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ASSESSMENT OF THE KOSOVO INFORMATION AND COMMUNICATIONS TECHNOLOGIES (ICT) SECTOR

NOVEMBER 15, 2007
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A. INTRODUCTION

This document summarizes the results of a quick assessment of the information and communications technologies (ICT) sector in Kosovo conducted at the request of USAID/Kosovo. The purpose of the assessment was to assess opportunities for USAID to support the ICT sector in Kosovo.

The assessment was conducted in Kosovo from 20 September through 1 October 2007 with preparation beforehand. The assessment was led by Judy Payne, e-Business Advisor, USAID/EGAT/I&E/ICT, with two additional team members: Mike Ducker, Market Development Specialist, JE Austin & Associates, and Dardane Peja, Development Program Specialist, USAID/Kosovo. Mike Ducker participated in the team as a member of the USAID Business Growth Initiative (BGI) Project.[1]

This report is organized as follows: purpose and objectives; background; a few caveats; description of the approach taken; a summary of activities; a profile of the sector today and estimates of usage and pricing of telecommunications services today; a summary of our analysis and recommendations. This report does not include specific programmatic recommendations. These were provided by Judy Payne to USAID/Kosovo after this assessment was concluded.

B. PURPOSE AND OBJECTIVES

The purpose of this activity was to assess opportunities for USAID to support Kosovo's ICT sector. This sector encompasses several areas of business including telecommunications, a variety of services related to the development, customization and use of software and hardware and services and products that are delivered via telecommunications (both voice and data) networks.
The objectives of the assessment were to answer two questions:

- Are there parts of the ICT sector in Kosovo that have significant potential for growth in revenues and employees which could be increased if key constraints were addressed?

- How might USAID efforts to support the ICT sector benefit overall economic growth in Kosovo?

Parallel to this assessment, Mike and Judy were also conducting a BGI activity to identify best practices for selecting the ICT sector as a target sector in USAID economic growth projects. The Kosovo activity benefited from the insights gathered from this BGI activity which included interviewing over a dozen project teams that currently work with or recently concluded working with the ICT sector as a target sector.

C. BACKGROUND

USAID/Kosovo's Strategic Plan 2004-2008 has identified "accelerated private sector growth" as one of two economic program Strategic Objectives. To address this objective, USAID has been providing assistance to the Kosovar private sector through the four year Kosovo Cluster and Business Support (KCBS) project. The assistance is focused on three major clusters: 1) Livestock (including dairy, meat, animal feed, and poultry); 2) Fruits and Vegetables and 3) Construction Materials (including wood processing). Approaching the final year of this program,

[1] See https://www.businessgrowthinitiative.org/ . The BGI project is sponsored by USAID's Office of Economic Growth of the Bureau for Economic Growth Agriculture and Trade (EGAT/EG). Mr. Ducker's participation in this Kosovo activity is part of BGI's efforts to identify, distill and share best practices across USAID's economic growth activities.

USAID is considering its options for future programs in the private sector to stimulate business growth. Before doing that, USAID/Kosovo requested an assessment of the ICT sector to evaluate its potential for growth and to examine if there are any opportunities for USAID to advance this sector through technical assistance.

The assessment was conducted in the context of Kosovo's very high unemployment rate -- estimated between 35 and 60 percent, one of the highest in southeastern Europe. Kosovo has one of the youngest populations in the region with over half the population under the age of 25. Unfortunately, unemployment is estimated to be highest among the young aged 15 to 24.

D. CAVEATS

This assessment must be considered with the following caveats:

- It was conducted quickly within resource constraints so could not be comprehensive and in many ways is based on the team's subjective judgments.
- There is no deep or objective market research available on Kosovo's ICT sector.
- The assessment focused only on the ICT sector so could not assess the sector's *relative* potential impact on job growth versus other promising business sectors.

The team hopes that others find this assessment useful and can build on it with further information gathering and analysis.

E. APPROACH

The team used general factors typically used to identify target business sectors for economic growth assistance. These factors were then tailored to the ICT sector based on the experience of other economic growth projects and the characteristics of the sector. The team also used a SWOT approach throughout the information gathering and analysis, i.e., identifying strengths, weaknesses, opportunities and threats to the sector.

Although it is difficult to separate the ICT sector cleanly into independent sub-sectors, the team generally analyzed the IT (information technology – meaning work related computer software applications and hardware) from telecommunications (meaning the provision of voice, data and video services via telecommunications networks, either Internet (IP) or mobile phone networks). Of course much IT work takes advantage of and is dependent on the telecommunications networks and the networks are, in turn, dependent on software applications to increase – even create -- the demand for the networks.

Generally, target business sectors for economic growth assistance are selected based on several factors, including:

1. The sector's ***potential impact on the economy*** – measured as increased revenue, more jobs, more investments.

2. The ***absence of any "show stoppers"*** to the sector's growth that have a low probability of being eliminated (including no apparent political will). This includes anything in the business enabling environment, such as laws, policies, and regulations (or the low capacity of regulators or policy makers to play their roles) that seriously constrains competition in the sector.

3. ***Motivation of the stakeholders*** within the sector to work together to help the sector grow – ensuring they will work with any economic growth project to drive success and pitch in with time and resources. This also encompasses ***momentum to build upon***, e.g., "sparks" of innovation in a few firms that are making progress in a particular market.

4. There is an apparent ***demand for the sector's outputs*** and the sector appears to have strengths to enable it to compete successfully in target market(s).

5. Evidence that the ***sector has required inputs*** (e.g., in the case of ICT, skilled employees, access to financing where needed; sufficient number of motivated firms).

Table 1 below summarizes how these five general factors can be tailored to the ICT sector. For example, the ICT sector *itself*, unlike many other sectors, has a potential impact on the economy, but it also can have an ***indirect effect on the economy*** by enabling other key growth sectors to use ICT as a way to increase their competitiveness. There are many examples of

Sector Selection Criteria	Honed to ICT Sector (Based on Lessons/Best Practices)
1. Potential impact on the economy	For ICT sector, can be direct or indirect impact, i.e., impact of the sector itself on the economy or impact of the sector on other key growth sectors, increasing their growth with sector specific applications and services. Is there critical mass – enough players to be a base for growth?
2. Absence of any "show stoppers"	Reasonably priced and accessible telecom services. No political/gov't show stoppers – e.g., monopolist's dominance keeping prices high and access, innovation regulatory capacity low. Unreasonably high tariffs for ICT equipment.
3. Motivation of the stakeholders and momentum to build upon	A private sector champion to promote sector and ICT usage for larger good. Government champion (e.g., education ministry or IT related ministry). At least a few innovative players with a "spark" – i.e., competing well in target market. Signs of collaboration. Interest from strategic partners; investors; global ICT players.
Demand for the sector's output	Signs of some success in specific market (e.g., mobile apps; animation). Strong market linkages with other countries (including Diaspora connections), Growing and strong demand for IT services, e-govt initiatives, from growing non-ICT sectors; strong internal market with use of local IT Market.
Sector has required inputs	Presence of higher education entities providing solid math, engineering graduates. Training available on latest technical tools like Microsoft, Cisco & Java, plus project management & entrepreneurship training – and ICT as part of business degree programs. Competitively priced labor. Financing for firms to grow.

Table 1: Sector Selection Criteria Honed to the ICT Sector

ways ICT-enabled products or services can address key constraints – *or create new opportunities* – for promising business sectors.[2] For example, farmers in a specific agriculture sector might gain significantly by using a telecommunications enabled service to learn market prices in remote markets, increasing their ability to negotiate prices with intermediaries or help them decide when to harvest their crops. Farmers selling a perishable product to distant customers might also gain from telecommunications enabled logistics management systems to

[2] *Contact Judy Payne, e-Business Advisor, USAID/I&E/ICT jpayne@usaid.gov, for more examples.*

more precisely manage the movement of crops to reduce spoilage or use a software application to meet the EU's onerous traceability requirements more easily while being able to use the same records to increase the precision – and hence the yields – of their crops.
Further, research shows that a strong ICT sector has a positive general effect on an economy's productivity:[3]

1. Greater use of ICT across all sectors helps firms increase their overall efficiency, thus raising productivity across the economy.

2. Investment in ICT capital contributes to overall capital deepening and therefore helps raise labor productivity.

So this strengthens the argument to find ways to strengthen the ICT sector – if only as benefit to other, stronger sectors.

One other criterion that can be honed to the private sector deserves mention: the second one in Table 1, "show stoppers." If the telecommunications enabling environment (law, policy, regulations and regulatory process) of a country is in good order, private investors are likely to provide the needed, modern networks for telecommunications and prices are likely to be reasonable due to strong competition. Often, a few relatively small efforts to improve this enabling environment go a long way to significantly increasing the availability and use of ICT in a country. Hence, focusing on the enabling environment alone can be well worth it, unlike the additional efforts often needed to improve other infrastructure such as water, energy and transport. In section G, below, we will identify three key areas to focus upon to make sure the telecommunications enabling environment *right*.

F. SUMMARY OF ACTIVITIES

The assessment team conducted the following activities:
Pre-fieldwork review of background documents and websites. (See Appendix 1 for small selection of these.)

Fieldwork in Kosovo, including interviewees listed in Appendix 2. We interviewed 11 private firms in the ICT sector plus PTK, the publicly owned telecommunications company; 5 non-ICT firms; 5 NGO's (including business associations); 6 donor projects (sponsored by USAID and other donors); 3 operating education and training organizations (plus one that is in the planning stages); and 3 Kosovo government organizations.

Concurrently, Mike Ducker was interviewing over a dozen current or recently completed USAID sponsored competitiveness projects that had the ICT sector as a target sector. This was part of a Business Growth Initiative (BGI) activity (mentioned in the introduction to this report). Mike gathered insights from these projects regarding how they worked most effectively with the ICT sector; how (and whether) they selected the ICT sector as a target sector; and lessons they learned.

[3] *The Economic Impact of ICT: Measurement, Evidence and Implications, OECD 2004, pp. 77-79.*
http://www.oecdbookshop.org/oecd/display.asp?sf1=identifiers&lang=EN&st1=922004051p1

G. SECTOR PROFILE

Before summarizing our analysis, we provide here a quick profile of the sector, separating it into two sections: the IT sector (including firms that develop software applications and provide a wide range of IT consulting) and the telecommunications sector (those firms that provide telecommunications services, including fixed line telephone services; mobile telephone services and Internet access). IT firms often build or work with applications that take advantage of telecommunications services but they do not provide these services themselves. We include in the profile of the telecommunications sector a quick profile of usage of the sector's services.

G.1. IT SECTOR PROFILE

Based on rough estimates by interviews, the sector has annual revenue of approximately 35 to 50 million Euros. Roughly 25 to 30 percent of this revenue is for IT services, the remainder for equipment resell, installation and related services. The sector is growing roughly 20 to 25 percent annually. There are fewer than 100 firms in the sector, again an estimate based on interviews. Only a few firms appear to be "world class," i.e., meeting international standards. Fewer than 8 (and perhaps only 4 or 5) have more than 20 employees; another 25 to 30 have more than 5 employees and there are probably dozens of one or two person "shops". In total, there may be about 400 to 600 people working directly in the sector, not including those in IT departments of non-IT companies.

We found few (if any) innovative solutions being developed and sold by these companies, domestically or internationally.[4] Major customers, as in most emerging markets, are the government and financial institutions (banks). Some companies resell basic business application packages, some they have developed themselves.

A few firms provide outsourcing software integration or development services internationally, most based on connections from the firms' principals' past training or work abroad (e.g., to Austria). Several firms plan on expanding their market to include Albania, but only one reported they have already done so. Few firms market their services.

The sector has a relatively dormant IT association with no paid staff but supported by the Chamber of Commerce. Some firms collaborate and many use free lancers to meet project requirements. Most firms seemed optimistic about their futures but we did not sense strong entrepreneurial "sparks" – where a firm or a set of firms were tackling with some success a specific market with some innovative product or services.

From our interviews, it appears that labor costs are equal to or a bit higher than those in neighboring countries (e.g., Macedonia and Serbia). Junior engineers earn approximately 300 to 500 Euros per month; a senior engineer, 550 to 850 Euros per month. Another interviewee said they paid between 100 and 150 Euros per day for free lancers and this rate was favorable when compared to EU rates but the daily rate for Bulgarians was cheaper.

[4] An exception to this might be a bar code enabled mobile application for tracking livestock that representatives from Cacttus mentioned to the team.

Interviewees generally agreed that new hires mostly came from University of Pristina, had reasonable math and analytical skills but were ill prepared for work without at least 6 months of on-the-job training in the most current development environments. Good project management were also hard to find, but the AUK Institute reported it was starting to provide project management training.

G.2. TELECOMMUNICATIONS SECTOR PROFILE

G.2.1 Internet. There are three major Internet service providers (ISP) in Kosovo, all with licenses that allow them to connect directly to the international Internet backbone: IPKO, Kujtesa and PTK. There are several other smaller ISP's but these do not have licenses to access the international Internet backbone. Many of these smaller ISP's focus on particular areas within Kosovo, extending access to the Internet beyond the service areas of the big three by using wireless techniques.

Broadband Internet access is not measured formally but most reports peg it at 11 percent of the population.[5] All three Internet providers estimated it higher, perhaps close to 17 percent. The average Internet penetration for countries in the EU is 52 percent; Macedonia may now be approximately 19 percent; Albania, 6 percent and Slovenia 55 percent. So despite steep increases, Kosovo's Internet penetration still lags many of its neighbors.

All three providers report relatively high Internet usage by businesses. Pricing for broadband Internet services varies between 8 and 45 Euros/month. All three of the big players are expanding steadily; upgrading their networks and hiring steadily. PTK is a publicly owned enterprise and is able to make significant investments in infrastructure (upgrading part of its network to fiber). IPKO is now owned by Telekom Slovenia, which enables IPKO to expand its infrastructure and, during our assessment, IPKO reported that it is hiring approximately 30 new employees monthly (primarily due to its new mobile phone license).

Kujtesa and IPKO (and perhaps PTK?) are pushing toward a "triple play" service approach, providing voice, data and video over the same broadband IP network. Further, all three of these big players appear to have dynamic leadership (although PTK's manager had just resigned with no announced replacement at the time of the assessment).

G.2.2 Telephony: Fixed and Mobile. PTK is the only fixed line phone service provider. PTK also provides mobile phone service. IPKO recently became the second mobile phone service licensee via a competitive process. It is now preparing to roll out its service to meet coverage requirements stipulated in its license agreement by spring 2008 and beyond.

G.2.2.1 Fixed Phone Service. Per the Ministry of Transport and Communications, **a**pproximately 6 percent of the population has fixed line phone service. PTK reports much higher number: 100,000 subscribers covering 30 percent of Kosovo's households.[6] Kujtesa

[5] Per the Director of the Post and Telecom and IT Department in the Ministry of Transport and Communications.

[6] Per 2005 report by Cullen International comparing countries in south eastern Europe, Kosovo's population is approximately 2 million in 311,000 household meaning each household has about 6 members so PTK's estimate that 100,000 fixed line households covers approximately one third of the population would be correct. See Table 3, page 11 in this report: http://ec.europa.eu/information_society/activities/internationalrel/dialogue_coop/enlargement/Report%201%20Comparative%20final2%20for%20distribution.pdf

reported plans to acquire a fixed phone license in the future and provide the service via the IP (Internet network) as part of a package of services.

PTK's pricing for fixed phone services is as follows.

- 0.008 to .0016 Euros/minute for calls between fixed phones
- 0.16 to .08 Euros/minutes for fixed-to-mobile calls

Given the fast growth of Internet access and mobile phone service (and fixed mobile, a cheaper form of mobile phone service), traditional fixed phone coverage is becoming irrelevant.

G.2.2.2 Mobile Phone Service. Today, approximately 35 to 40 percent of the population has mobile phone service.[7] PTK reports growth of subscribers from 300,000 to 800,000 in less than a year, largely due to significant decreases in prices in anticipation of IPKO's service beginning. Once IPKO's service begins at the end of 2007, prices will probably drop more and penetration increase. PTK reported that its mobile phone network covers 80 percent of populated areas.
Most (approximately 97 percent) of mobile phone service is pre-paid. PTK requires two deposits (as of late September) to start service, totally approximately 86 Euros with 2 hours of service at .101 Euros/minute or up to 8 hours for .042 Euros/minute. Again, these prices will likely drop once IPKO begins providing service.

Governance. Formally, Kosovo has in place the laws, policies, strategy, regulations and government entities to govern the telecommunications sector well. It adopted a telecommunications law in December 2002 and regulations were promulgated in May 2003.
The Ministry of Transport and Communications is responsible for policy related to telecommunications and a telecommunications policy was proposed to and accepted by the government this year. The Telecommunications Regulatory Authority (TRA) is responsible for carrying out this policy in accordance with the telecommunications law.
We did not do a detailed analysis of these documents but, according to interviewees, the law may have several areas needing improvement.[8]

Further, in July 2005, Kosovo passed a Law on Information Society Services – essentially enabling electronic commerce techniques to be used legally and a law addressing cybercrime in August 2006. Per eSEE reports, Kosovo has a national strategy for information society (adopted April 2006).[9] Finally, Kosovo has endorsed the eSEE+ Agenda which is a forward looking framework for promoting the information society in the member countries of the Stability Pact for South Eastern Europe.[10]

Per our interviewees, the TRA does not have the capacity or staff needed to perform its functions as well as possible. In terms of critical issues such as interconnectivity agreements and spectrum management, the sector is essentially self-regulating. IPKO and PTK have

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[7] Per the Director of the Post and Telecom and IT Department in the Ministry of Transport and Communications.

[8] Per discussions with an advisor of a recently ended EAR funded project to improve the telecommunications enabling environment.

[9] For a summary of Kosovo's formal progress on information society indicators, see the eSEE's most recent matrix dated 9/2007: http://www.eseeinitiative.org/sadrzaj/RelatedDocuments/sadrzaj/terms/Matrix%20September%202007.pdf

[10] See http://www.stabilitypact.org/e-see/ and http://www.eseeinitiative.org/ .

negotiated commercial agreements to address interconnectivity between phone services, usually not the best way to ensure the customer gets the lowest prices.

The telecommunications law includes a universal service obligation as most modern telecommunications laws do. This means that the regulator sets up a process – in compliance with the law and the national telecommunications policy – to ensure that telecommunication services are provided to the poor and to areas where service is commercially not available. So far, TRA has not begun this process. The policy requires that it begin within 12 months of when the policy is approved.

H. SUMMARY OF ANALYSIS

We separate our sectoral analysis into IT and telecommunications sub-sectors. Table 2 summarizes the analysis of the IT sector. Overall, we concluded that IT sector alone

Potential Impact on the economy		Direct impact: may not be a critical mass of strong players Small with low employment growth Indirect impact (supporting other sectors): more likely
Absence of any "show stoppers"		Decent legal framework (needing some improvements) but relatively weak regulator, but affordable and growing broadband Internet access Uncertain national status + pending elections
Motivation of stakeholders and momentum to build upon		Energy in private sector players, but no strong sector leadership, nor strong IT association No strong gov't leader, nor consolidated momentum (except perhaps at municipal level) IPKO Institute, Microsoft, GTZ may want to participate + may be ways to leverage USAID's RCI project
Demand for the sector's output		No apparent IT niches being attacked with "spark" of innovation Moderate amount of IT services demand (especially among financial services Little IT export, except potentially to Albania or via professional links to Austria No significant e-gov initiatives although gov't steadily adding back office systems
Supply of required inputs		Engineering schools may have basics, but far behind providing tech skills for work Training for tech tools is fair with project mgmt training coming. Not much entrepreneurship training found Presence of international donors has helped a few firms reach international standards New tech dean at University of Pristina determined to improve public/private collaboration Little financing available for IT firms based on business contracts.

Summary		IT sector itself: Currently little potential economic impact of sector directly due to weak demand, some supply barriers, lack of innovative sparks in promising market niches. But may be worth supporting for indirect impact on other sectors and link to telecommunications promise. (See Table 3).

Table 2: Summary Analysis of the IT Sector (without Telecom)

currently does not appear to have the potential to have significant impact on the economy as a sector itself. We found no innovative or energetic sector *momentum* to build upon; there are only a handful of strong firms, and the sector faces constraints related to the supply of employees with proper skills. But two factors lead us not to suggest that the sector be dismissed as a potential strong force in Kosovo's economy. First, as we saw above in Section E, the ICT sector can be strong support to the competitiveness of other, non-ICT sectors. Greater use of ICT across Kosovo's business sectors can help all sectors raise productivity and take better advantage of capital investments. Hence, it may be worth placing some focus on this sector because of these indirect effects. Second, as we shall see below, IT combined with the momentum in the telecommunications sector appears much stronger than the IT sector alone.

Table 3 summarizes our analysis of the telecommunications sector. We will not repeat the content of the table here. In short, we are much more optimistic about the potential for this sector to be competitive, especially when combined with an effort to strengthen the development of value added services to take advantage of the quickly expanding mobile phone service networks. The sector appears to have momentum; the key firms have strong leadership and are making significant investments. It still suffers from a good source of "ready to work" employees and although its enabling environment is not a "show stopper," it probably needs to be improved for the sector to thrive in the long term. There appears to be a strong opportunity for the sector to generate demand for value added services (VAS), especially for the mobile phone services. These VAS could spark the growth of Kosovo's IT sector and could lead to expansion of these VAS – and the mobile phone service providers – across Kosovo and beyond.

Potential Impact on the economy		Direct impact: sector growing quickly with lively competition New mobile operator license having dramatic effect on access, pricing Potential for significant indirect impact on IT and non-IT sectors, given apps that can ride on converging, growing networks: IP and mobile telephony for mobile applications.
Absence of any "show stoppers"		Weak regulator and some flaws in laws (e.g., no universal service process set) but affordable and growing broadband internet access Interconnection between mobile and fixed line operator appears reasonable but based on commercial negotiation not cost so probably somewhat higher than if set by regulatory process Multiple access points to international IP network means real competition among players Uncertain national status + elections pending.

Motivation of stakeholders and momentum to build upon		Strong leadership and management in all three lead firms No government leadership in extending access to rural areas (universal service) Not (yet) much apparent "spark" of innovation for mobile applications IPKO Institute ready to contribute to increase access, usage if bold partners emerge and already offering free web-based computer literacy training
Demand for the sector's output		One of fastest growing sectors in Kosovo with clear plans to expand to Albania Demand for basic telecom services appears strong, growing. Two players now have (or almost have) major international owners with funds for rapid expansion
Supply of required inputs		Engineering schools may have basics, but far behind in tech skills needed in workplace Training for tech tools is fair with project management training coming New tech Dean at University of Pristina wants to improve telecom areas especially Financing, investors available to telecom sector
Summary		Expansion of telecom sector will support economic growth – indirectly and potentially directly (if mobile value added services thrive) with low probability of show stoppers – if leadership supports (so far, so good). This will probably stimulate IT sector itself.

Table 3: Summary Analysis of the Telecom Sector (Internet, Mobile Phone Service)

Further, these value added services on mobile phone networks could be a critical tool for other sectors. The boxes on the next page provide illustrations of how such services could strengthen the competitiveness of Kosovo's construction industry and any agribusiness in Kosovo.

There are several more opportunities that offer ways the IT sector combined with the telecommunications sector might become more competitive.

Mobile Phone-Based Applications for Construction

Construction firms must manage project schedules, teams, and equipment deliveries across many locations. Well managed firms in Kosovo have office-based project management tools which managers use, updating them after a day in the field. Extending such office-based tools with mobile phone based applications would allow the firms to make adjustments to schedules "on the fly" while out in the field, change what is ordered and where it is delivered as plans change, and even update building designs based on new information. While in the field, managers would be able to monitor other projects elsewhere, receiving quick updates or queries when needed, saving time, material and labor costs. The mobile phone application would link to the office. \application – and be used via a PDA (personal digital assistant like a Palm Treo) or a smart phone.

Such mobile phone applications could be further enhanced by integrating digital map tools so the movement of construction materials could be tracked – to more tightly manage logistics, reduce the amount of inventory needed to keep on hand, and reduce pilferage.

- IPKO reported that it is building the business infrastructure to support third party service providers for its new mobile phone network, including a call center and customer relationship management capabilities. This should make it easier for small VAS providers to grow.

- IPKO also reported it has developed digitized maps for its internal use. These may also be offered to VAS providers as a powerful resource.

- There are a few opportunities related to education and training.

- AUK Institute is starting up with an aim to strengthening ICT training for individuals, including providing technical project management training, a critical skill for IT companies.

- Cacttus is already a well regarded private training facility for IT focusing on training businesses.

- The new dean of the University of Prishtina's Faculty of Electrical and Computer Engineering is determined to improve the training of graduates and collaborate more closely with the business sector and USAID is facilitating a partnership with a peer university in the US to help strengthen the faculty's curriculum and teaching techniques.

- IPKO Institute has launched free web-based computer literacy training based on the International Computer Driver's License approach.

Mobile Phone Based Applications for Agribusiness

Small hold farmers are using mobile phone based applications to manage themselves like "virtual" large agribusinesses. Via a farmer's coop or packhouse, they can figure out how to consolidate yields to meet large orders, using the application to distribute instructions to make sure crops are planted, fertilized and harvested at the right time. They can also use mobile applications to meet the EU's traceability requirements. Using manual procedures, such requirements are onerous. Using a mobile ICT-enabled application data can be collected by plot to meet the requirements *and* help the farmers increase the precision of their farming procedures. Further, farmers can use mobile phone applications to track demand for their yields in regional markets – and the market prices – so they can decide when to harvest and where to sell or how to negotiate with the middle man offering to transport their crops to a market.

- Diaspora (returning or otherwise) may be able to be tapped to support the sector with marketing, business contacts, and more.

- GTZ reported that may conduct a study of the ICT sector and plans to support the sector. It is open to collaborating with USAID on any support to the sector.

- There may be ways USAID/Kosovo can leverage USAID's Regional Competitiveness Initiative (RCI) and its collaboration with Microsoft. The RCI team is willing to partially fund a quick assessment of the potential for a Microsoft Innovation Center in Kosovo.

I. RECOMMENDATIONS

Based on our analysis, we return to the two questions posed at the outset of the assessment:

1. Are there parts of the ICT sector in Kosovo that have significant potential for growth in revenues and employees which could be increased if key constraints were addressed?

Based on our analysis, it appears that the telecommunications sector – with a focus on value added services that can take advantage of the expanding mobile and IP networks – holds most promise for impact on the Kosovo economy – directly as a sector and indirectly as an opportunity for innovation and increased productivity in other non-ICT sectors.

- For the most success, the IT sector itself will need to be strengthened to develop and provide these mobile services (or Internet-based) services.

- The domestic market alone offers sufficient opportunity for small firms – and the extended population of roughly 6 million Albanian speakers in the region is a strong potential market.

- If Kosovo's IT firms do not meet the demand for such services, the mobile phone service providers will go across borders to find such services (or firms will come into Kosovo to offer these services), needed to boost usage of their networks and return on their significant investments.

- It appears that the key constraints for this sector are education and training; improvements to the telecommunications regulatory capacity; stronger sector entrepreneurship and business skills. A well implemented universal service process (mandated by law and policy) would also open up additional demand for telecommunications services.

2. How might USAID efforts to support the ICT sector benefit overall economic growth in Kosovo?

As discussed above, ICT can be used to strengthen the competitiveness and productivity of almost any sector. USAID's assistance in generally strengthening the sector can mean that Kosovar companies can turn to domestic IT companies to meet their IT requirements with applications in Albanian. These local companies must be innovative, well managed, meet (or approach) international standards – and be priced to match international competition.
These non-ICT firms in target sectors will need support in how to select and implement such ICT applications, how to use them to reach target markets, how to change their business processes to reap the full benefits from them.

Appendix 1: Selected Reference and Background Web Links, Documents

eSEE: http://www.eseeinitiative.org/
PTK: http://www.ptkonline.com/
Kujtesa: http://www.kujtesa.com/
IPKO: http://www.ipko.net/

The Economic Impact of ICT: Measurement, Evidence and Implications, OECD 2004
http://www.oecdbookshop.org/oecd/display.asp?sf1=identifiers&lang=EN&st1=922004051p1

And other OECD reports related to ICT sector's economic impact, including: *Seizing the Benefits of ICT in a Digital Economy*, 2004,
http://www.oecd.org/document/56/0,3343,en_2649_201185_2507576_1_1_1_1,00.html
and *ICT and Economic Growth – Evidence from OECD Countries, Industries and Firms* , 2003
http://www.oecd.org/bookshop?pub=922003031P1
World Bank website on its activities in Kosovo: http://go.worldbank.org/1EB0K2R6V0
World Bank Business Environment TA Project, Kosovo:
http://web.worldbank.org/external/projects/main?pagePK=64312881&piPK=64302848&theSitePK=40941&Projectid=P088045

Appendix 2: Interviewees

1. ICT Sector

ComTrade Computers
www.comtradecomputers.com

Enver Doko (also leader of **Kosovo IT Association**)
CEO

Genc Doko
Software Engineer

Komtel Project Engineering
http://www.komtel-pe.com/

Agon Baruti
General Manager

iSoft Technologies
www.isoftt.com

Dr. Idriz Smaili
Executive Director

Arian Shala

iPKO Net (New Mobile operator and ISP services)
www.ipko.net

Akan Ismaili
CEO

Cacttus
www.cacttus.com

Driton Hapciu
Managing Director

Bruno Serreqi
Operational Manager

Arben Ymeraga
Sales & Marketing

Pronet
www.pronet-ks.com

Ardian Shehu
Managing Director

Valon Budima
Sales Manager

Armend Skeja
Development & System Integration Manager

Florina Skeja
Finance & HR Manager

RROTA
www.rrota.net

Shkumbin Brestovci
General Manager

Astrit Hyseni

Logic Plus
www.logicplus.org

Besnik Limaj
CEO

Microsoft

Agim Bekaj
Business Development Manager

Kujtesa
www.kujtesa.com

Arber Arifi
CEO

ATI-KOS
www.ati-kos.com

Fatos Stavileci
Executive Director

Florin Buza
Technical Director

B. Non-ICT Private Sector Development

ProCredit
www.procreditbank-kos.com

Viktor Krasniqi
Client relationship Manager

Alban Beqiri
Deputy IT Manager

Zero Pozitive Publicis (Part of Publicis Worldwide Network)
www.zeropozitive.com

Antigona Limani
Operations Manager

Alban Dedi
Zdirect
Call Center Manager
www.zp-direct.com

Driton S. Bejtullahu
IT Director

Raiffeisen Bank Kosovo JSC
www.raiffeisen-kosovo.com

Oliver J. Whittle
CEO

Proterm Construction Company
www.proterm-co.com

Nehat Emerllahu
CEO

Besim Ibrahimi
Drejtor Teknik

SameDay Marketing

Xhihad Vuciterna
Manager

2. Non-Profit Organizations (NGO's)

iPKO Institute
www.ipkoinstitute.org

Kushtrim Xhakli
Head of Office / MD

Professional Accountancy and Auditing Society in Kosova (SCAAK)
www.scaak-ks.org

Ardiana Bunjaku
Executive Director

Riinvest, Institute for Development Research
http://www.riinvestinstitute.org/

Naim Hoxha Manager of ICT Programs

Kosova Chamber of Commerce
www.odaekonomike.org

Ejup Qerimi
Secretary General

American Chamber of Commerce in Kosovo
www.amchamksv.org

Mimoza Kusari-Lila
Executive Director

3. PTK (Kosovo's Publicly Owned Telecommunications Company)

Vala (Part of PTK, mobile phone service)
www.ptkonline.com

Agron Rrustemaj
Chief Operating Officer

TK (Part of PTK, Fixed Line and Internet Services)

Leke Musa
Deputy Director

4. Donor Funded Projects (including USAID funded)

Corporate Financial Reporting Project (EU funded)
10000 Priishtine Kosvo

Liam Coughlan
Helm Corp Limited (www.helm-corp.com)
Team Leader and Consultant

UN Interim Administration Mission in Kosovo
www.un.org

Mihaela Simion
Senior International Officer
Dept. of Judicial Admin.

Muralidharan Raghupath
IT-Officer
Dept of Justice
Kosovo Judicial Council

GTZ
www.gtz.de

Peter Welling
Project Manager

Valbona Rraci
Expert of Business Development Economy and Employment Promotion

USAID, Contractor
Kosovo Cluster and Business Support Project (KCBS) (USAID funded)
www.usaidkcbs.com

Martin Wood
COP

World Learning Forecast (USAID)
www.worldlearning-ks.org

Megan Falvey
Director

Economic Management for Stability and Growth (USAID Funded)
Bearing Point

Ed Nolan
Bearing Point Adviser at CBAK

Stanley Beesley
Senior Adviser, Tax Administration

5. Education and Training

AUK Institute
www.aukonline.org

Bekim Kasumi, PMP
AUK Institute Director

Visar Jasiqi
Manager of Training Programs

University of Prishtina (public university)
http://www.uni-pr.edu/

Prof. Dr. Myzafere LIMANI
Dean
Faculty of Electrical and Computer Engineering (FIEK)

University of Business and Technology
www.ubt-uni.net

Prof. Dr. Edmond Hajrizi
President

6. Government of Kosovo

Ministry of Transport and Communications
IT Department
http://www.mtpt.org/mtt_project/theme/pgtpl_1.aspx

Agim Kukaj
Director of Post & Telecom and IT Dept.

Telecommunication Regulatory Authority
http://www.art-ks.org/

Luizim Kurtaj
Member of TRA Board

Central Banking Authority of Kosovo (CBAK)

Suzana Devari
Director of Banking Supervision Directorate

Merdian Kukleci
Chief Bank Examiner

Edward Nolan, Advisor to CBAK (USAID funded)
BearingPoint

7. USAID KOSOVO

www.usaid.gov/missions/kosovo

Michael Farbman, PHD
Mission Director

Jennifer J. Tikka
Private Enterprise Officer
Economic Growth Office

Narem Chanmugam
Office Director
Economic Growth Office

U.S. Agency for International Development
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