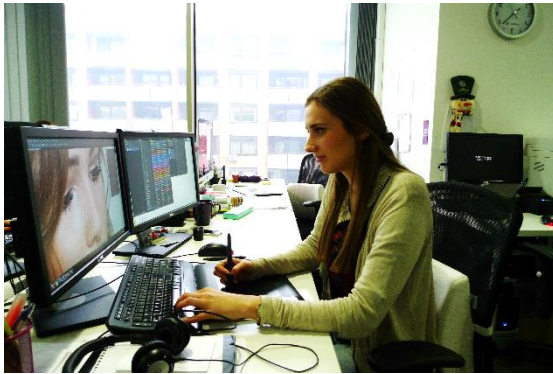

MARKETMAKERS - CASE STUDY

Case study on skills development in ICT sector



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List of Abbreviations

BiH	Bosnia i Hercegovina
BPO	Business process outsourcing
EBRD	European Bank for Reconstruction and Development
GDP	Gross Domestic Product
ICT	Information and communication technology
MOOC	Massive open online course
M4P	Make Markets Work for the Poor
MSD	Market Systems Development
SERDA	Sarajevo Economic Region Development Agency
SDC	Swiss Agency for Development and Cooperation

1. Background

The MarketMakers project in Bosnia i Herzegovina (BiH) aims to promote the creation of gainful and decent job opportunities for young women and men in BiH. The project is supported by the Swiss Government and implemented by a consortium of HELVETAS Swiss Intercooperation and Kolektiv d.o.o.

MarketMakers applies an innovative approach to youth unemployment by improving the performance of market systems to increase the number new job opportunities. It works in sectors that exhibit high job creation potential: information and communication technology (ICT), tourism as well as food production and processing. In ICT, MarketMakers facilitated the set-up of two platforms for the ICT sector to solve challenges in the Bosnian ICT market system.

This case study describes the experience and observations of MarketMakers in terms of skills development in ICT. Importantly, the project facilitated the establishment of two platforms – and not two training programs. Out of the platforms, two successful training programs emerged, both non-formal. How did they emerge? What was MarketMaker’s role as a facilitator? Is there potential to scale them up in BiH and/or the Western Balkans?

1.1. Economic overview

BiH is an upper middle-income country. After the recession in 2012, the economy grew by an estimated 0.8% thanks mostly to increased exports. The World Bank forecasts a continued rebound in 2014, with an estimated growth rate of 2%.¹ Globally, BiH stands at 107 in the ranking of 189 economies on the ease of doing business in 2015: burdens such as high taxes, long and complicated procedures for company registrations explain this mediocre ranking.² There is a need to rebuild fiscal space for growth-enhancing public investments and to enhance the business environment to attract private investment.

Labour market conditions improved slightly during 2013. Notwithstanding a slight rise of employment in the manufacturing sector, the public sector still accounts for the largest share in the workforce (27%) in 2013. According to latest data, 28% of all people at working age are unemployed. Young persons are particularly affected: the youth unemployment rate is 63.1%.³

„We are part of a generation that has become the record holder for the highest youth unemployment rate in Bosnia and Herzegovina ever....what are the causes of this situation and do we have a chance for a normal life?“ Ajka Barucic, 25, winner of a World Bank contest exploring youth unemployment in Bosnia.

1.2. MarketMakers’ intervention in ICT sector

This case study focuses on the ICT sector, one of the most promising sectors in BiH. The ICT sector is also recognized globally as a fast growing sector, which is attractive and can provide jobs especially for young women and men. The need for ICT expertise is growing annually and is expected to do so in the future, not only in the ICT sector but also in other sectors that increasingly need ICT services. While the demand for ICT experts is growing annually, the supply of qualified job candidates has not kept pace with demand.

¹ <http://www.worldbank.org/en/country/bosniaandherzegovina/overview> [25.02.2015]

² World Bank. 2014. Doing Business 2015: Going Beyond Efficiency. Washington, DC: World Bank Group

³ European Commission 2014. Bosnia and Herzegovina 2014 Progress Report. Brussels.

1.3. Lack of skilled ICT technicians: symptoms and causes

Lack of qualified work force is currently the core barrier for the further development of the ICT sector. In BiH, public educational institutions do not meet the requirements of the industry (with the exception of the IT Faculty in Mostar): their curricula are outdated and focus on theoretical aspects of IT, teachers and trainers are unaware of the latest technologies used in the industry, and the IT equipment is obsolete and not supported by new software programs. The formal education system not only provides outdated technical skills but also fails to teach the kind of soft skills ICT companies are looking for: business skills, project management skills and administrative skills. Private training providers mainly provide in-service training and hardly see unemployed as a clientele for their programs.

Even if ICT is said to be a modern and trend-setting sector, young women and men do not yet perceive the diverse employment opportunities offered in the ICT sector, which shows that employment bureaus, job centers and training providers inadequately communicate information on opportunities in the ICT labour market and ICT topics are only rarely promoted in the media.

Poaching personnel from rival companies is common, given the striking shortage of skilled IT technicians. Many skilled IT technicians furthermore migrate to other parts of Europe, especially Austria, Germany and Ireland, given the high salary and good living standard they get abroad.

2. Strategy

MarketMakers applies a specific market development approach known as Make Markets Work for the Poor (M4P) or Market Systems Development (MSD). The underlying idea of M4P is that the poor and disadvantaged are part of the market system; they are dependent upon market systems for their livelihoods – even though these market systems are highly flawed. Improving and transforming the market systems beneficially and sustainably for the poor and disadvantaged will improve their livelihoods and

ICT is attractive to young people

- Modern, trend-setting sector
- 40% of employees in BPO sub-sector are women
- Good salaries, especially for starters
- Different professions: programme developer, games developer, graphic designer, software developer, etc.

consequently reduce poverty.⁴ MarketMakers therefore seeks to facilitate changes in the market systems in BiH so that young women and men can benefit from improved employment opportunities.

A comprehensive sector analysis revealed that the ICT sector is *highly relevant* to the target group (young women and men seeking employment): it has great *growth prospects*, and offers significant opportunities to *increase employment perspectives* for young women. However, the ICT sector faces several constraints limiting its growth in BiH, including:

- Lack of supporting services to ICT companies: a lack of public information on the ICT sector means that job seekers are unaware of career opportunities in the IT field. Similarly, outdated curricula, badly trained teachers, and insufficient cooperation between training institutes and the private sector yields IT students who do not possess the relevant skills required by the private sector.
- Non-functioning coordination and advocacy systems: lack of coordination between ICT companies results in ineffective lobbying and advocacy initiatives (such as reducing bureaucratic business registration procedures or promoting IT incubators).

MarketMakers uses the above constraints as an entry point for its project activities, and chose HUB387 and BIT Alliance as its first two interventions.

HUB387 is an IT hub with the mission to build a vibrant IT community in BiH. By sharing a common space, HUB387 seeks to promote a culture of collaboration and knowledge sharing among IT companies, propelling BiH to the forefront of IT development in the region. Furthermore, HUB387 wants to create a new generation of IT employees who have the competitive, market-relevant skills to transform BiH into a lucrative IT destination, attracting high-value projects and clients. To address the skills gap in the IT sector, HUB387 proposed the creation of **Academy387**. Academy387 offers intensive educational programs and courses, specifically addressing skills relevant to IT companies (please the chapter 3 for a more detailed description of Academy387).

BIT Alliance is an IT focused business membership organization, formed by six like-minded software companies. BIT Alliance has three main objectives: increasing the supply of skilled IT workers, conducting advocacy on regulatory issues slowing the growth of the IT sector, and promoting BiH as a vibrant IT destination. **BIT Camp** (further described in chapter 3 below) is a central activity in educating and training a new generation of motivated young IT professionals.

Both BIT Alliance and HUB387 are *highly demand-driven initiatives*; the impetus to improve BiH's IT landscape comes from the private sector. Furthermore, HUB387 and BIT Alliance have the capacity to *address multiple constraints at once* – from skills development to advocacy issues. Their business models therefore promise both sustainability and scalability.

⁴ To learn more about M4P, please visit <http://beamexchange.org/en/market-systems/>

Choosing replicable and sustainable business models

As a facilitator, MarketMakers seeks to be a catalyst for change in the market system. MarketMakers' interventions therefore have to be based on business models that ensure replicability and sustainability, as the project's involvement is only temporary. When designing project activities this requires creativity, a solid understanding of the sector dynamics and key stakeholders' interests and motivations.

With respect to HUB387, MarketMakers' task was to design a business model that ensured the HUB's momentum and served as a viable and successful future model for BiH's and the region's IT industry. MarketMakers therefore decided to offer a financial contribution to the rental costs of HUB387 member companies. For every company willing to join the HUB, MarketMakers offered to pay 30% of the rent for the first six months, reducing it to 15% after that, with a maximum support period of 1.5 years. MarketMakers thereby creates an initial, temporary incentive for IT companies to join the HUB without being the driving force behind HUB387 and its associated activities. Thus, the member companies gain "ownership" of HUB387; being responsible for investment in the HUB, determining its current and future activities, as well as taking charge of the overall vision of the HUB.

Starting with three member companies, HUB387 now counts 16 companies that have created 130 new high-quality jobs in 2014. The total investment in rent contribution made by MarketMakers amounts to EUR 50,000. The total investment made by member companies, in contrast, totals EUR 500,000 - ten times the amount provided by MarketMakers. In fact, a HUB387 member company has initiated a new HUB in Northeast BiH and IT companies in Croatia have recently secured funding to establish their very own HUB, HUB355. This illustrates that the business model is both replicable and sustainable.

Similarly, BIT Alliance is equally strongly "owned" by its six founding companies. The association is driven by their commitment to creating an attractive, competent and competitive IT landscape in BiH. MarketMakers assisted in the establishment of the association by becoming an associate member and paying a monthly membership fee for the first 1.5 years (EUR 15,000 in total). This financial support was particularly important in setting up BIT Alliance. It gave the founding member companies the momentum required to start the organization after years of failed discussions. MarketMakers' contribution is further utilized for promotional IT events such as motivational lectures (at high schools and universities), advocacy activities such as roundtable discussions, as well as for the marketing of BIT Camp. As BIT Alliance grows and expands in the future, MarketMakers' position as an associate member will be replaced as new IT companies take out membership, thereby illustrating the sustainability of BIT Alliance's business model.

It should be noted that MarketMakers' approach to the facilitation of HUB387 and BIT Alliance has attracted several donors' interests. Donors such as the European Bank for Reconstruction and Development (EBRD), USAID, SIDA and the Swedish Embassy currently cover many of the associated costs of the BIT Camp and Academy387.

3. Activities

Impact logic related to skills development in ICT⁵

Activities: MarketMakers supports the set-up of two initiatives in ICT: BIT Alliance and HUB387. The project provides support to mentoring sessions and motivational lectures, helps the organizations establish partnerships with universities and contributes to the promotion of ICT.

Support market:

- Young women and men understand the benefits of ICT and are increasingly interested in a career in ICT.
- BIT Camp and Academy387 offer courses that correspond to the needs of ICT companies. They develop new models of educating young women and men in ICT.
- Other training providers see the potential of educating in ICT due to increased demand by young people and the success of BIT Camp and Academy387. They start offering market-relevant courses, too.
- Young women and men acquire technical and entrepreneurial skills. Their capacities are relevant to the needs of ICT companies.

Core market: New opportunities for employment for young women and men are created.

Impact: More unemployed young women and men are employed in the ICT sector.

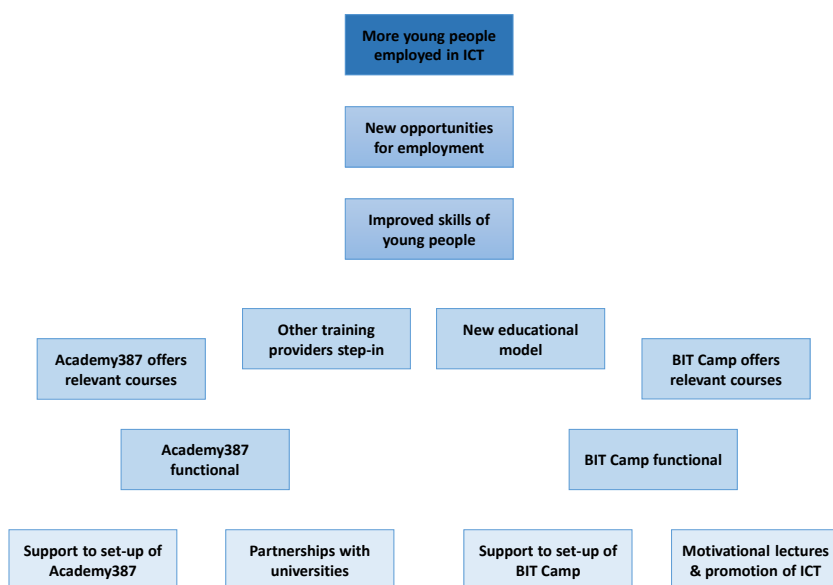


Figure 1: Simplified result chain of skills development in ICT

⁵ Based on the result chains for BIT Alliance and HUB387. The impact hypothesis does only reflect intervention area 2 (Commercial and formal training system improved and offer better and needed support to the ICT companies) of the two result chains.

Initiative	BIT Alliance	HUB387
Type	Business association	Technology hub and co-working space
Goal	Achieve recognition of BiH in the world as a destination where top IT experts work.	Bring high value projects and clients starting within the IT industry in order to generate more jobs and to become the leading IT ecosystem in the region. ⁶
Training programme	BIT Camp	Academy387
Type of training	6 months intensive training	Various short-term courses
Teachers	5 teachers from industry, university, freelance	Various teachers from BiH and abroad
Students	People with no professional IT background (exception of 2 students)	1) Mainly IT professionals who want to upgrade their skills. 2) Unemployed who get introductory courses.
Certificates	By BIT Camp	By Academy387. Currently, two courses are internationally certified courses.
Fees	7500 BAM for 6 months. Fees covered by companies and students.	Fees differ per courses. Courses by renowned international lecturers heavily subsidized.
Other donors	EBRD	USAID, Embassy of Sweden

Table 1: Overview on HUB387 and BIT Alliance

BIT Camp is the intensive six monthly skills development programme of the BIT Alliance, and the business organisation's first joint activity. The first training round includes 23 students, 4 of which are young women and 19 young men, only two of which started with an IT background. This group was selected out of 800 applications in a rigorous recruitment process including psychometric tests. Currently, they get trained in Java technology: from Monday to Friday they start their day with three hours of lessons, followed by four hours of practical work in the laboratories, and extensive homework.

The companies are heavily involved: company representatives develop curricula in cooperation with the International University of Sarajevo, they teach and they partly finance the programme through monthly membership fees and a fee for each BIT Camp graduate employed by member companies. The employing companies see their support of training as an investment into the future skills of their workforce. Most importantly, each company provides skilled members of their staff to act as mentors to the students.

"I am striving to become one of the best software developers. That is what matters in my life, nothing else", tells Nermin, student at BIT Camp and formerly disillusioned and badly paid journalist. He describes the course as very tough and adds: *"The second week of the programme was the worst. I was dreaming codes the entire week. But then, in the third week, it made click."*



Students of BIT Camp: Haris, 21, and Nermin, 29

⁶ HUB387, business case.

Mentoring forms as a central part of the training: each mentor looks after one student during one month. The mentors check the homework, submit progress reports, give marks, and give hints and tips. This intensive mentorship has clear benefits for students, but it requires large amounts of valuable time from many of the most skilled employees from each company. Mentoring works for the companies because it gives them an insight into the operation of BIT Camp, which they can use to quickly adapt the programme and because the mentors get to know each of the students and can decide which students to offer jobs to when they graduate.

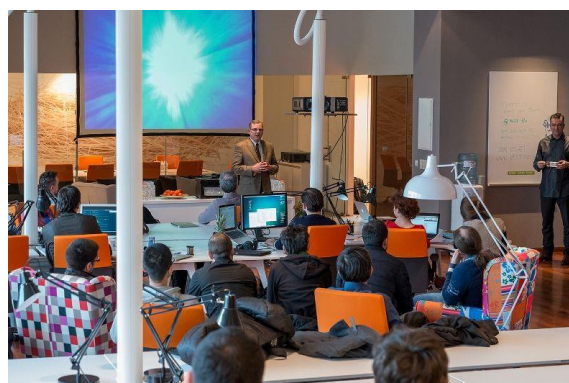
The programme is also very popular with young people because students have a guaranteed job after the training. That has nothing to do with a rigid training design but with the extreme competition between companies for skilled employees. As an owner of one of the companies puts it: "I would employ each one of them if I could."

At the **Academy387**, the programme located in the HUB premises, IT professionals and aspiring IT workers, including the unemployed, can educate themselves in intense short-term courses, workshops and lectures designed by expert level professionals and world class industry leaders in a variety of topics (e.g. IT courses, project management, soft skills). Programmes are designed as a direct response to the growing market demand for particular skill sets, technologies and know-how.⁷ Academy387 is designed as a hybrid model that manages selection of courses, student enrolment, feedback on teachers and testimonials similar to MOOC providers but finally deliver their courses in person. 294 people got educated in 26 courses in 2014.⁸ 97 participants were female and 35 percent got new employment afterwards. A few courses offer immediate employment opportunities: in case of the course Professional Software Tester the best candidates will be offered employment opportunities at a company. Graduates get a certificate issued by the Academy. Company representatives are heavily involved, too, because they jointly develop curricula, and act as trainers and mentors.

Both programmes are non-formal. Aside from financing, they are the purely a product of the private sector. Internships form an important learning form to transfer practical skills: a member of BIT Alliance replicated its company as a laboratory. Another company invested a laboratory at the HUB premises. Each company interviewed uses internships in order to recruit new employees. Finally, by imparting not only technical skills, the two programmes reply to the feedback of companies that they need a mixed skillset including business skills or project management skills.



Mistral Technologies informs high schools students about the promising career in ICT.



Collaboration between HUB387 and Municipality Novi Grad with the aim to get unemployed people registered at public employment services into ICT trainings.

⁷ <http://www.academy387.com/about> [09.02.2015]

⁸ <http://www.academy387.com/programs/categories/soft-skills> [10.02.2015]

4. First signs of success

The two initiatives experience a lot of publicity. For instance, Forbes visited the HUB387 and portrayed Edin Saračević's dream of developing an IT Disneyland in Sarajevo.⁹ The geniuses behind the Academy387 and BIT Camp put all their energy in transforming their visions in reality that is making BiH a hub for ICT technology. The two initiatives are fully driven by the industry: the entrepreneurs invest their own money and time.

Different types of scaling-up are already happening or likely to develop in the near future.

1) Organic growth to increase the turnover

Other ICT companies want to join the platforms. HUB387 is expanding, currently encompassing 16 companies, and already envisages moving to an even bigger and fancier building. BIT Alliance, who wants to give a voice to the industry and to speak with one voice, first intends to finalise its membership and application procedures before accepting more members in the business association.

BIT Camp's next programme will be of double size. That would mean that 50 people – mainly unemployed with different professional (seldom IT) and very talented in problem-solving – will become software developers in a short period of time and be employed at one of the six engaging companies afterwards. Longer-term plans exist to expand to four batches of 25 students during each six-month training period, which would mean that 200 people would be trained annually and different IT programmes could be covered at the same time (Java, Microsoft, etc.). EBRD has signalled its interest in scaling-up the programme within BiH by covering tuition fees, rent and transport of students coming from areas beyond Sarajevo. BIT Camp also intends to provide tailor-made programmes to external clients, i.e. companies that are not part of the business organisation. An Australian company has shown interest to pay to educating 100 local people in BiH.

2) Interest to franchise the model in the Western Balkans

Academy387 is in touch with various interested parties. The hub concept has already been franchised to Zagreb. There, HUB385, based on the country code of Croatia, is planned to be operational in spring 2015. Belgrade might follow next and discussions are under way for a presence in other Western Balkan countries. By going bigger, e.g. through HUB385, Academy387 will have better arguments to persuade famous teachers to come and teach in the Balkans. There is also an interest to franchise the BIT Camp concept in Serbia, Macedonia and Albania.

3) New initiatives are emerging & crowding-in

Organisations and companies have initiated other initiatives linked to or inspired by BIT Camp and Academy387. INTERA Technology Park¹⁰ based in Mostar has started cooperating with HUB387. Staff of member companies of INTERA got trained at the Academy387 in Sarajevo and INTERA intends to adapt the HUB387 concept to its context and needs in Mostar. The upcoming iOS training the Academy387 will also be held in Mostar. In the north of the country, in Cazin, the private company Mistral Technologies organised an IT boot camp to attract potential employees. Tuzla may be the next location for such boot camp.

⁹ <http://www.forbes.com/sites/adamtanner/2014/09/18/building-it-disneyland-in-a-former-war-zone/> [12.02.2015]

¹⁰ INTERA stands for Foundation for innovation and technology development and is non-profit and non-governmental organization established with the goal of encouraging and supporting economic development processes in Herzegovina.

Given the dynamics of the ICT sector, low start-up costs and factors positive for outsourcing (same time zone as Western Europe, good language skills of BiH graduates) it is likely that currently enrolled participants open their own businesses and later on initiate their own training initiatives.

5. Way forward

The role of the **diaspora** in the two initiatives is outstanding. The large majority of persons involved in the two initiatives are business people who returned to Sarajevo after having succeeded with their IT business abroad (USA, Canada, England, Netherlands, etc.). What unites them is their vision to make Sarajevo an IT hub and later BiH an IT destination – and their strong links to overseas markets. Certainly, there is untapped potential of similar diaspora-led businesses in other countries in the Western Balkans, the hub in Pristina in the scope of EYE is one example.¹¹

Female participation already looks promising, but must be further improved. For that to be achieved, the selection process for trainees must be designed in such a way that young women increasingly pass the application procedure (by checking if there are some hidden gender stereotypes in the recruitment), courses featuring creative elements such as iOS should be expanded and, whenever possible, female lectures should be invited to teach (role model).

Financing is important to establish sustainable training models. Currently, companies want to pay for trainings (especially BIT Camp) as a way to lock-in future employees. This makes a lot of sense under current conditions where there is extreme competition for employees, but may change once competition is less fierce. Given the excellent job perspectives after the training, the financial contribution from the students, e.g. 1500 BAM in case of BIT Camp, could be increased. In view of the social demand towards education (e.g. access to education), subsidising fees enables young people to enrol in courses they otherwise couldn't attend – yet to circumvent negative side effects of subsidies, loan schemes for those who are not able to afford the fees could be introduced. Since donor money is unlikely to finish given the design and success of the two initiatives, the role of MarketMakers could be to help both organisations understand how to access and organise use of donor money appropriately to avoid negative long-term consequences.

¹¹ Since Kosovo is not part of EU or EEA, there may be challenges with regard to certain outsourcing processes. Data deserving protection such as HR data, payroll data, and account data from EU/EEA countries cannot be shared without any qualifications. http://ec.europa.eu/justice/data-protection/document/international-transfers/adequacy/index_en.htm

6. Annexes

Interview partners and participants of the focus group discussion

- Armin Alisic, Operations Director, Green River Media
- Damir Ibrisimovic, Managing director / CEO, atlantbh
- David Kramer, Deputy Head of Cooperation, Embassy of Switzerland
- Edin Saracevic, Founder, HUB 387
- Eldin Sarajlic, Projects coordinator, Prilika Plus
- Emir Dervisevic, Operations officer, Prilika Plus
- Ines Avdic, Program coordinator, Academy 387 Sarajevo
- Jovana Music, Managing director, Academy 387 Sarajevo
- Marin Jozic, Project coordinator, INTERA technology park
- Meliha Gekic Leric, Business incubator manager, INTERA technology park
- Mersiha Alijagic, National Program Officer, Embassy of Switzerland
- Ranko Markus, Director Representative Office in B&H, GOPA
- Zana Karkin Muslic, Executive Director, BIT Alliance

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