Bosnia and Herzegovina Information and Communication Technologies Sector
Bosnia and Herzegovina

Invest in B&H ICT - Exploit the Benefits!
# TABLE OF CONTENTS

- New Offshore Services Destination ................................................................. 6
- Telecommunication/ICT indicators 2012 ........................................................ 7
- Strong Academic Base .................................................................................... 7
- Human Capital ................................................................................................. 9
- ICT is an Emerging Sector .............................................................................. 10
- Attractive Business Environment .................................................................. 11
- ICT Infrastructure ............................................................................................ 12
- Why Invest in B&H ICT Sector ....................................................................... 13
- FDI in ICT Sector ............................................................................................. 13
- Success Stories ............................................................................................... 14
- Useful Contacts ............................................................................................... 14
NEW OFFSHORE SERVICES DESTINATION

Despite the recent economic crisis, the ICT industry in Bosnia and Herzegovina is growing. The evolution of IT companies in Bosnia and Herzegovina has been going on at a tremendous speed lately, many of them now offering highly advanced IT and media experts, eager to prove and with a European mindset.

ICT companies from Bosnia and Herzegovina are successfully implementing different joint projects with companies abroad of all sizes in the development of particular product components, as subcontractors for product development, or as implementers of software products. B&H’s ICT companies have a rich and diverse experience in providing Software Development, Outsourcing, Project Management and Consulting. They are highly educated (B.Sc./M.Sc. in Software Engineering and Mathematics) and skilled, certified, but more importantly battle tested.

Some of offshore projects include the world’s leading companies such as HERE (NAVTEQ, NOKIA), Apple Inc. Cupertino CA USA, Reactor8 Inc. Palo Alto CA USA, The Map Network Washington DC USA, Acision, Waterfall Mobile, Fides Health Care, oLyfe, Black Moose Norway, Raiffeisen Bank Austria and other companies from USA, Turkey, Norway, Sweden, UK, Netherlands etc..

ICT companies from Bosnia and Herzegovina successfully implemented a set of requirements in order to establish an ISO certified quality management system within the organization. The revenues of large ICT companies are growing. Estimated total revenue from all telecommunication services for 2012 was 690, 3 mill EUR. Thus, the year 2012 recorded approximately 1,000 IT companies, while this number was approximately 300 in 2003.

The value of the telecommunications market in Bosnia and Herzegovina (2006-2012)

<table>
<thead>
<tr>
<th>Year</th>
<th>The Maket Value (mill EUR)</th>
<th>GDP (mill EUR)</th>
<th>Share of telecom market in total GDP (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>0,591</td>
<td>9,88</td>
<td>6.0%</td>
</tr>
<tr>
<td>2007</td>
<td>0,621</td>
<td>11,164</td>
<td>5.6%</td>
</tr>
<tr>
<td>2008</td>
<td>0,671</td>
<td>12,659</td>
<td>5.3%</td>
</tr>
<tr>
<td>2009</td>
<td>0,664</td>
<td>12,297</td>
<td>5.4%</td>
</tr>
<tr>
<td>2010</td>
<td>0,646</td>
<td>12,666</td>
<td>5.1%</td>
</tr>
<tr>
<td>2011</td>
<td>0,652</td>
<td>13,123</td>
<td>5.0%</td>
</tr>
<tr>
<td>2012</td>
<td>0,717</td>
<td>13,157*</td>
<td>5.5%</td>
</tr>
</tbody>
</table>

Source: Communications Regulatory Agency BH, * Agency for Statistics of B&H
**TELECOMMUNICATION/ICT INDICATORS 2012**

<table>
<thead>
<tr>
<th>FIXED TELEPHONE NETWORK</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed telephone lines of incumbent operators</td>
<td>945 357</td>
</tr>
<tr>
<td>Fixed telephone lines which are business</td>
<td>134 374</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MOBILE CELLULAR NETWORK</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total active mobile cellular telephone subscriptions</td>
<td>3 171 283</td>
</tr>
<tr>
<td>Percentage of population covered by 3G/4G mobile network</td>
<td>70%</td>
</tr>
<tr>
<td>Percentage of population covered by a mobile cellular phone</td>
<td>99%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERNET</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Internet users</td>
<td>2 113 100</td>
</tr>
<tr>
<td>Penetration of the Internet users</td>
<td>55%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REVENUE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated total revenue from all telecommunication services</td>
<td>690,3 mill</td>
</tr>
<tr>
<td>Revenue from mobile networks (EUR)</td>
<td>350 mill</td>
</tr>
<tr>
<td>Revenue from fixed telephone services-incumbent and</td>
<td>190 mill</td>
</tr>
<tr>
<td>alternative operators (EUR)</td>
<td></td>
</tr>
<tr>
<td>Revenue from Internet services (EUR)</td>
<td>65,7 mill</td>
</tr>
</tbody>
</table>

Source: Communications Regulatory Agency BH

**STRONG ACADEMIC BASE**

Bosnia and Herzegovina possesses a growing labour force skilled in various aspects of ICT design, management, and applications. Young, educated and innovated workers from B&H are participating in International projects and Companies.

Bosnia and Herzegovina’s Quality of math and science education Index for 2012 is 4.5 (World Economic Forum - Global Information Technology Report 2012), which gives the country a rank of 41 out of 142 countries with comparable data.

The University of Sarajevo (MIT) and the University of Tuzla (UCDED) both have specialized ‘e-learning’ schools, teaching and utilizing modern multimedia and programming skills. Several of Bosnia and Herzegovina’s colleges have established online training courses in partnership with U.S. and European universities (University Sarajevo, University Banja Luka, University Tuzla, and University Mostar). Complementing educational activities, areas of research at the B&H Universities are:

- Management information systems
- Artificial intelligence
- LAN, WAN and wireless network topologies
- Computer architectures
- New information technologies
- System and application software
• Object oriented programming languages
• Evolutionary computation
• Graphics and image processing
• Business and technical information systems
• Software development environment (IDE)
• Expert systems
• Computers in education
• Databases and database administration
• Feasibility studies of Information system projects
• Man machine interface (HMI) systems
• Hardware and software systems (computer systems) and components

Besides education, research activities of the Telecommunication Department at B&H Universities are:

• Spatial planning in telecommunication network development
• Medium and long-term telecommunication network development
• Telecommunication networks and transmission systems (cable, radio relay and satellite systems, commutation systems and mobile phone systems)
• Research in topologies of local telecommunication networks
• Advances in solutions for commutation systems, cable systems, satellite systems, multiplex systems, telecommunication networks, etc.
• Integrated management of networked systems
• Standardization in telecommunication
• New telecommunication technologies
• Integrated services networks
• Digital signal processing
• Investment programs for switching systems, transmission systems and telecommunication networks (stationary and mobile)
• Technical solutions for switching systems, cable systems, satellite systems, multiplex systems, telecommunication networks, etc.
• New telecommunication services
• Modern radio and television equipment
• Specific problems of cable television, wireless data transfer, GSM

B&H has very low average net and gross wages compared to the countries in the region and EU countries, while labour force is very qualified, skilled and educated.
HUMAN CAPITAL

Bosnia and Herzegovina possesses a labour force skilled in various aspects of ICT design, management, and applications. Young, educated and innovative workers from B&H are participating in international project and companies.

According to the latest Global Competitiveness Index of the World Economic Forum (WEF) 2013-2014 which focuses on the quality of teaching in mathematics and natural sciences in schools, the best positioned among Balkan countries and beyond is B&H. Bosnia and Herzegovina at the WEF list for the quality of teaching in mathematics and natural sciences, or quality mathematicians and scientists, is on the 13th place out of 148 countries, so is qualified in the top world list in this area. From countries of the region after B&H comes Croatia, which is on the 22nd place in the field of quality education in mathematics and science, and on the 23rd place of WEF list is Montenegro. Macedonians are on 51st place, Albanians on the 54th, while Serbia is on 55th place.

Bosnia and Herzegovina’s Quality of management schools Index for 2013 is 4.7, which gives the country a rank of 41 out of 148 countries (also, the best rank in Region). Slovenia is on the 74th place, Croatia is on the 78th, Albania 85th, Macedonia 99th and Serbia is on the 114th place.

Bosnia and Herzegovina’s availability of Scientists and Engineers Index for 2013 is 4.7, which gives the country a rank of 27 out of 148 countries with comparable data (the best rank in Region).
ICT IS AN EMERGING SECTOR

The quality of ICT infrastructure in Bosnia and Herzegovina is not at the level of EU countries, it is getting better with each year. The challenge ahead for the ICT sector, however, is to gain access to modern and valuable know-how, and this can only be achieved by foreign direct investment. Recognizing that Bosnia and Herzegovina has a small population base, we are focused primarily on targeting medium to large-sized ICT companies, such as:

- Conventional capital providers specifically experienced in developing emerging markets via merging and acquiring smaller diverse SME’s into more efficient corporate investment vehicles
- ICT integrated solutions providers, which possess the necessary know-how and capital to develop Bosnia and Herzegovina’s domestic ICT market as well as ICT goods and services targeted for export.
- Large transnational branded FDI resources, particularly transnational telecommunications and public utility providers - which are consistently expanding their regional market specifically in the fields of ICT design and integration - will be targeted for some specific projects, such as privatization opportunities relating to telecommunications and power utilities and associated projects.

Bosnia and Herzegovina’s ICT sector offers an array of opportunities to potential investors wishing to exploit their knowledge, sophistication, know-how and new business ideas. In addition, locating in Bosnia and Herzegovina can provide a base (gateway) for penetrating markets in the surrounding region (SEE and Turkey - approximately 120 million of consumers).

B&H is a member of the Electronic South Eastern Europe (eSEE) Initiative. The aim of Electronic South Eastern Europe (eSEE) Initiative is to better integrate SEE countries into the global, knowledge-based economy by regionally supporting the development of Information Society. The eSEE Initiative provides a balanced policy and cooperation framework and provides one of the best examples of regional cooperation in the Stability Pact Practice.

eSEE Initiative was launched in Istanbul in October 2000 and constituted in January 2001 with Sweden as Chair, and Croatia followed by FYROM as co-Chair. In effort to reinforce the regional ownership and to inject the Initiative with the new impetus, the Chairmanship was transferred to Serbia and Montenegro and then to Croatia, while eSEE Secretariat, a regional knowledge hub and information resource center, is being hosted in Sarajevo by UNDP Country Office B&H since 2002.
ATTRACTIVE BUSINESS ENVIRONMENT

The Law on the Policy of Foreign Direct Investments of Bosnia and Herzegovina ensures national treatment of foreign investors, i.e., foreign investors have the same rights and obligations as residents of B&H.

Foreign investors are entitled to open accounts in any commercial bank in domestic and/or any freely convertible currency on the territory of B&H. Foreign investors are entitled to freely employ foreign nationals, subject to the labour and immigration laws in B&H. Foreign investors are protected against nationalisation, expropriation, requisition or measures having similar effects; such measures may take place only in the public interest in accordance with the applicable laws and regulations and against the payment of an appropriate compensation, i.e. compensation that is adequate, effective and prompt.

The accelerated economic reform process in B&H has contributed to a greatly improved business climate. As a result, B&H has recorded one of the fastest business growths in South-eastern Europe.

• B&H has the most stable currency and the lowest inflation in SEE
• B&H offers favourable Tax and Customs Systems:

Investment capital is exempt from paying import customs and customs duties (with the exception of passenger cars, slot and gambling machines).

Federation of B&H:
• Law Corporate Income Tax enables the taxpayer, who in the year for which the corporate income tax is being determined, has achieved 30% of their total revenue by export to be exempted from the tax payment for that year
• The taxpayer who in the period of five consequent years invests into production in the value of minimum 20 million BAM, on the territory of the Federation of Bosnia and Herzegovina, is being exempted from the payment of corporate income tax for the period of five years beginning from the first investment year, in which minimum four million BAM must be invested. If the taxpayer, in the time period of five years, does not achieve the prescribed census for investment, he loses the right of tax exemption, and the unpaid corporate income tax is determined in accordance with the provisions of the Law on Corporate Income Tax augmented for penalty interest payable for untimely paid public revenues
• The taxpayer who employs more than 50% of disabled persons and persons with special needs longer than one year is being exempted from the payment of corporate income tax for the year in which more than 50% disabled persons and persons with special needs were employed

Republic of Srpska:
• Amendments of the Law on Profit Tax RS introduced tax base reduction in the value of investment for
• Investment in equipment intended for the company production activity
• Investments in plants and immovable property used for manufacturing and processing activities
And tax base reduction in amount of paid personal income tax and mandatory contribution for the employer
• Employing 30 workers during a calendar year (workers who were on the official evidence of Employment Office of RS)
• New incentives
Also, in Republic of Srpska, the new incentives have been established by Decree on Conditions and Implementation of the Investment and Employment Support Program (Official Gazette of RS No 70/12). The aim of these incentives is encourage and support direct investments, employment growth and transfer of new knowledge and technologies. Participants in this funding award may be investors with existing investment projects in manufacturing sector in the territory of the Republic, which provide new employment and submit along with the application all necessary documentation to the Ministry of Finance of RS, after announcement of a public call.

Bosnia and Herzegovina’s Total tax rate Index for 2012 is 25.0 (World Economic Forum - Global Information Technology Report 2012), which gives the country a rank of 21 out of 142 countries with comparable data.

**ICT INFRASTRUCTURE**

Main telecom operators in Bosnia and Herzegovina (BH Telecom, HT Mostar, m: tel) with multiple international connectivity share majority of infrastructure; operate fixed and mobile telephony networks as well as Internet and data transmission networks.

There are a number of private and public network and internet service providers too. All three companies possess most advanced technologies and services (IP/MPLS, VoIP, 3G, GRPS, EDGE, UMTS, broadband access networks – xDSL, Ethernet WAN, Ethernet Metropolitan Area Networks, Wi-Fi, W-LAN, etc.).

The transmission system is now virtually 100% digitalized and the switching system is roughly 80% digitalized. The 2.5G system is applied, and the 3G/4G system is introducing gradually, which permits the radio data transmission rate of up to 2 Mbps.

Also, B&H has lot of outsourcing companies. They take great pride in giving their clients the best possible solutions for their needs in areas of expertise and they ensure high standard of their finished product with consistency in meeting deadlines, quality, and accuracy.
Bosnia and Herzegovina’s Mobile network coverage Index for 2012 is 99.7 (World Economic Forum - Global Information Technology Report 2012), which gives the country a rank of 42 out of 142 countries with comparable data. Also, Electricity production, kWh/capita Index for 2012 is 3.513,6, which gives the country a rank of 59, then Int’l Internet bandwidth, kb/s per users Index id 15.6 (a rank of 60), Secure Internet servers/million pop Index is 15.0 (a rank of 73) and Accessibility of digital content Index is 5.0 which gives the country a rank of 66 out of 142 countries with comparable data.

WHY INVEST IN B&H ICT SECTOR?

• ICT is an Emerging Sector in Bosnia and Herzegovina
• The continued availability of high-quality engineering and science graduates at B&H colleges and abroad
• A competitive cost environment
• Investing in Bosnia and Herzegovina’s ICT Sector presents a doorway to Southeast Europe
• Bosnia-Herzegovina must be EU compatible
• Privatization opportunities of strategic ICT companies still exist
• Ambitious plans related to the overall development of B&H, requiring a large-scale development of ICT infrastructure and ICT sector as whole
• Availability of basic ICT infrastructure
• Availability of a number of small IT companies
• Cultural affinity

FDI IN ICT SECTOR

<table>
<thead>
<tr>
<th>FDI</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>Q1 - Q3 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post and Telecommunications</td>
<td>673,38</td>
<td>83,85</td>
<td>-15,33</td>
<td>-5,11</td>
<td>6,64</td>
<td>3,06</td>
<td>6,64</td>
</tr>
<tr>
<td>Consultancy services for hardware</td>
<td>4,601</td>
<td>-3,57</td>
<td>-1,53</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>ICT Sector</td>
<td>677,98</td>
<td>80,274</td>
<td>-16,87</td>
<td>-5,11</td>
<td>6,64</td>
<td>3,57</td>
<td>6,67</td>
</tr>
<tr>
<td>Total FDI</td>
<td>1,329,37</td>
<td>683,60</td>
<td>179,97</td>
<td>220,37</td>
<td>289,90</td>
<td>285,30</td>
<td>210,14</td>
</tr>
<tr>
<td>Share of FDI in ICT sector (% of total FDI)</td>
<td>51.0%</td>
<td>11.7%</td>
<td>-</td>
<td>-</td>
<td>2.3%</td>
<td>1.3%</td>
<td>3.2%</td>
</tr>
</tbody>
</table>

SUCCESS STORIES

Foreign companies, investors in this sector:

- Telecom Serbia – company Mtel ad Banja Luka
- T Hrvatski Telecom Croatia-company HT dd Mostar
- Hermes SoftLab Slovenia- companies Com Trade Sarajevo and Banja Luka
- Microsoft Corporation USA – company Microsoft BH Sarajevo
- Telecom Slovenia – company Aneks doo Banja Luka
- IF BOSNIA BROADBAND S.a r.l Luxemburg – company Telemach d.o.o. Sarajevo
- Al Jazeera Network Qatar – company Al Jazeera Balkans Sarajevo
- Chellomedia USA-company OBN dd Sarajevo
- System Verification Sweeden - company System Verification Sarajevo
- Anadolu Ajansı Turkey- company Agencija Anadolija Sarajevo
- Cisco Systems Inc USA
- Oracle

USEFUL CONTACTS:

Ministry of Communications and Transport of Bosnia and Herzegovina
www.mkt.gov.ba

Federal Ministry of Transport and Communications
www.fmpik.gov.ba

Ministry of Transport and Communications Republic of Srpska
www.vladars.net

Electronic South Eastern Europe (e-SEE) Initiative
www.eseeforum.org