

# **Development and Implementation of MDTV Curricula (DIMTV)**

## **WP1 - Deliverable 1**

### **Analysis of current situation of Multimedia and Digital Television in Albania and Kosovo**

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## **1.0 Introduction to MDTV**

### **1.1 Motivation and objectives of the study**

The objectives of this study, entitled 'Analysis of current Multimedia and Digital TV (MDTV) situation in Albania and Kosovo', are: to offer a description and analysis of the current situation in media and multimedia services in Albania and Kosovo, find the challenges and serve as a resume of the legal framework of the audio-visual media services regulatory bodies in both countries; analyze the job market and the need for MDTV experts; and finally, depict the general panoramic of the education sector to find opportunities and advantages of training experts in the field of MDTV with the goal of solving the problems and overcome the challenges of the market.

Through the study we aim to have a clear and full understanding of the MDTV field in both countries. Hence, the results will guide the partners involved in this Erasmus+ project to build a strong base for the future steps of the project itself, especially in developing and improving MDTV curricula.

### **1.2 Structure of the report**

This is a deliverable report of the project and presents the results of the work and efforts done in the framework of the first work package, WP1.

In the first section, we present a brief history of the multimedia and digital broadcasting services in Albania and Kosovo. We have included in our study multimedia production companies and the broadcasting industry, as well as multimedia services and digital broadcasting services. Challenges encountered by the sector are also considered.

To understand how the market or the industry works and to propose improvements, it is important to understand also the legislation, the support of governmental bodies and the regulation philosophy adopted by each country. This is the reason why in the second section of this report, we present the legislation framework of both countries that has an impact in the MDTV field.

In the third section, we present a general overview of the market through interviews with professionals actually working in this field and the need for multimedia, digital television and communication experts in the market.

We present the actual situation of MDTV study programs in the Albanian and Kosovo education sector in the fourth section.

Furthermore, through the questionnaires we have distributed among current and graduate students, enough information was collected to assess the interest for this field from a student point of view. The methodology, the data and a brief discussion are presented in the fifth section.

The sixth session follows with an analysis on the job market and the challenges that students, universities and companies face.

Finally, we end with conclusions and some suggestions to tackle the challenges during the development period of this project or in future studies.

### 1.3 Methodology

A number of available reports are referenced in this study area as it is very new it became necessary to obtain additional opinions from the students and employees working in the MDTV area (TVs, radios etc.) to gain the insight of the current state on the issue. The study involves determining the research questions, selected methodologies, application of the best method that suits and presents the current situation of the MDTV through literature as well by measuring employee opinion in practice. The intention is to research and determine ongoing MDTV courses taking place and also its usability in the media and communication industry. Below are some of the steps that were followed closely to layout the design, development, and implementation of the methodology for the completion of this study:

1. Goals and objectives and priorities order of research problem
2. Development of main research problem
3. Questionnaire design, data validation, field interviews, generate a report and visualize statistics
4. Literature review and conduction of the survey
5. Generation of the results
6. Interpretation of the results
7. Conclusions and recommendations

While reviewing the reports and available literature it became necessary to develop and design the central research questions. Initially, current MDTV-related curricula were studied and teaching staff in both countries were consulted. The questions were further tailored to provide a clear picture about MDTV in Albania and Kosovo. The design of the questionnaire has been mainly based on the existing curricula but not limited to their scope and extensibility. It is worth to note that to our knowledge no previous studies have taken place on the analysis of MDTV area. The questionnaire had both closed and open ended questions with the principle of measuring participant attitudes about specific issues. Each research question had different options; however, conclusions can be reached due to the assigned values that will be used to measure the attitude of respondents.

The selection of targeted industry in MDTV area for the study was seen as an opportunity since it is the first time this area is to be analyzed. Being the first type of study applied in this area, it was crucial that it opened up a topic that is mainly not discussed among students or businesses in this region. Furthermore, it will be of vital importance to MDTV faculties in increasing students' opportunities where high numbers of unemployment ranging from 20% to 45% exists and therefore analyzing MDTV would shed some light if new experts are needed in this area.

The questionnaire was designed in the local language (and in English for the aim of the project) and developed in both word and excel formats. The questionnaire was converted into Google form as well and forwarded to students/employees through a link to make it as easy as possible (also a word/excel

file was utilized in specific cases like companies willing to respond in a traditional format or cases they lacked knowledge, time availability or other technological means). The questionnaire takes an average 6 to 8 minutes to complete. In Albanian part, the questionnaires were distributed to bachelor students and alumni as well. On the other hand, in Kosovo, since there is no specific MDTV program the survey was distributed to students graduated from MDTV-related fields. One of the common issues with field interviews is the willingness of the students/individuals wanting to participate in the survey. In the MDTV industry case, the number of existing colleges/companies, their low willingness to participate and/or unwillingness to provide information due to competition, their busy schedule and overall lack of readiness were among the main challenges.

## ALBANIA'S PERSPECTIVE

### 2.0 Historical development of broadcasting and multimedia services

#### 2.1 Analog communications, Radio Tirana and TVSH

Radio Tirana, first introduced in 1938, was the first contact with an electronic media that Albanians had. The first broadcast consisted of coral singing, followed by Kaliopi Nushi's voice who pronounced the following phrase: "Mirëdita, kjo është Radio Tirana". This officially marked the first broadcast of Radio Tirana. In 1987, 66 hours of programs were broadcast in 20 foreign languages every day.

In 1959, the first Experimental Television Center that provided the basis for the latter Albanian state television, TVSH, was founded. Albanian state television had the first official launch in 1<sup>st</sup> of May 1960. Television programs were regularly launched by 1971. Color broadcasts became regular by 1982.

Until 1995 for most Albanians, electronic media meant the State radio and television network. Both of them were analogue broadcasts. After the fall of communism changes began to take place. Televisions and content industry were the first to reflect the changes. A lot of private investments started to pop up as non-legal broadcasters. The reason they were called illegal was due to the lack of an adequate media law on media regulation. From 1995 to 1998, there were 33 private operators while at the end of year 2000, 51 televisions were established. Statistics for 1997 indicated that Albanians owned 810,000 radios and 405,000 television sets<sup>1</sup>.

Most of the broadcasters during these years have started with amateur VHS and half-professional Umatik and SVHS standards<sup>2</sup>.

In those early days there was a serious lack of staff with experience in this field, mostly concerning the knowledge required or an efficient use of the equipment, while most technicians had only completed general electrical engineering training at that time<sup>3</sup>.

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<sup>1</sup><http://www.pressreference.com/A-Be/Albania.html#ixzz55Nmcd5d>

<sup>2</sup>Time Zero of the Digital Switchover in SEE

<sup>3</sup> [http://www.respublica.al/arkiv-opinion/liindja-e-televizioneve-private-ne-shqipëri#\\_ftn37](http://www.respublica.al/arkiv-opinion/liindja-e-televizioneve-private-ne-shqipëri#_ftn37)

Digital television came to the Albanian media scene as a guest that neither the law, nor the regulatory authority had invited, or at least planned for. The first and so far only digital terrestrial television started broadcasting on July 15, 2004, amidst strong opposition from both the regulatory authority and the other competing TV companies<sup>4</sup>. Since then the commercial TV sector has experienced a late, but speedy, growth, characterized by lawlessness and chaos due to the absence of regulation<sup>5</sup>.

## 2.2 Assistance from foreign experts

Digitalb was the first to bring Digital terrestrial broadcasting DVB-T in Albania in 2004. Before this media revolution, not only our legislation but also other countries in the region were found unprepared<sup>6</sup>. From 2004 to 2006, the NCRT (National Council of Radio and Television) represented Albania in the process of drafting and coordinating with neighboring countries of the frequency planning for new digital services in an attempt to "welcome" the new technology that in media regulatory terms were illegal.

In 2006, in Geneva, Switzerland, the World Telecommunication Union (UIT) approved the agreement "On the planning of the digital terrestrial television service in parts of Regions 1 and 3, in the frequency bands 174-230 MHz and 470-862 MHz", while in 2007, the Albanian Parliament adopted the first law on regulating digital broadcasting in the country, the main purpose of which was the licensing of existing digital TV operators and the regulation of its functioning by law. New operators were also emerging. This law was a result of a lot of discussion, and collaboration between the Council of Europe, the European commission, private media and Albanian institutions. After long crawling and debates, the parliament, on May 2012, finally approved the Strategy to Digital Switchover, which would pave the way for the official start of the switchover to digital broadcasting. After the approval of the Strategy, the head of the National Council of Radio and Television called for the speedy approval of the draft law on Audiovisual Services and it took almost one more year to finalize and approve the new law, Law 97/2013 "On Audiovisual Media" in March 2013<sup>7</sup>. This law added new competences to the functions of the regulator, now called Audio Visual Media Authority (AMA)<sup>8</sup>. RTSH, the public broadcaster has been assigned a leading role in the digital switchover process. The Strategy for Digital Switchover allocated two national frequencies to the public broadcaster, out of eight assigned to Albania.

Unable to build the two networks on its own, the Ministry of Innovation and ICT of Albania published a procurement process and at the end Rohde & Schwarz was chosen as an outsourcing company for the Finance, Design, Supply, Installation, Training and Transfer of a DVB-T2 Network for the Republic of Albania. RTSH still has not finished the process yet<sup>9</sup>. According to AMA the process is done step by step and region by region.

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<sup>4</sup>Digital television in Albania: policies, development, and public debate

<sup>5</sup>European Union Audiovisual Media Services and its impact on freedom of speech

<sup>6</sup>Time Zero of the Digital Switchover in SEE

<sup>7</sup>The process of switchover to digital broadcasting

<sup>8</sup>Switchover to Digital Broadcasting, Enio Haxhimihali

<sup>9</sup> <https://www.rohde-schwarz.com/>

## **2.3 The history and birth of multimedia services/production companies in early post-communist Albania**

The history of Multimedia productions in Albania goes back to 1900s. In 1909 Kol Idromeno was the first painter to show motion pictures in Albania in 1912. At the end of 1920 there were 18 movie theaters in the country.

In 1952 the Soviet-built "New Albania" film studio complex (Kinostudio) was established in Tirana. At this time, students were sent to Czechoslovakia and the Soviet Union to start their filmmaking studies.

In 1975 the first cartoon film "Zana dhe Miri" was produced. After that, the production of films with the drawing technique and techniques combined with real items began. Surprisingly, for a country isolated from most of the world, Albania produced an average of 13 movies per year during the period of 1975-1990. From 1958 until 1995, 270 feature films, 700 documentaries and 150 animated films were produced in Albania.

The two decades of transition since the 1991 collapse of the communist system have been difficult for Albanian cinema. Though the former "New Albania" became the "Albafilm Studios", production was reduced to a trickle by the 1990s, with an average of 1 or 2 films produced annually. In 1996 The National Center for Cinematography (QKK), sometimes referred to as the National Film Center, was created by the Albanian government and decreed according to the "Law on Cinematography nr. 8096, dated 29.04.1996, article 3"<sup>10</sup>. At the end of 1995, the first production studio named "Gjeli Vizion" was established and it had only four cameras. Now in Albania, a lot of private production studios, which cover the need of the market for multimedia productions, operate.

## **3.0 Regulatory bodies monitoring the broadcasting/communication market**

### **3.1 AMA, mainly broadcasting**

The legal framework regulating radio and television broadcasting in the Republic of Albania and digital broadcasting until the adoption of law no. 97/2013 "On audiovisual media in the Republic of Albania" consisted of two separate laws:

- Law no. 8410, dated 30.09.1998, "On Public and Private Radio and Television in the Republic of Albania" as amended, and,
- Law no. 9742 dated 28.05.2007, "On Numerical Broadcasting in the Republic of Albania".

According to the law no. 97/2013, AMA is the regulatory authority in the field of audio and audiovisual broadcasting services and other supporting services in the territory of the Republic of Albania<sup>11</sup>. Some of AMA main functions include ensuring fair competition, monitoring programs broadcast by Audiovisual Media Service providers (OSHAMA), drafting strategies for the provision of broadcasting services, and

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<sup>10</sup> <http://nationalfilmcenter.gov.al>

<sup>11</sup> <http://ama.gov.al>

drafting and adopting regulations on the procedures for granting licenses and/or authorization, as defined by the Law on Media.

### **3.2 AKEP, mainly communications**

The Electronic and Postal Communications Authority is the telecommunications regulator for Albania. It administers the Law on Electronic Communications. The authority provides the publication of the National Frequencies Plan, as well as the relevant terms and conditions of use of frequencies. It also manages the .al geographic top-level domain. The Law on Electronic Communications (9918/2008) aims to promote competition and provide efficient infrastructure and proper and adequate services by upholding the principle of technological neutrality in electronic communications<sup>12</sup>.

## **4.0 Multimedia operators in Albania**

### **4.1 Multimedia production and broadcasting**

According to AMA statistics, Albania has 215 audio and audio visual broadcasters, including here the operators responsible for building digital networks. There are 6 national broadcasters, 1 public and 5 private ones. These five private broadcasters have their own national terrestrial network for broadcasting audio-visual content with 20 programs each and RTSH (the public broadcaster) on the other side has 2 networks for broadcasting more than 40 programs. In total, these broadcasters transmit approximately 140 national programs through digital terrestrial broadcast.

Albania has 3 national radios, 2 private (TV Klan and TV Top Channel) and 1 public (RTSH). These private operators broadcast one audio program each and the public one (Radio Tirana) broadcast 2 audio programs.

In Albania, there are 107 private local and regional televisions and 106 private local and regional radios.

All audiovisual companies that operate in Albania provide different varieties of multimedia services, including: music information, history, geography, technology and information on the activity of parliament and politics, through the use of audio, video, image and data.

Until 2005, the knowledge and understanding of multimedia and multimedia services was very incomplete and not clear. Multimedia could only be understood in terms of television and movie processes. After 2005, together with the development of digitalization and the increase of the use of internet and digital content, there has been an increase in the development of multimedia products, to fulfill the need of the market. In Albania, there are more than 10 legally known big businesses, initiated by young entrepreneurs, covering most of the need for multimedia services.

We have defined as multimedia services and solutions the services below:

- 2D and 3D Animation movies

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<sup>12</sup> <https://www.akep.al>

- Production and post-production services
- Technical support
- Image processing
- Equipment support services

#### **4.2 Communication service providers dealing with multimedia**

The communication sector in Albania is regulated by the Electronic and Postal Communications Authority (*alb.* AKEP), which at the same time is the governmental body responsible for the periodic reporting of facts and figures of this sector.

According to the statistical report on the communication sector published by AKEP concerning the third trimester of 2017<sup>13</sup>, the number of active mobile services users is 3.4 million, while there is a 25.4% increase in the number of users accessing the Internet through mobile broadband services with respect to the same period of 2016. The amount of traffic data saw an increase of 11.2% relative to the first trimester of 2017 and the average monthly amount of traffic consumed by active users was 1.95 GB, resulting in 7.7% relative to the same period.

On the other hand, the total number of fixed broadband network subscribers was 279 thousand, 70% of which, almost 194 thousand, opted for integrated services: telephone/internet/TV. The latter subscribers saw an 11.3% increase with respect to the same period of 2016. TV has been chosen by some 49% of integrated services subscribers.

The data provided seem to suggest that the demand for broadband services, both mobile and fixed, provided in Albania is rapidly growing, which shows that the need for ICT professionals will be greater. Discussions and a careful planning between all the main actors should be carried out in the future to avoid the worsening of the situation in terms of the lack of such professionals in Albania.

### **5.0 Education in the field of multimedia services**

#### **5.1 General introduction to the education system in Albania**

Even though Albania is a small country, the passion for education is high reflecting in the growing number of higher education institutions. In Albania there are 14 public higher education institutions and 25 private higher education institutions<sup>14</sup>. The telecommunication field is one of the most preferred study programs mainly due to the promise of a stable and well-paid working career.

After the fall of communism and with the rise of internet and computer science, as well as ICT, all the study programs related to this field are the most preferred ones. In Albania there are approximately 500,000 students enrolled in higher education institutions, among which 80,000 study in ICT-related fields<sup>15</sup>. Approximately 270,000 are male students and 230,000 are female students.

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<sup>13</sup>Treguesitstatistikorëtëtregetëkomunikimeveelektronike, tremujori 3, 2017

<sup>14</sup> <https://www.asc.al/>

<sup>15</sup> [http://databaza.instat.gov.al/pxweb/sq/DST/START\\_\\_ED/](http://databaza.instat.gov.al/pxweb/sq/DST/START__ED/)

## 5.2 Study programs in the field of ICT/Multimedia

There are four main study programs in the field of MDTV offered currently in Albania. All these study programs are bachelor programs that prepare students in the field of MDTV for the job market. Also, there is a master program, but focused more in the arts aspect of Multimedia. Each of them is presented briefly as follows:

*Bachelor in MDTV*, offered by UAMD, is a unique study program with the aim of preparing professionals and specialists in the field of MDTV: Communication, Multimedia, Audio production, Video production, Animation, Acoustics, etc. This program started in October 2012 with a number of 42 students enrolled. During these 5 years, 180 students have been registered to this program in total and there has been an increase in students' interest toward it since both the students and the market have started to acknowledge the importance of being specialized in this field<sup>16</sup>.

University of Arts offers a *Bachelor and Master program in Multimedia*. The aim of this program is to encourage ideas and concepts that trigger the form of reasoning. Through multimedia techniques, this program encourages students to express and interpret the phenomena around us and to materialize this attitude in expression modules like, photography, video and performance<sup>17</sup>.

Academy of Film and Multimedia "Marubi" offers a three-year study program, *Bachelor in Film and Media*, with these profiles: Film Directing, Camera, Editing and Screenwriting. The aims of this program include: discovering, preparing and qualifying of talents in Film and Audiovisual industry. Students are involved by rotation in practice, in all the chain of production, digital and optical, image and sound<sup>18</sup>.

The 3-year *Bachelor program in Electronics and Digital Communications Engineering* offered by Epoka University delivers a classical engineering study curricula, which is based on the Bologna system with the first and second years providing the necessary elements to introduce the students in the domain, while during the third year students are given the choice to specialize in multimedia and digital television engineering by taking elective courses. The latter courses were developed and staff was trained in the framework of a TEMPUS project whose contribution to the multimedia education in Albania is outlined in the next paragraph.

## 5.3 The previous TEMPUS project contribution on Multimedia Education

The Bachelor study program in MDTV is the output of a successfully completed TEMPUS RICUM Project where the Faculty of Information Technology, UAMD was a partner institution. MDTV bachelor program is the first study program of this kind opened in Albania and still is the only one, not only in the country but also in Kosovo and Macedonia that is training students in the MDTV field and trying to cover the market needs for these types of experts.

Later staff members from MDTV program at UAMD, became part of another project, StudAVP, the aim of which was to exchange knowledge through trainings, seminars and exchanges for students and

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<sup>16</sup> <http://www.uamd.edu.al>

<sup>17</sup> <http://www.uart.edu.al>

<sup>18</sup> <http://afmm.edu.al>

lecturers and to build an infrastructure within the university that could improve the process of teaching and learning in this field. Therefore, within the context of this project, MDTV students and lecturers had the chance to be trained by EU experts and a laboratory was built for MDTV study program at UAMD.

DIMTV project is the third investment done in this field in Albania and Kosovo. The project aims to raise the importance of the studies in this field in the region and at the same time prepare technicians that will cover the need for MDTV experts.

## 6.0 Interest of youngsters to pursue careers in multimedia related fields

### 6.1 Questionnaire results

As mentioned previously, the MDTV program at UAMD has had 180 students enrolled since its first opening in 2012. A questionnaire was designed to understand how this program is helping students to pursue their careers and find the different aspects of the study programming need of improvement. The number of participants was 72 and some of the results are presented below. Another questionnaire was sent to Epoka University students and graduates and was designed under the same principles of UAMD, but concerned also their summer practice internship, which is mandatory for Bachelor students. The number of participants was 77 and their study program was either Computer Engineering (CEN) or Electronics and Digital Communications Engineering (EDCE).

In Albania there are stereotypes among society when is the question about the gender of students studying in specific programs. Before 2000 there were misbalances in gender, where male students were more interested in following a profession in engineering and subjects related to this compared to female students. The results collected from UAMD and EPOKA show an increase in the number of female students following these types of programs. As shown in Figures 1 and 2 the gender gap is getting narrower.

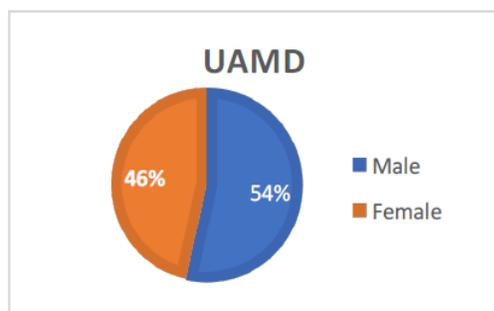


Figure 1. Percentage of UAMD students according to their gender.

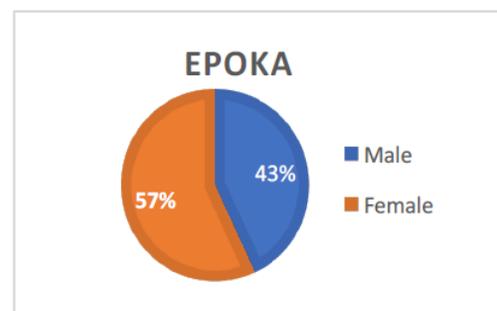


Figure 2. Percentage of EPOKA students according to their gender.

72.9% of the students asked from UAMD were from 18-22 years old. And only 27.1% were more than 23 years old. 18.3% of the interviewers were in the first year of their studies. 11.3% were from the second year, 36.6% were from third year and 33.8% have finished their studies. On the other hand, at Epoka

University, all the students were under 25 years old. 66.2% of them were current students (under 22), whereas 27.3% are EDCE graduates and the remaining part CEN graduates.

We asked the interviewees about their age based on the fact that in Albania it is not common for someone to start university studies after being 18-19 years old. Usually most of the people start university directly after completing high school. The reason why most of the students start to study after 23 is because they are currently working in the field and they need the degree to keep their job positions and/or get promoted. Based on this, the age of enrolled students might give an insight on their reasons to pursue such studies.

The MDTV study program in UAMD is unique and most of the students find difficulties in understanding the purpose since the beginning of their study due to the lack of information among high school students and more generally in society. The study programs offered by Epoka University are mostly classical engineering study programs in the domains of electronics, communications and computer engineering fields. Students can take multimedia-related courses as electives during their third year.

When asked "Why do they choose this study program?" most of the students declared that they choose this field because it was their passion (Fig. 3.)

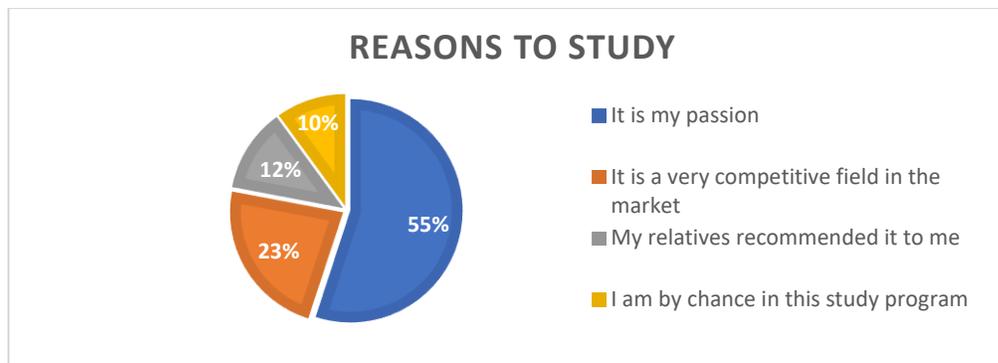


Figure 3. Graphical representation of why students choose to study in MDTV area.

The following question was about the awareness of students regarding the objectives of the program. 94.3% of them believed they knew the aim and objectives of this program. This is an interesting finding because the program is very young and still developing.

There were also questions regarding the courses of the MDTV curricula, their effectiveness, their importance in training students in MDTV field, etc. 65.7% of them said that the courses were effective in helping them during the job in the future. Following this question, they were asked for suggestions of what are some courses they think are very important for studying in this program and some courses that are useless to be in the curricula. Professional courses were their favorite like: animation, audio engineering, TV production and post-production. On the other hand, a certain amount of them feel that their interest in core courses such as Algebra, Mathematics and Physics is low due to the highly theoretical nature of such courses and most importantly they find it difficult to see the usefulness of the knowledge developed during these courses. Therefore, a better organization of the courses in terms of introducing practical sessions, during which application of concepts are demonstrated, would be

beneficial to increasing the interest of students.

When students of Epoka University were asked the same question, only 39% of the interviewed students declared to have taken multimedia-related "elective" courses and an important 74.7% majority of them thinks that more courses of this discipline should be offered. Just 10.4% think that these types of courses are not that important for their professional training, while 72.7% of them declare they would consider a career in multimedia systems.

There were questions to evaluate the tools and the infrastructure that UAMD, as university provides for them and the importance of these tools in student's studies. According to the students, lecturers are an important part of their education process. 87% said that lecturers were very collaborative and encouraging students to practice individually. When asked if the lab was enough for them to practice, 63.2 % said not at all and 35.3% said the lab is enough helpful. 81.2 % of the students said that they would recommend this study program to their friends. And 88.4% would like to continue studying in a master program in this field (Fig. 4) especially in the area of production and post production.

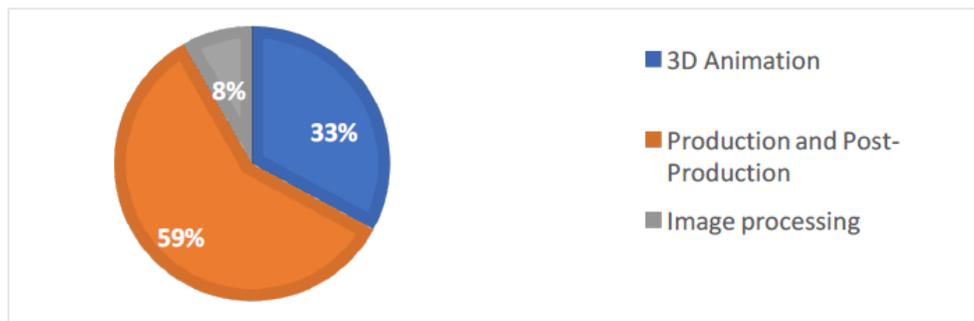


Figure 4. Percentage of student according to their field of study preference

In conclusion, it can be stated that youngsters are interested in the field of multimedia systems and would like to know more about it. Ample and better information provided by career advising officers in universities should be beneficial.

## 6.2. The importance of internships

The summer internship offers students an opportunity to experience a professional working environment and be mentored by industry experts. During the internship they also have to put to use their soft skills such as working in a team, reporting etc., and better understand their importance.

In the questionnaire discussed previously was included a specific question "In what sector did your internship company operate?" to get to know more about the companies to which the students were attracted. The chart below shows the percentages of the students doing internship in different sectors in industry (Fig. 5).

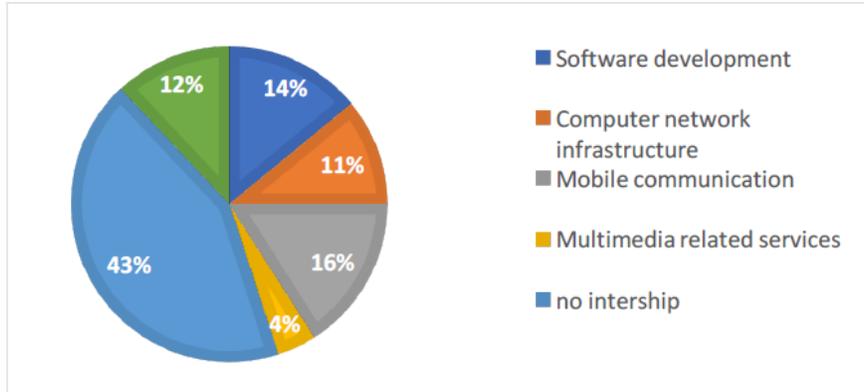


Figure 5. Operational sector of internship companies.

According to UAMD study, most of the students in MDTV find their job by themselves with little support from the university. This is a general perception in Albania not only restricted to the case in study, calling for the establishment of cooperation agreements between universities and the enterprise stakeholders. Given the great interest in multimedia related professions expressed by the interviewees, the results indicate that there is a need for universities to foster relationships with companies operating in the MDTV area and raise the student awareness of such opportunities.

## 7.0 Analysis of the job market and current challenges

### 7.1 AMA questionnaire

To have a more relevant and complete view of the need for MDTV experts among broadcasters in Albania a questionnaire was distributed to AMA, the authority responsible for monitoring these activities. According to it, local broadcasters are small operators with only 3 to 8 employees. Regional broadcasters are bigger, with 10 to 30 employees and national broadcasters have 20 to 50 employees. The chart below (Fig.6) presents the distribution of human resources working in the broadcasting industry according to their field of expertise.

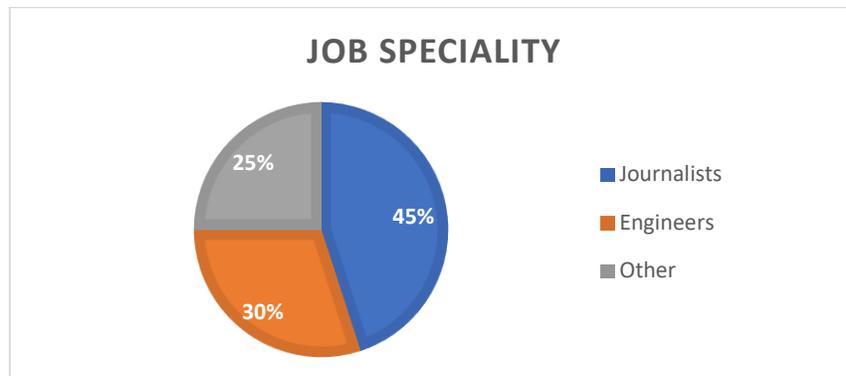


Figure 6. Distribution of human resources according to their field of expertise.

According to AMA, 60-80% of the experts in multimedia services that work in different broadcasters have a bachelor degree. It was emphasized that due to the digitalization process there is an increase in the audiovisual programs provided by the operators and as a result there is a growing need for MDTV experts. Moreover, broadcasters in Albania do not have enough qualified staff to cover the need for 3D animation, production/post production and image processing services. Until now, broadcasters have fulfilled the need for experts, with not specialized staff covering more than one working profile. It is a general practice among broadcasters to train the staff in house. Most of the broadcasts do not accept publicly their need for experts in these fields. Usually for important audiovisual productions they bring specialists and experts from abroad.

Non-official data suggest that most of the experts in the production and post-production area have a degree in journalism or film direction. Due to their experience in the use of multimedia tools, they cover the need for MDTV experts. Most of the experts in multimedia productions are students with a film director specialization; however, because of the need and their passion, they work as video and audio editors and animation movie producers as well.

There are three main challenges that broadcasts face in the MDTV sector, according to AMA:

1. Financial problems. There are more audiovisual operators compared to the main source of profit, advertisings.
2. In order to be competitive in the market, operators must invest a lot in the technology that is rapidly changing.
3. Lack of technicians and specialists in managing with efficiency the audiovisual broadcasts.

## **7.2 The need for collaboration between academia and businesses**

One main problem in the MDTV sector is the lack of collaboration and dialogue between university and businesses. At the time this report was written, neither UAMD nor Epoka University has signed any agreement or memorandum of understanding with television or radio broadcasts. Hopefully, the collaboration with RTSH during this project, will provide to our students more chances for internship programs. This will pave the way to collaborations with other operators as well

In addition, there is a lack of promoting the study program from the university in the job market. That reflects the fact that most of the broadcasters and multimedia companies do not have any information about the existence and the aim of the program.

## KOSOVO'S PERSPECTIVE

### 8.0 Historical development of broadcasting services

The broadcast services in Kosovo began after the Second World War in 1945, where for the first time the Radio Prishtina started its operation in Prizren. After that, it was moved in Prishtina<sup>19</sup>. This was the first analog radio in Kosovo. The Parliament of Kosovo founded the Radio Television of Prishtina (RTP) in 1973<sup>20</sup>. Until the military forces of Serbia closed it in 1990, the RTP was offering different programs in all languages spoken in Kosovo.

In 19<sup>th</sup> September 1999, Radio Television Kosovo (RTK) started its two hour program with the help of UNMIK, OSCE and EBU<sup>21</sup>. In October 1999, OSCE transformed Radio Prishtina to Radio Kosova. In June 2001 the UNMIK with a regulation 2001/13, formed officially the RTK as public broadcast transmission. In 2002, RTK was able to offer fifteen hours of program in terrestrial and satellite broadcasting with 65% of home production and 35% of foreign production. In 2003, RTK started with 24 hours of program. Expect RTK, in 2000, the KOHA group company founded Kohavision (KTV)<sup>22</sup> and at the same year Radio 21 started operation in internet. Later on it was opened the Radio Television 21. Nowadays we have three national TVs: RTK, KTV and RTV21, which have several TV channels and there are plenty of private channels, which broadcast their program in analog and digital format.

#### 8.1 Analog communications

At the beginning of their operation, the two broadcast services Radio Prishtina and RTP were mainly using analog communication. The analog communication continued to be used by radio and TV broadcast station all over Kosovo. After the Kosovo war, the RTK and two other TV stations KTV and RTV21 were using the analog communications. The definition of the radio frequencies to be used by radio and TV broadcast services are done by the Regulatory Authority of Electronic and Postal Communications (RAEPC) through Radio Frequency Plan for Republic of Kosovo (RFPRK)<sup>23</sup>. Based on this frequency plan the Independent Media Commission (IMC) is eligible to define the condition for using the radio frequencies for broadcast services. The frequencies, which are under the IMC administration, are presented in the following table.

**Table 1.** Frequency bands for radio broadcast services 148.5-255 kHz

<b>148.5-255 kHz</b>	<b>LF-Low frequency</b>
<b>526.5 – 1606.5 kHz</b>	<b>MF-Medium frequency</b>
<b>5900 – 26100 kHz</b>	<b>HF-High frequency</b>

<sup>19</sup>Retrieved 01 25, 2018, from [https://sq.wikipedia.org/wiki/Radio\\_Televizioni\\_i\\_Prishtin%C3%ABs](https://sq.wikipedia.org/wiki/Radio_Televizioni_i_Prishtin%C3%ABs)

<sup>20</sup>Retrieved January 24, 2018, from <http://botapress.info/sot-shenohet-pervjetori-i-72-te-i-radiotelevizionit-te-prishtines-1945-2017/>

<sup>21</sup>Retrieved 01 25, 2018, from <http://www.rtklive.com/sq/page.php?ID=10#>

<sup>22</sup>Retrieved 01 25, 2018, from [https://en.wikipedia.org/wiki/Kohavision#cite\\_note-1](https://en.wikipedia.org/wiki/Kohavision#cite_note-1)

<sup>23</sup>Plani i Përdorimit të Radio Frekuencave në Republikën e Kosovës. Prishtina: RAEPC.

Based on data in document<sup>24</sup>, there are several frequency sub bands as shown in Table 2.

**Table 2.** Sub frequency band for analog and digital radio and TV broadcast

Frequency sub band	Destination
<b>5900 - 6200 kHz</b>	
<b>7200 - 7450 kHz</b>	
<b>9400 - 9900 kHz</b>	
<b>11600 - 12100 kHz</b>	
<b>13570 - 13870 kHz</b>	
<b>15100 - 15800 kHz</b>	
<b>17480 - 17900 kHz</b>	
<b>18900 - 19020 kHz</b>	
<b>21450 - 21850 kHz</b>	
<b>25670 - 26100 kHz</b>	
<b>87.5 – 108.0 MHz</b>	FM radio broadcast
<b>174 – 230 MHz</b>	TV frequency band III – Analog TV (terrestrial)
	TV frequency band III – DVB – T digital TV (terrestrial)
	TV frequency band III – T-DAB Terrestrial Digital Audio Broadcast
<b>470 – 790 MHz</b>	TV frequency band IV/V – Analog TV (terrestrial)
	TV frequency band IV/V – DVB – T DVB – T digital TV (terrestrial)
<b>1452 – 1479.5 MHz</b>	Frequency band-L - T-DAB Terrestrial Digital Audio Broadcast

In the terrestrial radio and TV systems, most of the radio and TV channels in Kosovo are transmitting in analog frequency bands using analog technology. The coverage of the territory of Kosovo with radio and TV services depends from the location. There are several radio antennas<sup>25</sup> and TV antennas located in a high position, which transmit with a nominal power of several Watts for radio stations to hundred Kilo Watts for TV stations. In the following table, there are some details of national radio and TVs.

**Table 3.** Location of analog TV transmitters for coverage with RTK broadcast signals

TV/Radio	TX Location	Channels Tx	Nominal power	Height (m)	Frequency (MHz)	Antenna Height
RTK TV	Cernush	7 VHF	35 KW ERP	963	189.250MHz	72 m
RTK TV	Maja e Gjelbërt	12 VHF	500 W ERP	1004	224.250	27

<sup>24</sup>Plani i Përdorimit të Radio Freqüencave në Republikën e Kosovës. Prishtina: RAEPC.

<sup>25</sup>KPM/IMC. (2013). *Gjendjareledhe e planifikuar e planit frekuencor televiziv te Kosoves*. Prishtina: Independent Media Commission.

## 8.2 Assistance from foreign experts

As digitalization of terrestrial and radio services has not happened yet, however foreign institution through their experts have helped the IMC to prepare the plans for digitalization of Radio and TV broadcasting services. In this regard, the IMC in 2009 has organized an International Conference on Strategies and Experiences<sup>26</sup> of the regional countries for the process of digitalization of broadcast services. The main point of this conference was to identify the possibilities of digitalization of the broadcast services in Kosovo, taking into account the challenges related to spectrum allocation as interference avoidance with neighbor countries.

The experts from some of the neighbor and regional countries have shown to Kosovo authorities their challenges in the process of digitalization.

The Law No.05/L-027 approved by the Assembly of Republic of Kosovo in 2015 defines the digitalization of broadcast services in Kosovo. In this law, it is clearly specified the process of movement from analog transmission to digital transmission<sup>27</sup>.

## 8.3 The birth of multimedia services/production companies

The multimedia services in Kosovo started to happen with the evolved telecommunication infrastructure from private Internet Service Providers (ISP) such as IPKO and Kujtesa. At that time the Kosovo Telekom was also interested to enter in multimedia area, however they got delayed. As a result, today's most of the successful multimedia service providers are private ISP-s such as IPKO, Kujtesa, Artmotion in the Prishtina region and other ISP-se in other Kosovo regions. The telecommunication infrastructure, which enables multimedia services such as high-speed internet, IP TV-se, Video on Demand, Voice over IP telephony for all ISP-se, is coaxial cable based or optical cable based and in some cases hybrid fiber coax. Differently from them, Kosovo Telekom is offering such services using Digital Subscriber Line (DSL) technology mixed with optical fiber where in most of the cases only the last mile is twisted pair.

Mobile operators in Kosovo are mostly focused on offering the voice and data communications. There are two mobile operators: Kosovo Telecom and IPKO and a virtual mobile operator named Z-mobile. Since 2014 the mobile operators started to offer 3G and 4G services. There is no evidence that any of the mobile operators is offering any multimedia services through its mobile network.

In most of the rural areas there is no broadband infrastructure. As result, there are no possibilities for ISP-s to offer multimedia services in those regions. However, the Ministry of Economic Development of Kosovo in cooperation with World Bank is working towards the implementation of a project which consists of deploying the high speed broadband access in rural areas using the private-public financing model.

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<sup>26</sup>KPM/IMC (2009). INTRODUCTION OF DIGITAL BROADCASTING IN KOSOVO AND THE REGION\_STRATEGIES. Prishtina: International Media Commission.

<sup>27</sup>Assembly, K. (2015). LIGJ PËR DIXHITALIZIMIN E TRANSMETIMEVE RADIODIFUZIVE TOKËSORE. PRISHTINË: GAZETA ZYRTARE E REPUBLIKËS SË KOSOVËS / Nr. 26 / 24 Gusht 2015, PRISHTINË.

Concerning production companies in Kosovo, there is a large number of them focused on movie realization, musical spots etc.

#### **8.4 Comparison and acknowledgement of efforts from private enterprise**

Concerning digitalization of audio and video services, most of the effort to change the technology has been done by private TV providers. The RTK as public television is not yet ready to transmit on terrestrial digital frequency band due to its old analog technology. Until now ISPs (internet service providers), IP TV providers, and Digital Satellite TV-se (DVB-s) mainly offer the digital format of broadcasting services.

#### **9.0 Regulatory bodies monitoring the broadcasting/communication market**

The broadcasting/telecommunication market is very broad with audio and TV services offered by public and private companies and mobile and fixed communication services. By law, IMC is defined as the responsible body for monitoring the broadcasting market. On the other side, for electronic communication market, RAEPC is the responsible entity to monitor it.

##### **9.1 Independent Media Commission**

The IMC is formed in 2005 as legal entity to deal with regulation, management and monitor the radio frequencies for broadcast transmission in the territory of Republic of Kosovo<sup>28</sup>. It is also responsible for issuing the licenses for public and private transmission services. Based on the law No.05/L-027<sup>29</sup>, IMC is responsible for preparing the strategies of digitalization of audio and TV broadcast transmission.

##### **9.2 Regulatory Authority of Electronic and Postal Communications (RAEPC)**

The RAEPC formerly was known as Telecommunication Regulatory Authority (TRA) created on 2004. RAEPC is responsible for regulation, supervision and defining rules for electronic communication based on the Electronic communication law No.04/L-109 approved by the Kosovo Assembly in 2012<sup>30</sup>. RAEPC is responsible for regulation on mobile and fixed telephony market in Kosovo. They define the ways of allocating the radio spectrum to mobile operators. RAEPC is also responsible for monitoring the spectrum usage by mobile operators by monitoring the levels of interference.

#### **10.0 Multimedia sector broadcasting analysis in Kosovo**

According to IMC, the number of television channels with terrestrial broadcast in Kosovo, there are 3 TV channels on terrestrial broadcast with national coverage and 17 TV channels on terrestrial broadcast with local and regional coverage. Channels with national terrestrial coverage are Radio Television of

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<sup>28</sup>Komisioni i pavarur për media. Retrieved 01 26, 2018, from <http://www.kpm-ks.org/>

<sup>29</sup>Ligj për Dixhitalizimin e Transmetimeve Radiodifuzive Tokësore

<sup>30</sup>Assembly, K. (2012). Ligji nr. 04/l-109 për Komunikimet Elektronike. Prishtina: Official Gazzete of the Republic of Kosovo.

Kosovo, television channel of public broadcaster (RTK1), as well as TV 21 and Koha Vizion (KTV) licensed as commercial private television channels (IMC 2005).

**Public broadcaster** - Radio Television of Kosovo, the first program (RTK1), broadcasts 24 hours a day, covering 62.7% of Kosovo's territory and 80% of the population through terrestrial broadcasting. Whereas the second program of the public broadcaster (RTK 2), established under the Law no. 04 / L046 for Radio Television of Kosovo, is licensed by the IMC as Program Service Provider for broadcast of the program in Serbian language and operates since June 2013 with 24 hours program per day. Signal of RTK 2 is carried only in cable networks (IMC 2005).

**Private broadcasters** with national terrestrial coverage, Radio Television 21 (RTV21) and Koha Vizion (KTV), have reached almost the same coverage as the public broadcaster RTK 1.

All three televisions with national coverage broadcast program also through cable network and via satellite.

The company named Kosovo Terrestrial Transmission Network (KTTN) performs broadcasting services for the needs of 3 national televisions (RTK1, TV21 and KTV) and 4 national radio stations (public Radios, Radio Kosova 1 and Radio Kosova 2, and private radios Radio 21 and Radio Dukagjini).

Private commercial broadcasters with regional and local terrestrial coverage: TV Besa, TV Ballkan, TV Dukagjini, TV Festina, TV Herc, TV Iliria, TV Liria, TV Mir, TV Mitrovica, TV Most, TV Opinion, TV Prizreni, TV Puls, TV Syri Vision, TV Tema, TV Vali and TV Zoom operate by using private broadcasting sites/networks. All regional and local televisions together cover 68.14 % of the territory of Kosovo.

Despite the fact that a considerable number of TV channels operate on terrestrial analogue network, there are regions of Kosovo which have no access to television signals.

The biggest problem remains on the necessary non-use for the television broadcast of Golesh Peak, one of the main sites for broadcasting in the Republic of Kosovo. If TV stations could broadcast from the upper site of Golesh Peak, the coverage on the whole territory of Kosovo would increase up to 90%.

With the reactivation of this broadcasting site, by using also repeaters, the Dragash region which does not have access to terrestrial analogue television signals of Kosovo could also be covered. Although the IMC has licensed a number of local broadcasters in Prizren and Dragash, there is no coverage with qualitative signal for the majority of citizens in this part of Kosovo. The only way how the population of Dragash can ensure access to audiovisual media services is through satellite and cable platforms.

As a legacy from the past, Kosova is divided into 5 broadcasting regions: Prishtina, Peja, Prizren, Mitrovica and Gjilan. But, the media market remains dominated by the television stations based in Prishtina, which broadcast nation-wide.

#### **A summary based on IMC 2015 data:**

- Out of 20 televisions media services with terrestrial broadcasting licensed by the IMC, three (3) belong to the category with national coverage, ten (10) with regional coverage and seven (7) with local coverage. The current categorization is based on the location of transmitters and technical parameters.



- From 20 audiovisual media services, 13 broadcast in Albanian language: Television of Kosova (RTK 1) broadcasts around 15% of its programming in the languages of minorities, 5 other televisions broadcast program in Serbian Language and 1 in Turkish Language.
- In the Republic of Kosova operate four radio stations with national terrestrial coverage, of which two are radio of public broadcaster (Radio Kosova 1 and Radio Kosova 2), and two are private radio stations (Radio 21 and Radio Dukagjini).
- From 78 audio media services (radio channels), 44 radio stations broadcast program in Albanian Language, 22 radio stations in Serbian Language, 3 radio stations in Bosnian Language, 2 in Turkish Language, 2 in Goran Language, 1 in Roma Language and 2 are multi-ethnic radio stations, while 2 radios of public broadcaster (Radio Kosova 1 and Radio Kosova 2) broadcast around 15% of its programming in the languages of minorities.
- In Kosovo there are 34 licensed cable operators by IMC: Ipko Telecommunications and Kujtesa Net, that are 2 cable operators with a national coverage in the territory of Kosovo and 32 other cable operators are with local coverage
- Program Service Providers IMC has licensed 54 program service providers (PSP) that distribute their television programs through cable operators
- Broadcasting over IPTV Network and Satellite Platforms in Kosovo there are also operators which distribute television programs via IP (Internet Protocol Television / IPTV). There is no satellite broadcaster of Kosovo which broadcast its program only via satellite.

## 11.0 Education in the field of multimedia services

The right to education is guaranteed in the Constitution of the Republic of Kosovo. The higher education in Kosovo is regulated by the Higher Education Law (Law No.04/L-037), adopted in August 2011 and bylaws derived from it. Based on Kosovo Accreditation Agency (KAA) there are 6 public universities and 29 private higher education institutions accredited (2016).

Proportion of students enrolled in 2014-15 in different fields of study by type of HEIs and level of degree ([https://eacea.ec.europa.eu/sites/eacea-site/files/countryfiche\\_kosovo\\_2017.pdf](https://eacea.ec.europa.eu/sites/eacea-site/files/countryfiche_kosovo_2017.pdf)) is given below.

Field of study	Private		Public		Total
	Bachelor	Master	Bachelor	Master	
01 Education	0.2%	0.0%	9.5%	4.4%	5.0%
02 Arts and humanities	9.3%	7.3%	11.5%	13.9%	10.6%
03 Social sciences, journalism and information	17.5%	12.4%	7.9%	12.6%	12.0%
04 Business, administration and law	43.7%	63.5%	35.4%	48.2%	41.8%
05 Natural sciences, mathematics and statistics	0.0%	0.0%	4.9%	3.8%	2.7%
06 Information and Communication Technologies (ICTs)	9.9%	5.0%	3.8%	3.9%	5.9%
07 Engineering, manufacturing and construction	5.4%	3.0%	16.2%	7.9%	10.5%
08 Agriculture, forestry, fisheries and veterinary	0.0%	0.0%	3.2%	1.5%	1.7%
09 Health and welfare	9.1%	5.6%	3.8%	0.9%	5.9%
10 Services	4.9%	3.2%	3.8%	2.9%	4.0%
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

The ICT study programs and respective DIMTV modules/sub specializations are being offered by a few public and private HEIs, among which University of Prishtina (public HEI) and UBT (private HEI) take place.

### 11.1 Multimedia and Digital TV at University of Prishtina

University of Prishtina offers no specific study program in the field of multimedia and digital TV, but these study fields are covered via elective bachelor and master courses, offered by the Faculty of Electrical and Computer Engineering. Faculty of Electrical and Computer Engineering is offering accredited bachelor (180 ECTS) and master level (120 ECTS) study programs in the fields of:

- Telecommunication
- Electronics
- Computer Engineering
- Computerized Automation and robotics
- Power Engineering

Study programs are in line with outputs of EU-funded thematic network project "Thematic Harmonization in Electrical and Information Engineering in Europe". The study programs and course syllabuses of all accredited study programs are available in English in the official web page of the faculty: <http://fiek.uni-pr.edu/Departamentet.aspx>.

MDTV related courses offered currently are:

1. Bachelor degree: Multimedia fundamentals; Digital TV
2. Master degree: Computer vision; Digital image processing; Multimedia communications

While there are many other DIMTV related courses offered as: Signals and systems; Digital signal processing; Computer graphics; Image recognition; Digital processing of audio signals; Acoustics of speech and music. Furthermore, the Media and Communications study fields are offered by other respective faculties of University of Prishtina, details of which can be found at [www.uni-pr.edu](http://www.uni-pr.edu). Each of study programs has an Internship as mandatory in the last semester of bachelor studies.

### 11.2 Multimedia and Digital TV at UBT

UBT offers a wide range of studies including multi-disciplinarily studies in different areas such as technology, business, management, engineering, medical, mechatronics etc.. Some of the study core subjects in MDTV are covered in different faculties at bachelor and master courses. The MDTV related courses are also part of many other faculties; however, their main concentration is in the Faculties of Media Communications and Computer Sciences, where details about the course names and syllabuses will be provided accordingly.

**Faculty of Media and Communication** offers accredited bachelor (180 ECTS) and master level (120 ECTS) study programs in the fields of:

- **BA Program (Bachelor)** with the focus in Media & Communication area and some of the courses are: Information technology; Editing in TV and Radio; Cameras and Photography; Multimedia Technology; On-line Journalism; Editing in Media; Audio visual media; Media Marketing; Practical Work in TV and radio; Interviews on TV, radio and print media.
- **MA Program (Master)** offers 120 ECTS master program with a focus in two specializations: (1) Political communications and organizations and (2) Digital Media and Communications. Main MDTV-related courses are: Media in the Digital Age; Contemporary Communication Technology; Social and Digital Media; Digital Media and Communication Strategy.

**Faculty of Computer Science and Engineering** offers accredited bachelor (180 ECTS) and master level (120 ECTS) study programs. Some of the MDTV-related courses offered in 1<sup>st</sup> and 2<sup>nd</sup> level of studies are: Introduction to Computer Graphics; Computer Aided Design; Introduction to Computer Animation; Introduction to Multimedia Systems. Moreover, **Multimedia and visualization profile** has the following courses: Advanced Computer Graphics; Computer Animation; Visualization; Advanced Multimedia Systems.

### 12.0 Interest of youngsters to pursue careers in multimedia related fields

Multimedia area is a satisfying and lucrative profession and is attracting youngsters in droves towards it. Professionals new to this industry generally work in the capacity of junior in various industries, studios, production houses etc. Multimedia sector is one of the fastest growing career options in Kosovo these days. The numbers of the young people attracted to computer science and engineering degrees are the

highest in the Balkans and has seen a significant trend increase where only at UBT there are about 800 – 900 new students enrolled each year. The want for more and more skills in technology has brought about a rise in job opportunities and ascended the demand for multimedia as a lucrative career option. The demand has exceeded the supply as the multimedia industry requires more professionals every year as this industry is moving towards digitalization of MDTV. As Kosovo has the youngest population in Europe, it has got the potential and experience a further growth not only to meet its needs but also take significant outsourcing services for EU markets as there is an increase in demand for high end skills in technology, animation, filming, video, streaming etc. Worth mentioning that the youth in Kosovo possess at least 2 to 3 language skills and their fluency adds a potential value for the EU market needs. According to UBT career office, the UBT alumni have a rate of over 95% employment within 6 months of graduation. On the other hand, the overall unemployment rate in Kosovo varies but it is considered around 35% but meantime still facing shortage of skilled workers.

### 12.1 Questionnaire analysis

From the responses more than the half of the respondents (56%) was of the age of 18-22 years old, mostly students of Bachelor studies. About 27% were of the age 23-30, probably Bachelor graduates or Master students. The other part of the respondents was of the age “above 30”.

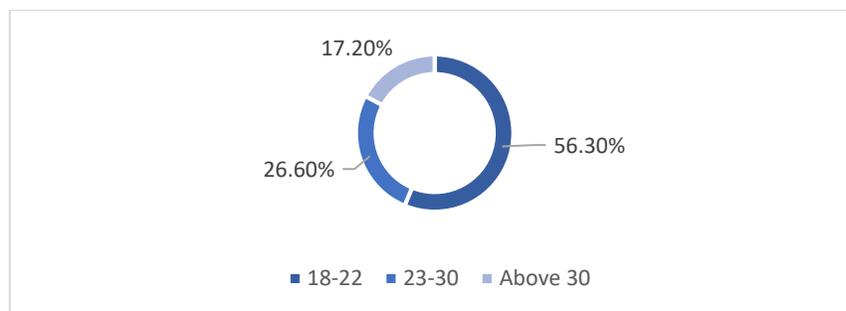


Figure 7. Representation of respondents that have taken part in the survey.

In regards to the gender, around 61% percent of the respondents were females, whilst 39% were male. The female gender seems to still keep dominating the Media and Communication field traditionally.

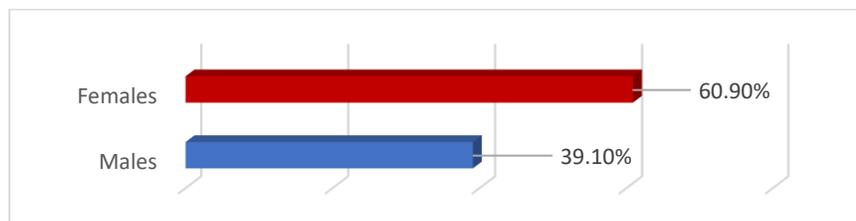


Figure 8. Gender representation.

Most of respondents were Bachelor students or graduates (around 67%), while Masters Students or graduates were about 25.5%. Around 5% were not attending (or have not finished) a degree neither in Bachelor nor in Master Degree. From all the respondents, only one (1.6%) had finished a professional training in the field of MDTV.

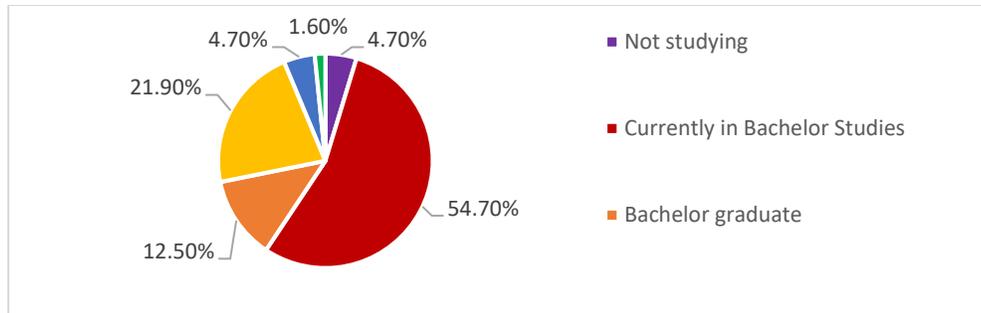


Figure 9. Current study levels of respondents.

The respondents were majorly from the field of Media and Journalism, which makes this questionnaire reliable and useful. It is also significant that around 17% were students or graduates in the field of computer science and engineering, which gives reliability to our study as the other field which is linked to our study is computer science, as we aim to combine a curricula which would be a mixture of Media and Computer Science (Digitalization of Media). 2 other respondents were from the Economics and Philosophy fields (one each) (Fig. 10).

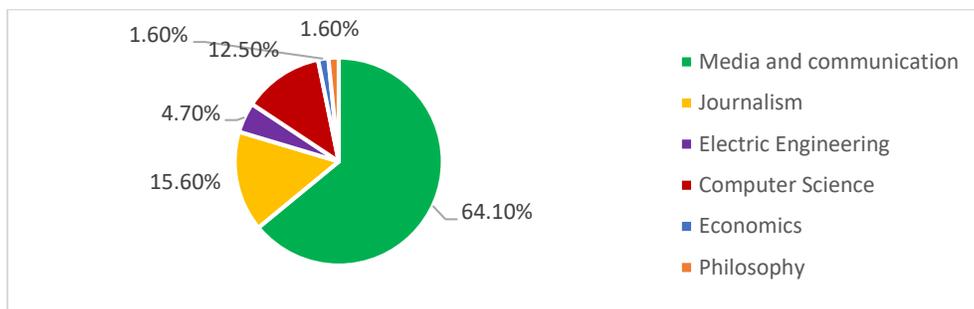


Figure 10. Field of Studies

When asked if they've had a subject that elaborates the topics of multimedia and digitalization in general, around 72% stated that they're familiar with this topic, whilst 28% responded to not have had a similar subject. Those that responded positively, mentioned the subjects that discussed this topic and some of them were: Multimedia Technology, Online Journalism, Medias in the area of digitalization, Simulation and visualization, Computer graphics, Camera and photography, Audiovisual medias and similar. This shows that the majority of the respondents are already familiar with this field as they have already finished or are currently attending those subjects that are related to our study and aim.

Respondents were given 8 wide fields of Media and Digitalization, so that those who are currently working (have worked) can choose their field of work and expertise. Also they were given the opportunity to add other fields, if their field of work was not related to those given by us.

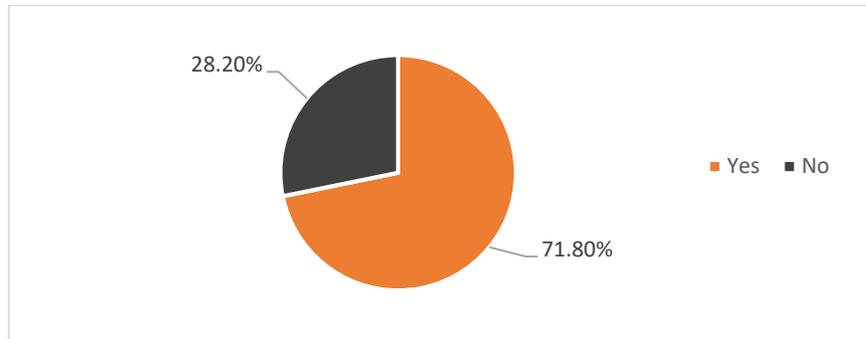


Figure 11. Students familiarity with MDTV

Most of the respondents were between information technology, TV, Radio and Multimedia. In general, this is a good indicator that gives us the comfort that not only do they have knowledge in those specific fields from their prior studies, but furthermore they have experience in Media and Digitalization and can practically implement their knowledge gained earlier.

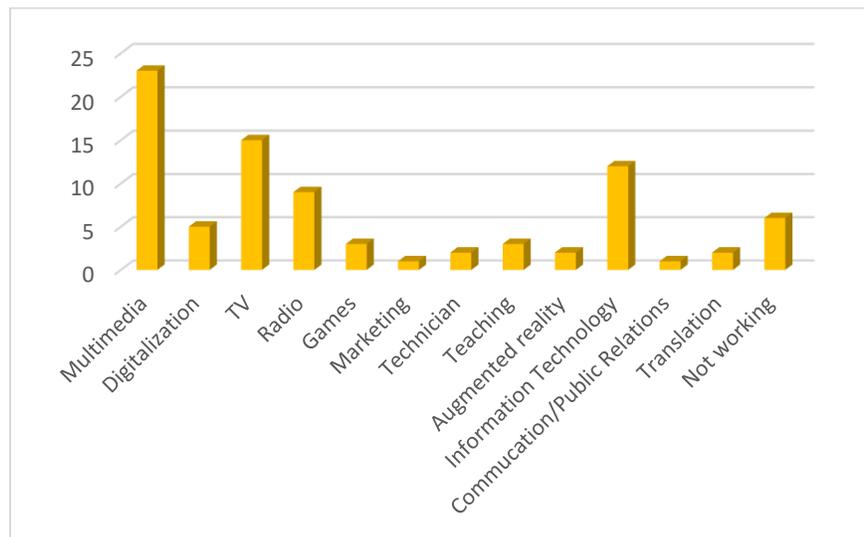


Figure 12. Job profiles.

When asked whether the above-mentioned subjects have helped them in their jobs, around 42% stated that they were very helpful, while 41% found them averagely helpful and 17% not helpful at all (Fig. 13). This large percentage that finds them averagely and not helpful at all is an indicator that the syllabus of those subjects they have attended during their studies doesn't fully fulfill the needs of their current jobs and didn't give them the needed knowledge that would make easier for them to adapt to their current jobs, which means that most of their knowledge in the field of media and digitalization has been gained from their experience while working rather than in their studies. This may have been harder for them, as they had to learn new concepts learning-by-doing.

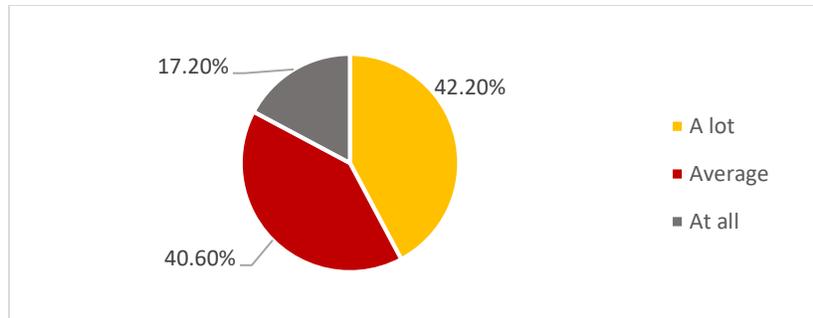


Figure 13. How much helpful were MDTV courses

The majority of the responses were in favor of the change of syllabus of the existing subjects related to the field of Multimedia and Digital TV. Around 51% agreed completely, whilst 44% thought that they should be averagely changed (some parts of the syllabus). Only 5% didn't find it necessary for the content of these subjects to be changed (Fig. 14).

The above-mentioned statistics indicate that the students/graduates are/were not satisfied with the knowledge they had taken from Media and Digitalization subjects, as they are not comprehensive enough and don't deliver the needed know-how. So the need to have additional subjects or better structured existing subjects is present.

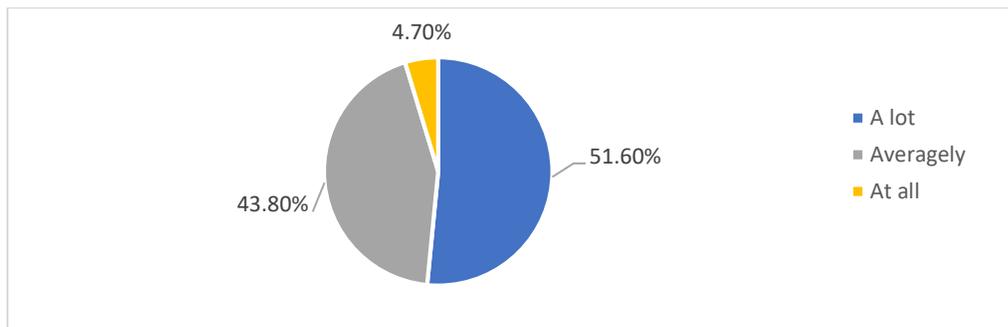


Figure 14. The need to adopt MDTV courses.

When asked to suggest new subjects, from which students could benefit when entering the job market, the respondents gave plenty of ideas from which many of them were related with the need to have subjects that are more practical, mainly they raised the need of internships in TVs or radios. This puts light to the problem that most of the students have in their studies which is the lack of practical implementation of their gained knowledge and the lack of experience in general.

In addition, in the field of computer science and digitalization, they suggested that courses like Digital Media, Digital Media Strategy, Digital Journalism, Graphic Design, Web Journalism and similar should be included in the curricula of their studies. In the general field of Media, they consider that the following subjects would be beneficial if added: Editing (montage), Public Relations, Audio and Video Production, Investigative Journalism, and similar ones.

The majority of the respondents stated that the Adobe package is the most important technology tool they need in this field. In addition to the Adobe package (Premiere, Photoshop, Illustrator) that are crucial some respondents stated that Unity3D and Vegas Pro are very important as well.

On the other side, the technological devices that the respondents found essential in working in the field of Media and Digitalization of Media are powerful computers, audio and video mixers, amplifiers, microphones, cameras, smart phones and similar.

As it was mentioned above, students see the internships an integral part of their studies, which is not very much included in their studies. In the previous questions, they showed the worry of not having had enough practical subjects that could help them practice what they theoretically learnt in their studies. In this question they were asked if they were motivated by their professors to attend internships, and the majority stated that they were somehow motivated (36% strongly motivated, 48% averagely motivated) (Fig. 15). Despite the fact that they state that they were motivated by their professors, the issue of internships is still a problem in the Media and Digitalization field. Perhaps, the students are verbally motivated, but practically not much.

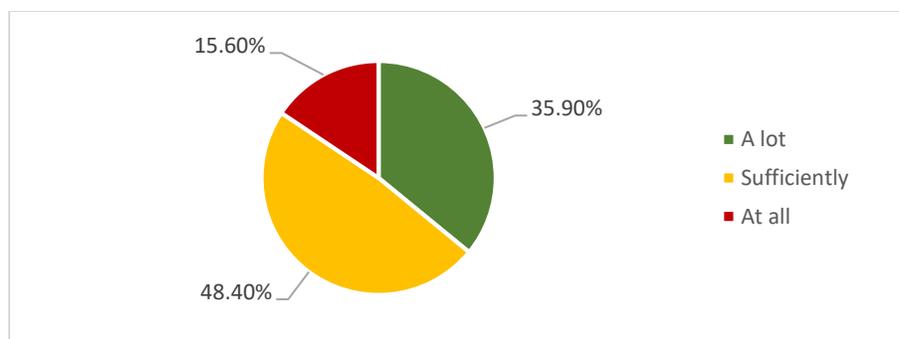


Figure 15. Importance of internship

In addition to the problem of internships, the respondents also raise the problem of the lack of practical hours that should be spent in the laboratory (simulated radio or TV and similar). Half of the respondents claim that they've never had laboratory hours (around 50%) while 44% state they had sufficient hours in the laboratory, but very few stated they had a lot of practical hours.

This is an indicator that current curricula don't provide enough practical hours in most of the institutions the respondents come from. It is worrying that 50% state they've never had practical hours spent in laboratories. In the field of Media and Journalism, practice is crucial, thus students should be given enough opportunities to attend laboratory courses or internships in local radios or TVs and further.

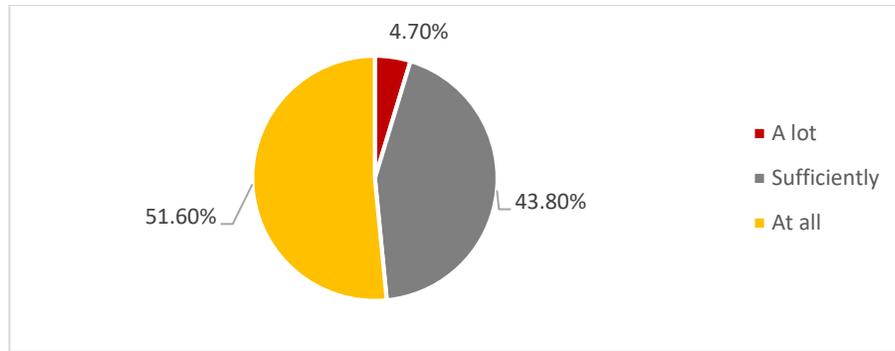


Figure 16. Satisfied with practical placement during studies

When asked whether they think current subjects in their studies, help students get employed, respondents were divided between stating they are very helpful and averagely helpful. This shows a bit of uncertainty between the respondents, as half of them think they are averagely or not helpful at all (Fig. 17). We believe we have come to these responses, due to the fact that most of them have mentioned (in the above questions) the lack of practical hours and subjects, so they may feel insecure in the job market.

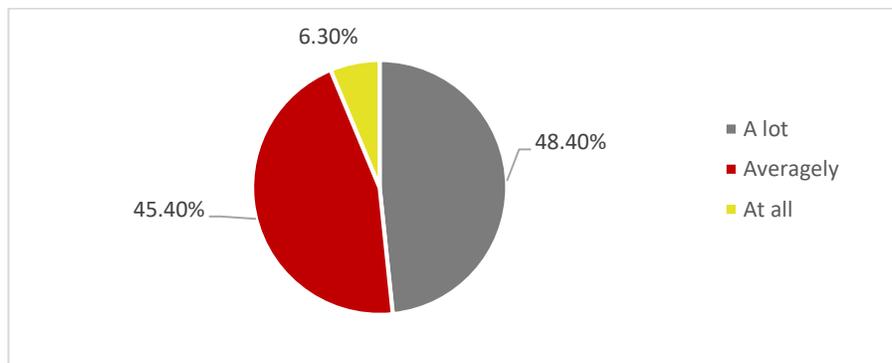


Figure 17. Satisfaction with the current courses

Considering all the above-mentioned issues, the respondents still look optimistic when asked if they will continue their studies even further in this field. Around 92% stated they consider continuing further development in this area, while only 8% seem disappointed on moving forward with studying in this field (Fig. 19).

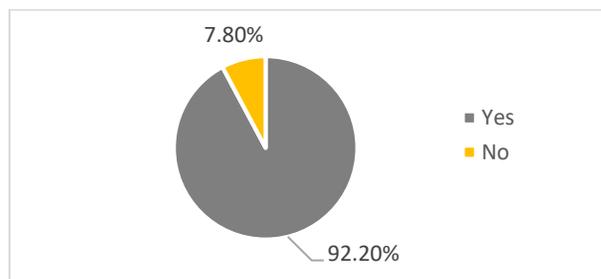


Figure 18. Student responses in reference to studies continuation.

We tried to get the overall satisfaction of the respondents with the last question, which was whether they would recommend to others this field of study or not. The responses were very positive, as 87.5% stated that they would suggest their friends to study Media and Digitalization, while 12.5% stated they wouldn't (Fig. 19). It is promising to us, as we aim to create a new curriculum that would attract new students.

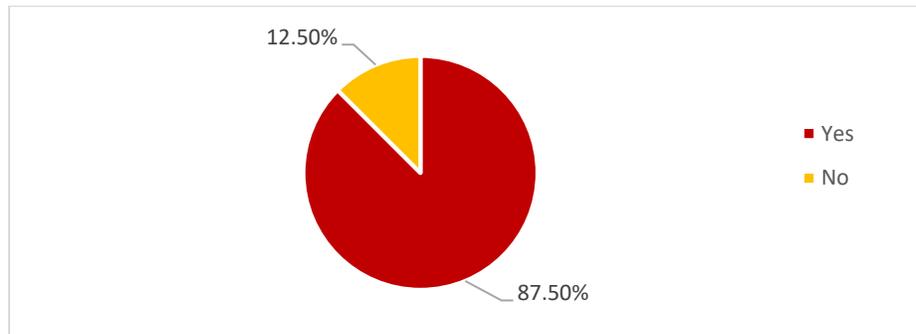


Figure 19. Student suggestion to future potential new students.

## 12.2 Issues related to informality

It is evident that with a similar scenario as in Albania, the broadcasts don't publicly declare fully their needs for experts in the MDTV area; however, talents are often internally grown or outsourced. There is often misplaced talents, that may not match the skills for the particular positions and employees need to adapt to multi-tasking skills. Unofficially, there are a significant number of employees without a degree to meet the MDTV needs due to various factors. Some have pursued their careers and quite their studies along the way, some have journalism skills but not technology skills however adopted MDTV career now are found to be in their middle life career that don't quite match the market needs and skills needed with technology change etc.

## 13.0 Open forums between academia and businesses

As any University, Kosovo Universities and Colleges are facing a similar fact, the lack of cooperation between academia and industry therefore MDTV is not an exception. It is difficult for the academia to offer internships within the universities for all students or find internships for all students as cooperation exists but lacks full potential. At University of Prishtina/Faculty of Electric and Computer Engineering there is the Industrial Advisory Board with representatives of main public and private industries in the Electric Engineering and ICT sector. The Board serves as a bridge between academia and industry and contributes, among others, to ensure internship places for faculty students and also periodically gives opinion on revising study programs and course syllabuses. In the case of UBT, there is a radio studio TV established and students enjoy practical internships within the faculty of Media and Communication. UBT has also received the licence as a TV operator and in the future shall rise the

opportunity for students to have practical internships both in the radio and TV studios that will offer unique opportunity for the students. We must agree that MDTV operators don't have a lot of knowledge overall about the study programs and the opportunities their staff or where to sought the talent; therefore, additional cooperation work needs to be done on a national level to further rise this matter.

## 14.0 Conclusions

Based on the analysis of findings in the perspective of current Multimedia and Digital TV (MDTV) situation in Albania and Kosovo, there are several challenges as well as opportunities to further shape the sector of MDTV. First, the legal framework of the audio-visual media services regulatory bodies in both countries are in the re-shaping mood and following the EU guidelines and infrastructure upgrades are taking place including the legal framework. Second, the study finds a strong support from the interviewees that the need for the experts is present even though industry sector does not openly publicize the exact numbers needed. Third, both countries have a significant amount of youth wishing to pursue their careers in the MDTV that will find jobs as there is demand in the MDTV area for experts. Fourth, placement of internships continues to be a challenge as universities don't have internal infrastructure for internships, thus, further cooperation is indeed highly needed. Fifth, the academia understands that more programs promotion shall take place and closer cooperation with the MDTV industry is needed so that companies can address their needs and their perspectives. Based on the needs curricula development can be done, which will generate more opportunities for internships and potential employment of the perspective students. As a conclusion, this study concludes that both Albania and Kosovo share similar challenges and opportunities for the MDTV area, therefore, best practices from the EU institutions may be adopted and experts' opinion especially from the partners participating in DIMTV project shall generate more added value while MDTV curricula and overall supporting infrastructure is in the early stages in both countries.