approaches is what distinguishes a successful business model from an unsuccessful one. The health care system in Belarus is state run and financed through the Ministry of Health, though local hospitals do have some discretionary budget resources. All services are offered free of charge to Belarusian citizens. This means that there are no financial incentives for a local hospital to offer more services or a higher quality of care. Doctors in Belarus are also paid low salaries, averaging approximately $335 a month (with an average salary of $406 for the country in 2008), and are commonly overworked. Therefore, adding a service that is going to bring in more patients is not generally seen as desirable by local hospitals. Furthermore, the Health budget of Belarus is extremely tight, and allocating scarce resources for new services is difficult to pass. All of these factors have worked against the idea of telemedicine gaining any traction in the past.

FINANCIAL CONSTRAINTS

Since each hospital’s budget comes from the Ministry of Health, they have to get approval and money from it for any purchase they make. Hospitals also cannot charge for services, meaning they cannot pay for purchases with increased fees or amortize the cost over a period of time. To encourage the government to invest in telemedicine, MTS provided free products and services (purchase of a Cardian-PM complex, a cell phone and Internet access) in a pilot to demonstrate the value to hospitals and the population. Due to the pilot program’s success,

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both the government and local hospitals are more willing to continue developing and investing into cardio telemedicine in Belarus.

REGULATORY CONSTRAINTS

As all health care is funded by the National Government, it is extremely time consuming and cumbersome to implement new initiatives or to change past methods of operation. There is no clear process for introducing new ideas. There are also no tax benefits from making charitable donations or for serving social needs. In the case of MTS, it had to pay taxes for the cardiac equipment it purchased as a donation to implement the pilot. Furthermore, businesses often feel the Government is inaccessible when attempting to create business opportunities and partnerships, particularly in cases involving social services, since this is considered the domain of the government. The development of telemedicine is not possible without government support. There is no market mechanism available to allow a company to implement a telemedicine initiative aimed at serving the poor independently. To solve these challenges, MTS partnered with a trusted intermediary, namely the Global Compact, to engage in a dialogue with the government and to lobby for the idea of telemedicine. MTS also provided free services and equipment to demonstrate the value of telemedicine for both hospitals and the population. The Global Compact is now working to address the issue of taxation of charitable donations with the government.

HUMAN RESOURCES CONSTRAINTS

When a hospital receives new modern equipment, doctors are not always willing to invest the time and effort to master the new technology. Doctors often do not have the necessary training to utilize the equipment properly. Some medical personnel in remote areas have little or no experience with computers or the Internet and, therefore, require training in those areas first. Often training is given to one doctor when the complex is first purchased, but as doctors, especially young doctors, often do not stay long in rural areas, the training leaves with them. In addition, most doctors lack motivation to learn how to operate the new mobile cardiographs because they see it as an increased workload. Since most of the doctors work overtime to make a living, they do not feel motivated to spend time on training. MTS thus partners with Cardian in an effort to develop training for doctors that will be simple, short and understandable. MTS together with Cardian is also planning on developing an easy instructions sheet for doctors. This sheet will have pictures and very simple instructions (on one page) on how to operate the mobile cardiograph and how to use MTS services. In addition, Both Cardian and MTS have already conducted several hands-on training for hospital doctors where they show the advantages of using mobile cardiographs and let the doctors actually try operating them. To ensure the sustainability of their training, MTS and Cardian target younger doctors who are more technologically savvy, and train hospital staff who are local residents and are less likely to leave. They have also publicized stories from doctors about how easy it is to operate this equipment in the media.
Business and Its Relationships

The key actors that enabled mobile operator MTS to make this business model work are the Belarusian privately owned company Cardian, the Ministry of Health of Belarus, the Central Minsk Regional Hospital in Borovliany, the local hospital in Ratomka, patients and local communities, and the UN Initiative Global Compact in Belarus. Other actors include the Scientific Research Institute of Cardiology, the National Academy of Sciences of Belarus and the World Health Organization (WHO), who participated only in the first meeting of the working group and served as the main providers of expertise on possible applications of telemedicine in Belarus.

The success of the project – as attributed by MTS, Cardian and the Ministry of Health representatives in their interviews – is due to the fact that the United Nations Global Compact (GC) in Belarus was involved in the project from the very beginning. The recognized international name of the United Nations gave the pilot the necessary credibility and allowed the business to successfully cooperate with the government. The Global Compact’s role was that of a catalyst and facilitator. The GC initiated the partnership between government and business and coordinated all the work between them.

Cardian, the Belarusian company that produced and sold the mobile diagnostic equipment joined the project on telemedicine when MTS was trying to choose what cardio equipment to use. While there are other companies internationally that make mobile cardiac diagnostic equipment, Cardian had the advantage of being local and a low cost provider. In addition, Cardian had already sold more than 200 cardiographs capable of mobile transmissions to local hospitals in Belarus before the beginning of the project in December 2008. MTS saw this as a great opportunity for a new market, since all it needed to do was to offer mobile communication services to these hospitals.

Cardian has worked with two other mobile operators, Velcom and Belcel, before it got involved in this partnership project with MTS. When Cardian developed the Cardian-PM mobile complex, it conducted a pilot at a single hospital in a small town to demonstrate its mobile capabilities. Velcom provided the mobile communication services, as at the time they were the only cellular company offering services in this region. A variety of technical problems occurred with mobile transmissions that could not be adequately addressed at the time, diminishing the interest in utilizing the mobile capabilities of the Cardian-PM. Moreover, their pilot did not receive enough attention from the government and mass media and telemedicine did not expand to other regions of Belarus. MTS was able to offer better technical and customer service than other operators and turned out to be the best partner for

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14 MTS currently has two competitors in Belarus, Velcom and Life - a Turkish mobile operator. Belcel is using a different format (CDMA) that is incompatible with Cardian-PM complexes. Velcom has tried to enter the telemedicine market – with limited success so far since it did not have enough support from the Ministry of Health and wasn’t able to address technical issues in a timely manner. However, “Life” has just started offering the highest quality Internet in Belarus with 3G - which would enable them to become a real competitor to MTS. However, both MTS and Velcom are working hard to introduce new technology as well. In any case, telemedicine has a chance to go beyond transmitting small ECGs.
Cardian. In addition, the cooperation with the Global Compact opened doors for them to the Ministry of Health, the main customer for telemedicine.

“We advise our clients to use the services of MTS now since we had certain technical problems with a different mobile operator. MTS turned out to be a better partner for us with our cardio equipment. They fix technical problems very quickly and offer much better customer service. Their networks can reach any remote area in Belarus.”

Andrey Krupenin, IT project manager at Cardian

Cardian may ultimately stand to gain the most from the expansion of telemedicine in Belarus. Given the large rural population, aging demographic and exceedingly high rates of heart diseases in Belarus, providing cardiac equipment is very profitable for them. The cost of a Cardio-PM is around $3,500.

The Ministry of Health is a key partner and a potential key client for MTS. The partnership with the Ministry of Health provided MTS with credibility and made it possible for the business model to work. The Ministry of Health is very interested in this business model since it contributes to solving health problems in remote areas in the country. Without its support, it would be next to impossible to get things moving. The head of the department for medical statistics and information technologies of the Ministry of Health, Boris Androsyuk, has been the most active and energetic player since the beginning of the pilot.

“We will definitely support telemedicine. The pilot showed great social and economic value to our people. We will support any initiative from business that will target solving social problems.”

Boris Androsyuk, head of the department of medical statistics and information technologies of the Ministry of Health

The partnership between the business and the government is unique in the context of Belarus, as business in Belarus typically finds it very difficult to work together with the government. The success factor in this case clearly was partnering with a recognized international player, the UN Global Compact.

“We represent the government, so we cannot pick a business and work with it. In this case, the government is going to accuse us that we “have preferences” to some businesses and not to others, while we need to treat every business equally. So, the pilot with cardio telemedicine was good because the business came to us and we all sat at the table thinking how we can solve a social problem together.”
Boris Androsyuk, head of the department of medical statistics and information technologies of the Ministry of Health

At the same time, the government does not always take business seriously as a partner for solving acute social problems. Moreover, the government is very careful in its dealings with businesses, taking pains to avoid the appearance of impropriety in favoring certain companies. In this situation, the UN Global Compact acted as a reliable intermediary between the government and business.15

The Ministry of Health gave official status to this partnership through its involvement. It provided professional expertise and purchased cell phones and Internet access for its replication. It also made it easier to reach hospitals in the regions and expand MTS’ market.

While the Ministry of Health recognizes the benefits of telemedicine, it deals with tight budget constraints that do not allow for the mass purchase of equipment and related training, as well as increasing central hospital staff to deal with an increased workload. While the government has a program aimed at supporting small towns and rural areas, its main purpose is to attract new businesses to these areas. The government has been hesitant to commit financial resources to telemedicine.

Hospitals are the users of the mobile cardio equipment. While all the doctors and specialists mentioned the great benefits of using mobile cardio equipment when interviewed, there are issues to be overcome in getting them to cooperate. First, the mobile communication services must be purchased either for the hospital by the Ministry of Health, or by the hospital itself using their discretionary funds. Either scenario requires a decision by a high-ranking official who has many competing priorities. For a local hospital, the ability to offer mobile diagnostic services would seem to be an easy decision, given the benefit it would provide to the local population. However, given the lack of financial and human resource incentives, many hospitals do not recognize this as an easy decision. Most rural hospitals are understaffed with low paid professionals, and adding extra services means more work, typically for no extra payment.

Currently, MTS, Cardian, and the head doctors from the two hospitals used in the pilot program are organizing a seminar in December 2009 for all the head doctors from Minsk district. This seminar is intended to raise the awareness of other doctors about the need for and opportunity to develop cardio telemedicine in their hospitals.

Patients are the most important beneficiaries of cardio telemedicine. Due to a large mass-media campaign, many patients have found out a lot about the benefits of this new mobile cardio device and have come to hospitals asking for it. The increased demand and media

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15 MTS, Global Compact and the Ministry of Healthy signed an MOU, which states that the above-mentioned players would support the development of telemedicine and conduct a pilot project together. Currently, the Ministry of Health is considering announcing a tender for providing telecommunication services in local hospitals to ensure fair competition among all the telecom players on the Belarusian market.
attention has been helping to prove the need for developing telemedicine in Belarus and the need for the Ministry of Health to support telemedicine.

Results Created by the Business

SOCIAL RESULTS

The most important result to date is that telemedicine is now on the agenda of the government, thanks to the success of the pilot. The pilot attracted a great deal of attention from the mass media, doctors, patients and the Ministry of Health. The fact that the story made it to the UN-Business Focal Point publication gave this project international recognition and greatly increased its exposure to the Ministry of Health.

In terms of health care, the local hospital in Ratomka sent 270 ECGs through the mobile cardiograph during a period of 9 months. This has helped to positively affect the lives of many patients and, in some cases, even saved lives. As of November 2009, four more hospitals in Belarus had connected their mobile cardiographs through MTS and had begun sending ECGs to cardio specialists. All four hospitals are located in the Chernobyl area (Mogilev, Stolin, Zhlobin and Mozyr). By November 2009, they had interpreted around 60 ECGs since installing the equipment in June 2009.

“As for the patients, they absolutely love it. When the pilot was launched in Ratomka, mass media published a lot about it. When people read about this ‘miracle device’, as they called it, they actually thought that this device could diagnose all their health problems, not only cardio. People came to our hospital and asked us to check them with the help of this ‘miracle device’. They loved the fact that now they could get better medical treatment since a highly qualified doctor at the Central Hospital can give them a diagnosis and recommendations on the treatment right away. ECGs are a great beginning! There is definitely a need for that and for other telemedicine services here.”

Head Doctor at the local hospital in the village of Ratomka

Patients like the new equipment as it allows them access to better medical care. One of the biggest social impacts for patients who need medical assistance and live in remote areas is the reduction of costs, such as transportation costs. Not only do patients save on transportation costs, they also do not have to take a whole day off work to travel.

A further positive result of telemedicine is that medical staffs in small towns and rural areas have received an opportunity for professional development through training and capacity building in new technologies. In the pilot, five people were trained to operate the equipment. In the other four hospitals in the Chernobyl area, around 25 people in total were trained, based on estimates from Cardian. Hospitals received access to modern diagnostic equipment, ICT technology and the Internet, as well as the possibility to consult with highly qualified and experienced specialists in central hospitals in bigger cities. This helped the staff in improving their diagnostic abilities and also alleviated to a certain extent the professional isolation many doctors feel when working in rural areas.

16 Most of the patients with cardiovascular diseases are elderly retired people.
ECONOMIC RESULTS

While the social benefits of telemedicine are immense, there is potential for significant financial benefits as well. Currently, only a few rural hospitals are utilizing telemedicine, and only for limited applications like ECGs. However, as telemedicine gains greater acceptance from the healthcare community as well as the public, both the number of hospitals using telemedicine as well as its applications could grow rapidly.

As the business model is still at an early stage and meant to demonstrate the potential of telemedicine, MTS has received negligible economic returns. As the scale of telemedicine increases, the greatest economic benefit to MTS will come from charging hospitals to transmit data. To date, its only capital cost was the donation of one mobile Cardian-PM complex, an MTS-Connect device and the accompanying cell phone services, which amounts to $3,850 since December 2008. MTS has received $1,785 in revenue from the sale of communication equipment to four local hospitals in the Chernobyl area since June 2009. However, as the financial projections show, there is already potential for economic return in 2010 - MTS projecting revenues of $11,834. MTS looks at the initial donations as an investment and a marketing campaign that will begin to pay off as the government more fully implements telemedicine throughout the country.

MTS also stands to gain in terms of prestige and reputation. By being at the forefront of telemedicine, MTS positions itself as a technology leader, as well as a good corporate citizen. This is also anticipated to increase customer loyalty and retention.

ENVIRONMENTAL RESULTS

Although the environmental impact is not substantial, telemedicine does reduce the need for travel from rural areas to large cities, which positively impacts the environment due to the reduction of travel related carbon emissions. In the pilot alone, the release of 3,240 kg of CO₂ into the atmosphere was prevented (estimated, from December 2008 to October 2009) as 270 patients who used telemedicine services did not have to travel to the central hospital to have their ECG taken there.\textsuperscript{17}

Growth Strategy and Future Outlook

While there is a clear growth path for telemedicine in Belarus, financial and human resource constraints are still formidable. However, if the government does embrace telemedicine, the market could grow very fast.

The business model for telemedicine in Belarus may ultimately follow a variety of paths. Currently, MTS is selling mobile communication services to individual hospitals, which pay with their discretionary funds. However, these funds are extremely limited, and in many cases

\textsuperscript{17} Calculation: A round trip to the local hospital is about 50 km, a car uses on average 5 liters of gasoline. If people do not make this trip, they save around 12 kg of CO₂. For every liter of gasoline used, about 2.4 kg of CO₂ are produced. Source: UN Environment Program.
have already been committed. Selling services to individual hospitals is thus a time consuming and difficult task. Furthermore, as budgets are changed yearly and other needs arise, renewals become an issue.

The best scenario for the future of telemedicine is that the government would pay for the mobile connections. The Ministry of Health is in fact considering issuing a tender to provide telecommunication services to hospitals, freeing them from paying for it themselves. However, due to budgetary constraints brought on by the financial crisis, no action has yet been taken. The prospect of this tender may have encouraged many hospitals to wait on implementation until a final decision is made regarding its funding.

Fully implementing telemedicine involves costs apart from the mobile connections as well. Central hospitals have to be equipped with additional computer equipment and specialists have to be trained in its use. Finally, while the use of telemedicine will result in better care for the populace, it will also result in more work for doctors. Local hospitals will see their workload increase as they treat patients that would otherwise have gone to a Central Hospital. While central hospitals should have fewer patients as a result, the specialists will be equally, if not more busy handling telemedicine cases. Planning for these changes in workload is also a potentially cumbersome task.

As telemedicine often removes the need for a patient to travel to a city hospital, many would be willing to pay a small premium to take advantage of this service. This would require a change in legislation in Belarus, and may not be politically feasible given that health care is considered a public good provided by the state. However, it may be an option in the future, particularly for non-emergency situations, and would reduce the financial burden on the government or local hospitals.

Currently, transmitting ECG data is the only telemedicine example in Belarus, and it requires very little Internet bandwidth, making it relatively cheap for a hospital (only a few dollars a month), but earning little revenue for MTS. However, there are a multitude of other telemedicine services that can be offered in rural hospitals, including video consultations, more advanced diagnostics, and remote training of doctors and staff. As most rural hospitals cannot get high speed Internet through DSL or cable, mobile broadband is their best option, particularly as technology improves. Equipping ambulances with mobile broadband to take advantage of telemedicine capable equipment also offers great possibilities.

Vladimir Karpovich, general director of MTS, stated, “Telemedicine can become a strategically important activity of cellular communication operators.” 18 In fact, the Global Compact in Ukraine, inspired by the success of the pilot that MTS conducted in Belarus, decided to try to replicate this business model. In July 2009, MTS in Ukraine, the Ministry of Health of Ukraine and the UN office in Ukraine signed a MOU in an effort to establish a partnership in the sphere of telemedicine promotion.19 MTS offered to use far more advanced telemedicine services than ECG and establish regional telemedicine centers in regional

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hospitals in the country, which will have a more profound social effect for the vulnerable people in remote areas and at the same time will earn a substantial revenue for MTS.
References

- Personal Interviews with Cardian and MTS representatives. Life. 2009.
Annex

ANNEX 1. MAJOR STATISTICS FOR BELARUS, 2006

Total population: 9,742,000
Gross national income per capita (PPP international $): 9,700
Life expectancy at birth m/f (years): 63/75
Healthy life expectancy at birth m/f (years, 2003): 57/65
Probability of dying under five (per 1,000 live births): 8
Probability of dying between 15 and 60 years m/f (per 1,000 population): 366/131
Total expenditure on health per capita (Intl $, 2006): 572
Total expenditure on health as % of GDP (2006): 6.4

Table 1. Mortality rate for different diseases, Belarus, 2002

<table>
<thead>
<tr>
<th>Location</th>
<th>Age-standardized mortality rate for cancer (per 100 000 population)</th>
<th>Age-standardized mortality rate for cardiovascular diseases (per 100 000 population)</th>
<th>Age-standardized mortality rate for injuries (per 100 000 population)</th>
<th>Age-standardized mortality rate for non-communicable diseases (per 100 000 population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belarus</td>
<td>143</td>
<td>592</td>
<td>154</td>
<td>839</td>
</tr>
</tbody>
</table>

Source: World Health Organization

Table 2. Statistics on cardiovascular diseases

<table>
<thead>
<tr>
<th>Population, millions 2002</th>
<th>Heart disease</th>
<th>Stroke</th>
<th>Rheumatic heart disease number of deaths (as of 2002)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Disability</td>
<td>Mortality</td>
<td>Disability</td>
</tr>
<tr>
<td></td>
<td>DALYS* lost per 1000 population (2003 or latest available data)</td>
<td>number of deaths 2002</td>
<td>DALYS lost per 1000 population (2003 or latest available data)</td>
</tr>
<tr>
<td>Barbados</td>
<td>269</td>
<td>6</td>
<td>286</td>
</tr>
<tr>
<td>Belarus</td>
<td>9,940</td>
<td>28</td>
<td>59,719</td>
</tr>
<tr>
<td>Belgium</td>
<td>10,296</td>
<td>5</td>
<td>14,985</td>
</tr>
</tbody>
</table>
*disability-adjusted life year


Table 3. Share of poor households by place of residence (as % of the total number of households of this type)

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of poor households – total</td>
<td>35.7</td>
<td>23.9</td>
<td>24.7</td>
<td>22.9</td>
<td>14.5</td>
</tr>
<tr>
<td>Incl. those living in:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cities and urban settlements</td>
<td>32.8</td>
<td>22.8</td>
<td>23.3</td>
<td>19.8</td>
<td>11.6</td>
</tr>
<tr>
<td>Rural communities</td>
<td>42.0</td>
<td>26.2</td>
<td>27.6</td>
<td>28.9</td>
<td>20.1</td>
</tr>
</tbody>
</table>

Source: Comprehensive Poverty Assessment in the Republic of Belarus, UNDP Belarus, 2005

Table 4. Financial Projections for Cardio Telemedicine Related MTS Services, 2009-2013

<table>
<thead>
<tr>
<th>Indicators, in US dollars</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of existing connections</td>
<td>15</td>
<td>65</td>
<td>105</td>
<td>145</td>
<td>172</td>
</tr>
<tr>
<td>Number of new connections to the MTS Network</td>
<td>15</td>
<td>50</td>
<td>40</td>
<td>40</td>
<td>27</td>
</tr>
<tr>
<td>Non-recurring revenue from the sale of specialized phones</td>
<td>2250</td>
<td>7500</td>
<td>6000</td>
<td>6000</td>
<td>4050</td>
</tr>
<tr>
<td>Non-recurring revenue from the sale of MTS Connect USB modems</td>
<td>412.5</td>
<td>1375</td>
<td>1100</td>
<td>1100</td>
<td>742.5</td>
</tr>
<tr>
<td>Continuing revenue for the provision of Internet services through MTS Connect</td>
<td>1350</td>
<td>5850</td>
<td>9450</td>
<td>1050</td>
<td>15480</td>
</tr>
<tr>
<td>Continuing revenue for the provision of internet for access from mobile phones</td>
<td>1800</td>
<td>7800</td>
<td>12600</td>
<td>17400</td>
<td>20640</td>
</tr>
<tr>
<td><strong>Total revenue</strong></td>
<td>5,812.5</td>
<td>22,525</td>
<td>29,150</td>
<td>37,550</td>
<td>40,912.5</td>
</tr>
<tr>
<td>Gross income from sales of devices</td>
<td>600</td>
<td>2000</td>
<td>1600</td>
<td>1600</td>
<td>1080</td>
</tr>
<tr>
<td><strong>Taxes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service tax</td>
<td>150</td>
<td>650</td>
<td>1050</td>
<td>1450</td>
<td>1720</td>
</tr>
<tr>
<td>Sales tax</td>
<td>127</td>
<td>423</td>
<td>338</td>
<td>338</td>
<td>228</td>
</tr>
<tr>
<td>VAT c sales</td>
<td>85</td>
<td>284</td>
<td>227</td>
<td>227</td>
<td>153</td>
</tr>
<tr>
<td>VAT on services</td>
<td>540</td>
<td>2340</td>
<td>3780</td>
<td>5220</td>
<td>6192</td>
</tr>
<tr>
<td>National tax</td>
<td>28</td>
<td>120</td>
<td>183</td>
<td>248</td>
<td>289</td>
</tr>
<tr>
<td><strong>Total taxes</strong></td>
<td>930</td>
<td>3816</td>
<td>5578</td>
<td>7483</td>
<td>8583</td>
</tr>
<tr>
<td><strong>Revenues from services &amp; gross profit for products after taxes (excluding income tax)</strong></td>
<td>2,820</td>
<td>11,834</td>
<td>18,072</td>
<td>24,567</td>
<td>28,617</td>
</tr>
</tbody>
</table>
Table 5. Various Indicators, MTS Services in Belarus, 2009

<table>
<thead>
<tr>
<th>Cost of MTS products and services, in US dollars:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialized mobile telephone sold by MTS</td>
<td>150</td>
</tr>
<tr>
<td>Initial one-time payment for MTS – Connect (a USB modem that connects a computer to the Internet)</td>
<td>55</td>
</tr>
<tr>
<td>MTS Connect, the average monthly income from the transfer of traffic</td>
<td>15</td>
</tr>
<tr>
<td>The subscription fee for Internet access from mobile phone</td>
<td>10</td>
</tr>
<tr>
<td>Wholesale costs of specialized mobile phones</td>
<td>120</td>
</tr>
<tr>
<td>Wholesale costs of MTS Connect USB Modem</td>
<td>35</td>
</tr>
</tbody>
</table>

Source: MTS financial projections, as of March 2009 and revised in November 2009.

Table 6. Timeline of events in the business model development

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2007</td>
<td>MTS joined the UN Initiative Global Compact, which encouraged the company to think about a possible joint partnership project that would contribute to solving a social problem in Belarus as well as be financially sustainable.</td>
</tr>
<tr>
<td>March 2008</td>
<td>Global Compact conducted a meeting with all the possible stakeholders in the telemedicine sector. It was decided that the area of cardiology can be a good start for a pilot since heart diseases are one of the most acute problem in Belarus. In addition, from the technical standpoint it is an easy pilot to start with, which can be used for more difficult issues later. Important criteria for the partnership with the Global Compact were developed and agreed upon by both parties (MTS and Global Compact): it had to be connected with what MTS does best, it had to be conducted in the small towns and villages in Belarus, since regions cover a bigger area so there is potentially a bigger market, and it had to include government’s involvement, since the government of Belarus had implemented a State Program to support the development of small towns and villages in Belarus, which would help push the project forward.</td>
</tr>
<tr>
<td>April 17, 2008</td>
<td>MOU was signed between UNDP and MTS for developing “a partnership project aimed at the development of telemedicine in different regions of the country with the use of cellular communication”21. The goal of this document is to “provide for the coordination of actions as well as pooling of efforts and resources of different stakeholders for the development of a business model aimed at the improvement of access to quality medical services for people living in different regions of the country through the development of tele-electro-cardiology (TeleECG)”.</td>
</tr>
</tbody>
</table>
| July 2008 – August 2008 | MTS bought a Cardio-PM complex for the Minsk central district hospital and provided a village 15 km away from Minsk regional central hospital a specially designed cell phone and connection to the Internet (MTS-Connect – an innovative software created specifically for this
MTS and the company “Cardian” that makes cardio complexes conducted trainings for the hospital personnel on how to use this new equipment. Medical personnel started using this equipment.

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
</table>
| December 19, 2008 | Meeting of the working group on telemedicine to discuss the results of the pilot project with the mobile cardio-consultation. The outcome (as specified in the minutes of the meeting):  
  - The project has a high social impact. This impact was described by Cardian, a company that had already sold mobile cardio equipment to hospitals and that did a research on its impacts high social impacts.  
  - There is a need to expand the business of mobile electro cardiology to the territories affected by Chernobyl accident.  
  - UNDP/UN Global Compact was asked to summarize the experience of the pilot stage and inform the Minister of Health on the results of the pilot project in mobile cardio-consultation  
  - UNDP was asked to proceed with assistance in spreading the experience of the cardio telemedicine pilot to other regions of the country with the involvement of the Ministry of Health, regional authorities and other stakeholders. |
| March 3, 2009 | UNDP/Global Compact sent a letter to the Minister of Health to express gratitude to the Ministry of Health and Minsk central district hospital for their great help with the project and asked the Minister of Health to continue supporting telemedicine. The Minister of Health approves the expansion of telemedicine to other regions of the country. A number of the Cardian-PM complexes have already been funded by the Ministry of Health in accordance with the state programme for developing small towns and villages in Belarus. |
| June 2009     | Mr. Androsyuk, the Head of the information technologies department of the Ministry of Health, talked about the first successful results of the partnership project to the ministers at a monthly meeting. He received an approval from the Minister of Health and “green light” in expanding telemedicine to other regions of the country. |
| December 2009 (planned) | MTS, Cardian, and the head doctors from these two hospitals, with the support of the UN Global Compact, are organizing a seminar in December 2009 for all the head doctors from Minsk district to share their success story. It is intended to raise the awareness of other doctors about the need and opportunity to develop cardio telemedicine in their hospitals. |
Figure 1. Business Mode

Ministry of Health purchases Cardian PM for local hospitals

MTS purchases Cardian PM equipment and supplies internet for local hospitals to speed adoption

Cardian-PM Mobile ECG Equipment Installed in Rural Hospitals

ECG recorded with Cardian-PM

ECG data transmitted to Central Hospital

Analysis, diagnosis & treatment options sent back to local hospital

Central Hospital for entire region

Cardiac specialist reads ECG

Rural hospital without cardiac specialist

Growing Inclusive Markets
Business Works for Development • Development Works for Business
ANNEX 2. MAP OF BELARUS

Source: CIA – The World Factbook

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Case Study • Providing Affordable Health Care to the Poor: Telemedicine in Belarus
November 2010

The information presented in this case study has been made available to the company in subject to ensure its accuracy and is accurate to the best of the author’s knowledge. The views expressed in the case study are the ones of the author and do not necessarily reflect those of the UN, UNDP or their Member States.

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This case study was drafted in accordance with the GIM 2.0 research design.

Design: Suazion, Inc. (NJ, USA)

For more information on Growing Inclusive Markets: www.growinginclusivemarkets.org or gim@undp.org

United Nations Development Programme
Private Sector Division, Partnerships Bureau
One United Nations Plaza, 23rd floor
New York, NY 10017, USA