CHALLENGES WITH STATISTICAL DATA AND INDICATORS ON HIGHER EDUCATION IN KOSOVO

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PRISHTINA, MAY 2023

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Published by:
Third Millennium School Compound,
Qëndresa Str. no. 48, Matiçan,
10000 Prishtina, Kosovo
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Translation from Albanian:
Translation Center Ltd.

Design: Envinion

KEC
Qendra për Arsim e Kosovës
Kosova Education Center

KITU
KOALICIONI PËR INTEGRITET DHE TRANSPARENCË NË UNIVERSITET

KFOS
Fondacioni i Kosovës për Shoqëri të Hapur
Kosovo Foundation for Open Society
Kosovska Fondacija za Otvoreno Društvo

Note: The Kosova Education Center is a member of the Coalition for Integrity and Transparency in the University (Albanian: Koalicioni për Integritet dhe Transparencë në Universitet; abbr. KITU), supported by the Kosovo Foundation for Open Society. This research was conducted under the KITU program. The views expressed herein are those of the authors and do not necessarily reflect the views of the Kosovo Foundation for Open Society (KFOS).

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List of abbreviations and acronyms

EMIS	Education Management Information System
EU	European Union
EUROSTAT	EU Statistical Office
HEI	Higher Education Institution
HEMIS	Higher Education Management Information System
INSTAT	Albanian Institute of Statistics
ISCED	International Standard Classification of Education
KAA	Kosovo Accreditation Agency
KAS	Kosovo Agency of Statistics
KEC	Kosovo Education Center
KFMIS	Kosovo Financial Management Information System
MAKSTAT	North Macedonia State Statistical Office
MESTI	Ministry of Education, Science, Technology, and Innovation
MONSTAT	Montenegro Statistical Office
NPISAA	National Program for Implementation of the Stabilization and Association Agreement
NQA	National Qualifications Authority
OECD	Organization for Economic Cooperation and Development
OSP	Official Statistics Program
RZS	Republic of Serbia Statistical Office
SMIS	Student Management Information System
UNESCO	United Nations Educational, Scientific and Cultural Organization
UIS	UNESCO Institute of Statistics
UOE	UNESCO, OECD, and EUROSTAT Joint Manual
WB	World Bank

Executive summary

This report provides an analysis of the current system of collecting, processing, and reporting statistical data on higher education in Kosovo, along with international and regional practices related to this topic. The research is qualitative in nature and makes use of both local and international literature as a source of information, as well as interviews with key actors in the production and use of higher education statistics in Kosovo. Initially the report provides information on the statistical data and indicators at the global level, as determined by the most prestigious international organizations that produce higher education statistics. This is followed by an elaboration of the system of collecting, processing, and reporting statistics in Kosovo and neighboring countries.

The report finds that the problems with statistics and indicators of higher education in Kosovo are multifaceted in nature. The data collection and processing system is not designed to ensure effectiveness in the collection, storage, processing, and sharing of data between different institutions. Additionally, there is a lack of technical and organizational capacities to ensure a reliable process of collecting, processing, and publishing statistical data and indicators. Use of statistical data and indicators to inform the decision-making process is vastly limited due to the lack of data, but also due to the culture of decision-making without relying on data, which results in a lack of demand for data.

In this context, the report recommends that, in order to improve the data collection and reporting system, it is required to understand what data is needed and how it should be structured. In this regard, the report provides a few specific suggestions that are based on international best practices. Further, the indicators to be reported should be defined and it should be ensured that the collected data is dependable and regular. While in order to improve the use of data in the decision-making process, the culture of supporting data driven decision-making should be developed and the use of data as a source of knowledge and information to make informed decisions. The report further argues that in order to ensure the improvement of the quality of statistics and indicators, the technical and organizational capacity at the level of the responsible institutions should be improved, starting from the development of complex systems for data collection and processing to the clear separation of responsibilities between institutions and the provision of necessary human resources.

The general recommendations of the report are summarized as follows:

1. MESTI, KAA, and other government agencies, in coordination with KAS, should clearly define their requirements for statistical data that will serve to both inform the public and make informed decisions. UNESCO, OECD, and EUROSTAT methodological guidelines could provide a good starting point for this journey.

2. KAS should take the lead in coordinating the process of collecting, processing, and publishing higher education statistics, while MESTI, KAA and other government agencies should provide access to their data to this sector.

3. The HEMIS system for collecting data from higher education institutions should be built upon or developed from scratch to provide the required statistical data comparable to international standards. Such a process may require significant investment in information technology.

4. Until the development of a HEMIS system that would support the automated collection of data from higher education institutions and effective processing thereof, KAS and MESTI should produce temporary solutions, while collecting and processing the data through the currently available systems.

5. MESTI should introduce efforts to design a package of indicators on higher education, selecting indicators that can be calculated with the data that are available and serve to monitor progress in the field of higher education.

6. MESTI and KAS should analyze the needs for organizational changes and human resources allowing for the production of quality statistics in the field of higher education, clearly defining the responsibilities of each involved entity.

1. Introduction

Data represent a key tool for policy makers to make informed decisions and establish effective policies that support the growth and development of the higher education system. Through data, policymakers understand the current state of the higher education system, identify areas that require improvement, and assess the impact of current policies. By collecting and analyzing data on enrollment, graduation rates, student demographics, and financial aid, the Government can identify disparities in access and outcomes among different social groups. Subsequently, this information can be used to develop policies and programs aimed at addressing such disparities and improving access and outcomes for underrepresented groups. Data can also be used to evaluate the effectiveness of existing policies and programs. For example, by analyzing the number of students attending a specific program and comparing their results with those of a control group, policymakers can determine whether the program is achieving its intended goals and make improvements as needed. Data on labor market demands can be used to inform decisions about the development and funding of study programs. Overall, data is an unparalleled tool to promote the enhancement of the quality of higher education.

In the context of globalization of higher education, having internationally comparable statistical data and indicators is crucial. International organizations such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Organization for Economic Cooperation and Development (OECD), the Statistical Office of the European Union (EUROSTAT), the World Bank (WB), and others have already defined indicators for purposes of regular reporting and establishing a basis for comparisons of higher education systems. Indicator systems for higher education may have different goals, which affect the structure, scope, and nature of the information they contain. According to Martin & Sauvageot (2011), we can distinguish three specific uses of indicator systems: 1) informing the general public or government on the status of the higher education system; 2) monitoring the progress of a policy, strategy, or plan that has been implemented; and 3) managing the higher education system.

However, an important prerequisite for deploying an indicator system is the existence of a functional system of data management for higher education. Kosovo has a fragmented system of statistical data on higher education, which are usually reported in the statistical yearbooks of the Ministry of Education, Science, Technology, and Innovation (MESTI) and the Kosovo Agency of Statistics (KAS). In the absence of a comprehensive information management system for higher education, statistical data are updated on an annual basis, while there are no calculations or reporting on relevant statistical indicators on higher education.

The lack of statistical data and indicators on higher education in Kosovo has been identified as an issue in the Education Strategy 2022-2026 (MASHTI, 2022a) and in its action plan (MASHTI, 2022b), which provides for the development of national indicators on higher education, and the enactment of relevant secondary legislation. These documents also provide for the development of a new higher education management information system, which should serve to collect and process sta-

tistical data in this field. This research effort precedes that process and also contributes to foster the debate on good management of the higher education system, including data-driven policymaking, transparency, and accountability.

Brief content of the following chapters:

Chapter 2

Chapter 2 lays out the purposes of the research and the methodology that was used.

Chapter 3

Chapter 3 provides information on statistical data and indicators at the global level. The International Standard for the Classification of Education (ISCED) serves as a point of departure, leading to an elaboration of the data and indicators used by the most prestigious international organizations: United Nations Educational, Scientific and Cultural Organization (UNESCO), Organization for Economic Co-operation and Development (OECD), Statistical Office of the European Union (EUROSTAT), and the World Bank (WB).

Chapter 4

Chapter 4 focuses on higher education statistical data in Kosovo and the main institutions that collect, process, and publish such data. Additionally, it provides the existing indicators for higher education and the state of higher education statistics in neighboring countries: Albania, North Macedonia, Montenegro, and Serbia.

Chapter 5

Chapter 5 is dedicated to the analysis of challenges in collecting, processing, and publishing statistical data from the perspective of policy and legislation, the quality of approximation to international standards, and their use in decision-making.

Chapter 6

Chapter 6 examines several options for addressing the identified problems, including defining data requirements, data collection and processing systems, selecting national higher education indicators, and building capacities for the production of quality statistics.

Chapter 7

Chapter 7 summarizes the conclusions and recommendations of the research.

2. Research purposes and methodology

The purposes of this research are to:

1. analyze the current system of collecting, processing, and reporting on statistical data and indicators on higher education in Kosovo;
2. provide international and regional practices relevant to this subject matter;
3. make recommendations for the data and indicators to be reported in the future.

The research is qualitative in nature and was conducted out in four stages:

1. Analysis of existing sources, which include materials that elaborate the issue of statistical data and indicators on higher education drawn up by international organizations such as UNESCO, OECD, EUROSTAT, WB, etc. Additionally, the packages of statistical data and indicators on higher education from UNESCO, OECD, EUROSTAT, and the World Bank were analyzed, as well as statistical reports and indicators from statistical institutes/agencies of Kosovo's neighboring countries such as: Albania, North Macedonia, Montenegro, and Serbia.
2. Individual interviews with subject matter experts. In the first stage, researchers identified the problems and open issues related to statistical data and indicators on higher education in Kosovo. This analysis was used to inform the development of the protocols for semi-structured interviews with MESTI officials, KAS officials, education experts, etc. All interviews are documented electronically. The list of interviewees is provided in the appendix to this report.
3. Writing and verifying the Draft Report. A draft report with relevant findings and recommendations was written based on the information collected in the first two stages of research. For purposes of verifying the findings and recommendations, the authors organized a workshop where the people who provided information for the research and others who contributed to the improvement of the draft, were invited to attend.
4. The final report was written based on the results of the workshop and the feedback that was received.

3. Statistical data and indicators at the global level

The United Nations Educational, Scientific and Cultural Organization (UNESCO), the Organization for Economic Co-operation and Development (OECD), the Statistical Office of the European Union (EUROSTAT), and the World Bank (WB) are the four organizations that set the international standard for statistical data in the field of education

UNESCO, OECD, and EUROSTAT have developed the joint data collection manual applicable to all levels of formal education, subject to regular updates. (UOE, 2022). This manual determines the concepts, definitions, and classifications used for data collection by UNESCO, OECD, and EUROSTAT, and its objective is to ensure the provision of internationally comparable data.

Each of the aforementioned organizations has its own guidelines for data collection, processing, and presentation, as well as databases that are public. As a rule, classification is based on the International Standard Classification of Education ISCED 2011 (UNESCO, 2012), as well as on the ISCED-F-2013 Standard that defines the Fields of Education and Training (UNESCO, 2015).

UNESCO collects data on higher education from 193 member states, which are presented in the UNESCO Institute of Statistics (UIS) database (UIS, 2023). The database is interoperable and contains quality filters that support the selection of data based on various criteria.

The OECD collects data from 38 member states using a methodology that is well explained in a special manual (OECD, 2017). Aside from the database (OECD, 2023), the OECD regularly publishes an annual report with statistical data called "Education at a Glance" (OECD, 2022).

EUROSTAT collects data from the member states of the European Union (EU), from the EU candidate states, and from the states of the European Economic Area. Such data are available in the database (EUROSTAT, 2023b), while thematic publications with specific data are made occasionally.

The World Bank provides data from 189 member countries in its database (World Bank, 2023), which is quite advanced in terms of data presentation quality and comparison possibilities. In addition to data in the field of education, data on other sectors as well as on World Bank projects around the world may be available.

The following sections will focus only on higher education data.

3.1. Data classification

ISCED 2011 (UNESCO, 2012) and ISCED-F-2013 (UNESCO, 2015) are used for the classification of data in the field of higher education. The ISCED 2011 system provides 4 codes for higher levels of education

ISCED 5 – Short-cycle tertiary education;
ISCED 6 – Bachelor's or equivalent level;
ISCED 7 – Master's or equivalent level;
ISCED 8 – Doctoral or equivalent level.

In the case of Kosovo, these codes correspond to the levels of the National Qualifications Framework (AKK, 2020), which facilitates data collection and analysis. Further, ISCED provides two-digit sub-codes for the description of specific program properties, e.g., the applicable 2-digit codes for the Bachelor level are:

ISCED 64 – Bachelor's or equivalent level, academic;
ISCED 65 – Bachelor's or equivalent level, vocational;
ISCED 66 – Bachelor's or equivalent level, orientation unspecified;

For each 2-digit classification, 3-digit codes are used for the further description of the given program. For example, for "ISCED 64 – Bachelor's or equivalent level, academic" programs, there are four 3-digit codes:

ISCED 641 – Insufficient for level completion;
ISCED 645 – First degree (3-4 years);
ISCED 646 – Long first degree (more than 4 years);
ISCED 647 – Second or further degree, following successful completion of a Bachelor's or equivalent program.

Similar 2- and 3-digit code systems are also used for ISCED 5, 7, and 8.

In addition to the classification according to study levels, the classification according to Fields of Education and Training is also important; it is determined by ISCED-F-2013, which uses 11 basic fields of study that are identified by 2-digit codes:

00. Generic programs and qualifications
01. Education
02. Arts and humanities
03. Social sciences, journalism, and information
04. Business, administration, and law
05. Natural sciences, mathematics, and statistics
06. Information and Communication Technologies
07. Engineering, manufacturing, and construction
08. Agriculture, forestry, fisheries, and veterinary
09. Health and welfare
10. Services

For each of these fields, there are corresponding narrow fields defined with 3-digit codes, e.g., for field "10. Services" there are seven narrow fields:

100. Services not further defined
101. Personal services
102. Hygiene and occupational health services
103. Security services
104. Transport services
108. Interdisciplinary programs and qualifications involving services
109. Services not elsewhere classified

Further, for each narrow field, there are detailed fields defined with 4-digit codes, e.g., for the narrow field "103. Security services" there are four detailed fields:

1030. Security services not further defined
1031. Military and defense
1032. Protection of persons and property
1039. Security services not elsewhere classified

3.2. Types of data

The joint manual of UNESCO, OECD, and EUROSTAT (UOE, 2022) defines certain categories of data that are required by the three organizations, but each retains the right to request other data in accordance with its needs. Data on higher education can be broken down into five categories: students enrolled, new entrants, graduates, educational personnel, and expenditure. Relevant data according to these categories are presented in Table 1. From the table it can be seen that UNESCO, OECD, and EUROSTAT have some common requirements on data, but they also have specific requirements.

Students enrolled (ENRL) refers to the count of students studying in a given education program in the reference period, which is usually the beginning of the academic year. In principle, all students should be counted only once, including those enrolling in more than one program at the same time.

New entrants (ENTR) are students who, during the course of the reference period, enter for the first time any program, irrespective of whether the students enter the program at the beginning or at an advanced stage, e.g., by virtue of credits gained at another level of education.

Graduates (GRAD) refers to persons who, during the reference academic year, have successfully completed an education program. The data for graduates covers data on first-time graduates at a given level of education and those who have graduated for a second time or more times at a given level.

Educational personnel (PERS) comprise all those employed in higher education institutions whose primary duty involves teaching or research, including academic management personnel (rector, dean, etc.). If academic personnel contribute to more than one level of education, intensity of participation should be pro-rated by level, while if not possible to calculate, it should be pro-rated in equal shares by level.

Expenditure (FIN) includes all public, private, and international expenditure on higher education. This category also includes expenditure on research performed at higher education institutions, as well as public subsidies to students. Private expenditure includes all expenditure on payment of tuition fees, teaching materials, and living costs, but only if these are subsidized by public or private funds. Data on private expenditure are usually collected through household surveys.

Data provided in the table below are collected through special forms administered by UNESCO, OECD, and EUROSTAT, and are published in the relevant database. It should be noted that not all countries present their data regularly and completely, which may be the result of their internal setup and limited capacities.

TABLE 1. Statistical data on higher education required by UNESCO, OECD, EUROSTAT

Data	Description	Required by		
		UNESCO	**OECD**	**EUROSTAT**
Students enrolled (ENRL)				
ENRL1A-INST: Number of students by type of institution and sex (1st and 2nd digit of ISCED)	*Type of Institution:* 1. Public 2. Private 2.1. Government dependent 2.2. Independent *Program classification:* ISCED 5: All programs; General; Vocational; Combined school- and work-based program ISCED 6-7: All programs; Academic; Vocational ISCED 8: All programs	1st digit of ISCED only	1st digit of ISCED only	1st and 2nd digit of ISCED
ENRL1B-INST: Number of students by type of institution and sex (3-digit ISCED Code)		ISCED 6 programs with unspecified orientation only	**No**	**Yes**
ENRL2-AGE&P: Number of full- and part-time students by age and sex	*Program orientation:* ISCED 5: All programs; General; Vocational ISCED 6-7: All programs; Academic; Vocational ISCED 8: All programs	1st digit of ISCED only	ISCED 5: 1st and 2nd digit of ISCED. ISCED 6-8: 1st digit of ISCED only	ISCED 5: 1st and 2nd digit of ISCED. ISCED 6-8: 1st digit of ISCED only, 2nd digit optional
ENRL3-AGE&P: Number of part-time students by age and sex		**No**	**Yes**	**No**
ENRL4-FIELD: Number of students by field of education and sex (2-digit codes)		ISCED 6-8 – institutions with unspecified orientation	ISCED 5-8 by type of institution	ISCED 5 by type of institution, Levels 6-8 – institutions with unspecified orientation
ENRL4-FIELD: Number of students by field of education and sex (3-digit codes)		**No**		

Data	Description	Required by		
		UNESCO	OECD	EUROSTAT
ENRL5-MOB&FIELD: Number of mobile students by field of education (4-digit code) and sex	Mobile students are students who have come from another country and enrolled to study in the country of destination with the intention to graduate there. This category does not include students who attend distance learning programs, nor students from other countries who spend short periods of study in the country of destination.	No	Yes	Yes
ENRL6-MOB&COUNTRY: Number of mobile students by country of origin and sex		Yes	Yes ISCED 5 classified by type of institution	Yes
Number of new entrants (ENTR)				
ENTR1: Number of new entrants by age and sex		Yes	Yes	Yes ISCED 6-8
ENTR2: Number of new entrants, who are mobile, by age and sex		No	Yes	No
ENTR3: Number of new entrants by field of education and sex	3-digit ISCED-F code of the field of education	No	Yes	Yes ISCED 6-8
Graduates (GRAD)				
GRAD1-INST: Number of graduates by type of institution and sex		No	Yes	No
GRAD2-AGE: Number of graduates by age and sex		No	Yes ISCED 5 dhe ISCED 8	Yes ISCED 5-8
GRAD3-FIRST&AGE: Number of first-time graduates by age and sex	A first-time graduate is a person who has not previously graduated from any program at the same level of education	No	Yes	Optional
GRAD4-MOB&AGE: Number of degree mobile graduates and first-time graduates by age and sex	Mobile graduates are individuals who have come from another country and enrolled to study in the country of destination with the intention to graduate there.	No	Yes	No

Data	Description	Required by		
		UNESCO	OECD	EUROSTAT
GRAD5-FIELD: Number of graduates the by field of education and sex	3-digit ISCED-F code of the field of education OECD and EUROSTAT have certain specific requirements in relation to the classification of programs	Yes	Yes	Yes
GRAD6-FIELD: Number of degree mobile graduates by field of education and sex		No	Yes	No
GRAD7-FIELD: Number of degree mobile graduates by country of origin and sex		No	Yes	Yes
Personnel (PERS)				
PERS1-STUD: Number of students with coverage adjusted to academic staff by level of education, program orientation, type of institution, and intensity of participation	*Intensity of participation:* 1) Full-time 2) Part time	No	Yes ISCED 5 and ISCED 6-8 aggregated	Yes ISCED 5-8 aggregated Program orientation optional
PERS2-INST: Academic staff by type of institution, intensity of participation, and sex	*Intensity of participation:* 1) Full-time 2) Part-time if less than 90% of the statutory working hours during the year	Yes ISCED 5 and ISCED 5-8 aggregated	Yes ISCED 5 and ISCED 6-8 aggregated	Yes ISCED 5-8 aggregated Program orientation optional
PERS3-AGE: Academic staff by level of education, program orientation, sex, and age		No	Yes ISCED 5 and ISCED 6-8 aggregated	Yes ISCED 5-8 aggregated Program orientation optional
Expenditure (FIN)				
FIN-STUDENTS: Number of students with coverage adjusted to statistics on educational finance (for the reference year and coverage of finance data) by type of institution and intensity of participation		No	Yes ISCED 5, ISCED 6-8 aggregated, and ISCED 5-8 aggregated	Yes ISCED 5, ISCED 6-8 aggregated, ISCED 5-8 and program orientation optional

Data	Description	Required by		
		UNESCO	OECD	EUROSTAT
FIN1-SOURCE: Educational expenditure by source, type of transaction, and level of education	*Source of expenditure:* – Government (central, regional, and local); – International agencies and other foreign sources; – Households and other private and non-public entities, including non-profits. *Type of transaction:* – Direct expenditure – payments to educational institutions broken down by type of institution; – Transfers to government levels; – Transfers to students/ households, as well as other private entities.	**Yes** ISCED 5, ISCED 6-8 aggregated, and ISCED 5-8 aggregated	**Yes** ISCED 5, ISCED 6-8 aggregated, and ISCED 5-8 aggregated	**Yes** ISCED 5, ISCED 6-8 aggregated, ISCED 5-8 and program orientation optional
FIN2-NATURE: Education expenditure by service provider, expenditure category, and level of education	Nature of expenditure: – Current expenditure; – Capital expenditure.	**Yes** ISCED 5, ISCED 6-8 aggregated, and ISCED 5-8 aggregated	**Yes** ISCED 5, ISCED 6-8 aggregated, and ISCED 5-8 aggregated	**Yes** ISCED 5, ISCED 6-8 aggregated, ISCED 5-8 and program orientation optional

Source: (UOE, 2022), (EUROSTAT, 2023a).

3.3. Higher education indicators

Although there is no general consensus on higher education indicators, organizations such as UNESCO, OECD, EUROSTAT, and the World Bank have defined some indicators which are regularly reported in their publications. Some of these indicators are listed in Table 2. Statistical data listed in Table 1 are used to calculate the indicators, while, in certain cases, additional data may be needed.

TABLE 2. Some of the indicators on higher education that are reported by UNESCO, OECD, EUROSTAT, and WB

Indicators	Description	UNESCO	OECD	EUROSTAT	WB
Gross Enrollment Ratio	Total enrollment of students regardless of age, as percentage of the eligible official school-age corresponding to the same level of education	X	X	X	X
Net Enrollment Rate	Total number of students of the official age group for a given level of education who are enrolled in any level of education, as percentage of the corresponding population	X	X	X	
Number of students in higher education per 100,000 inhabitants		X			
Students in higher education (% of the population aged 20-24)				X	
Percentage of students in higher education by ISCED level	Enrollment in higher education at each ISCED 2011 level, as percentage of total enrollment in higher education	X			
Percentage of students in higher education by ISCED-F field of education	Enrollment in higher education at each ISCED-F field of education, as percentage of total enrollment in higher education	X		X	
Percentage of students in higher education at private institutions		X			X
Distribution of students in higher education by ISCED level					X
Percentage of part-time students in higher education					X
Inbound Mobility Rate	Number of students from abroad studying in a given country, as percentage of total tertiary enrollment in that country	X		X	X
Outbound Mobility Ratio	Number of students from a given country (country of origin) studying abroad (county of destination), as percentage of total tertiary enrollment in that country (country of destination)	X			X
Distribution of new entrants into higher education by field of education				X	X
Share of women among new entrants into higher education by field of education					X
Higher educational attainment, age group 30-34	Percentage of the population aged 30-34 who have successfully completed higher education.			X	
Gross Graduation Ratio	Total number of graduates at the specified level of education, regardless of age, as percentage of the population at the theoretical graduation age for the specified level	X	X		
Completion Rate	Proportion of students who graduate from a specified program as percentage of enrollment in that program as many years ago as the specified duration of the program		X		
Share of graduates from different combinations of fields of study					X

Indicators	Description	UNESCO	OECD	EUROSTAT	WB
Indicator on graduates by different criteria				X	
Percentage of female academic personnel		X			
Student-academic personnel ratio by type of institution			X	X	
Distribution of age groups of academic staff by ISCED level				X	
Gender Parity Index	Ratio of female to male values of a given indicator	X	X	X	X
Public expenditure on higher education as percentage of Gross Domestic Product (GDP)			X	X	
Private expenditure on higher education as percentage of Gross Domestic Product (GDP)			X	X	
Percentage distribution of public current expenditure on higher education	Public current expenditure on higher education, as percentage of total public current expenditure on education	X			
Government expenditure per student as percentage of GDP per capita	Average Government expenditure (current, capital, and transfers) per student, as percentage of GDP per capita.	X	X	X	X
Expenditure in education by nature of expenditure as percentage of total expenditure in public institutions		X			
Share of current and capital expenditure in total higher education expenditure			X		

Sources: (UNESCO, 2009) (OECD, 2017) (OECD, 2022) (UIS, 2023) (OECD, 2023) (EUROSTAT, 2023b) (World Bank, 2023)

As shown on the table, not all indicators are reported by all organizations. Additionally, from the statistics publications, whether they in the form of databases or special publications, it is observed that it is not possible to report the indicators for each of the member states of the above-mentioned organizations due to the lack of some categories of statistical data for certain periods of time.

In the eighties, there was a lot of work done on indicator systems. After a development period, especially in OECD countries, many countries now have indicator systems, commonly referred to as scorecards or scoreboards (Martin & Sauvageot, 2011).

4. Statistical data in Kosovo and comparison with neighboring countries

4.1. Statistical data

The Republic of Kosovo still does not have a firm system of collecting and processing data from the area of education. In the field of pre-university education, data is collected and processed through the Education Management Information System (EMIS), where all pre-university educational institutions have direct access and update their data at regular intervals. This system relies on aggregate data on the number of students and not on the personal data of students. The Higher Education Management Information System (HEMIS) has been in use since 2018, where accredited institutions of higher education record new students at all levels. In fact, the purpose of this system is to track new enrollments in higher education institutions in order not to exceed the quotas set by the Kosovo Accreditation Agency (KAA). Since the recorded data is not updated, the system does not support generating statistics on higher education, except on students who are new entrants in the given academic year. A feasibility study commissioned by MESTI found that "in order to enable a unique and reliable overview of higher education data, HEMIS should be developed as a new system featuring the latest technology supporting the migration of all data from the existing HEMIS to the new database" (Tabaku, 2021).

The publication of data on higher education began in the first years after the end of the war in Kosovo. For the first time, data on students and staff of the University of Prishtinë were included in a KEC publication (Hyseni, Shatri, Salihaj, & Pupovci, 2000). While the Kosovo Agency of Statistics (KAS) started publishing data on higher education in 2004 (ASK, 2004). This publication covers only the data on the University of Prishtinë, namely:

- Number of new entrants by sex and academic units;
- Total number of students by sex and academic units;
- Number of academic personnel (total only).

Until 2015, KAS and MESTI published special statistical reports on education. While MESTI focused on the level of pre-university education and collected data through EMIS, KAS covered all levels of education, including higher education, and collected data through questionnaires. Exceptionally, the data on pre-university education in the KAS publication for 2014/15 were derived from the EMIS system of MESTI (ASK, 2015).

Until 2015, data on higher education were reported only for public universities, while the 2016 publication, for the first time, included data from private colleges as well (MASHT-ASK, 2016). This was the first joint publication of statistical data on education by MESTI and KAS, establishing a publication practice that continues today. MESTI collects and processes data on pre-university education using the EMIS system, while KAS collects data on higher education from the relevant institutions, through questionnaires. In recent

years, such data are collected through the web application CAWI ("Computer-Assisted Web Interviewing"), an online platform used to collect data through surveys.

Throughout these years, the structure of the reported data has undergone changes, while the most recent publication of statistical data (MASHTI-ASK, 2022) shows the following data for public and private higher education institutions:

- Number of new entrants at the Bachelor/Master level by level of study and sex;
- Total number of students at the Bachelor/Master level by level of study, sex, and year of study;
- Total number of students from abroad at the Bachelor/Master level by level of study, country of origin, and sex;
- Number of graduates at the Bachelor/Master level by level of study and sex;
- Number of academic personnel by sex;
- Number of academic personnel from abroad and by sex.

Data are also presented for doctoral studies, which are currently offered by the University of Prishtinë only:

- Number of new entrants at doctoral level by program of study and sex;
- Total number of students at doctoral level by program of study, sex, and year of study;
- Number of graduates at doctoral level by program of study and sex.

Data by year can be found in the KAS database (ASK, 2023).

4.2. Statistical data at the source

In the absence of an automated system for collecting and processing statistical data for the entire higher education sector in Kosovo, competent institutions resort to different methods for collecting and processing data. Here we will address the data collected by three institutions: The Kosovo Agency of Statistics (ASK), the Ministry of Education, Science, Technology, and Innovation (MESTI), and the University of Prishtinë.

4.2.1. Kosovo Agency of Statistics

As elaborated above, KAS collects data from higher education institutions in Kosovo through a questionnaire, which is completed by the institutions using the CAWI application for surveying. The KAS questionnaire[1] is broken down into 6 sections:

1. University/College data: Mostly data related to location and contact information.
2. Bachelor Level: This section collects data on the number of students. Part of the data is collected at the university/college level, while another part at the study program/academic unit level:
   - Number of new entrants by sex (at the level of program of study);
   - Number of students enrolled by year of study and sex (at the level of program of study);
   - Number of students enrolled by ethnicity and sex (at the university/college level);
   - Number of students enrolled from abroad by country of origin and sex (at university/college level);

1 The questionnaire is administered through the CAWI application, while the document with the questionnaire for the academic year 2022/23 in PDF format was made available to the authors by the responsible KAS staff on February 3, 2023.

- Number of graduates by sex (at the level of program of study);

3. Master Level: Same data as that for the Bachelor's level is required.

4. Academic and administrative staff – Bachelor and Master level. Here also, part of the data is collected at the university/college level, while another part at the study program/academic unit level:

   - Staff by status (full-time, adjunct, administrative staff) by sex (at the level of program of study);
   - Academic staff by ethnicity and sex (at the university/college level);
   - Academic staff from abroad by country of origin and sex (at university/college level);

5. Doctoral Level: Similar to Bachelor's and Master's level, but less data is required:

   - Number of new entrants by sex (at the level of program of study);
   - Number of students enrolled by year of study and sex (at the level of program of study);
   - Number of graduates by sex (at the level of program of study);

6. Academic and administrative staff – doctoral level:

   - Staff by status (full-time, adjunct, administrative staff) by sex (at the level of program of study);

It should be noted that through this questionnaire it is not possible to collect all the data on higher education required by the standards set by UNESCO, OECD, and EUROSTAT.

4.2.2. MESTI

The Higher Education Management Information System (HEMIS) was developed for the first time in 2018 and is used to collect and monitor data in higher education where accredited and licensed higher education institutions (HEIs) in Kosovo record their students at the Bachelor, Master, and Doctoral levels according to the deadlines provided in the legislation (Tabaku, 2021).

The software, consisting of four (4) modules, enables the recording of data on HEIs, as well as on programs of study and students. Student data hosted in the system include personal number, name, parent's name, surname, date of birth, sex, country of birth, place of birth, residential address, municipality, ethnicity, faculty, year of study, program of study, level of study, and language of study. According to the established procedures, only students who start their studies in any of the Bachelor's, Master's, and Doctoral level programs are recorded in the system, which includes new entrants, but also those who transfer from other programs to advanced years of studies.

At the beginning of the academic year, all accredited higher education institutions are required to record new entrant data in the system, by program and in compliance with the quotas determined by the Kosovo Accreditation Agency.

The primary purpose of this software is not to collect and process statistical data, rather to check compliance with student quotas determined by the Kosovo Accreditation Agency. Therefore, the system does not collect data on the progress of students currently studying in a given program. Nevertheless, some statistical data can be extracted from the system on new entrants.

4.2.3. University of Prishtinë

The University of Prishtinë uses the Student Management Information System (SMIS), which contains all relevant data on students, running the gamut from personal data to study progress data. Such a system could generate all relevant data on university students. Similar systems are in place at other public universities, while private colleges have autonomous systems that serve their needs.

Statistical data on the number of students enrolled in the current academic year are available to the public by academic unit, and by level of study and program of study (Universiteti i Prishtinës, 2023). While the relevant service of the University generates data for the needs of the University's bodies.

4.3. Indicators

The first Education Indicator Framework for Kosovo was developed and published in 2010. (MASHT, 2010). This Framework was based on the relevant documents of UNESCO and those of the OECD countries, which also corresponded to the general indicators of "Education for All," a global initiative for inclusiveness and quality in education which was implemented in 1990-2015. In 2017, this Framework was revised and fine-tuned following UNESCO's Technical Guidelines (UNESCO, 2009). The new version of the Framework (MASHT, 2017) includes specific indicators on higher education such as:

1. Gross Enrollment Ratio;
2. Net Enrollment Rate;
3. Number of students in higher education per 100,000 inhabitants;
4. Percentage of students in higher education by ISCED level;
5. Percentage of students in higher education by ISCED-F field of education;
6. Gender Parity Index;
7. Percentage distribution of public current expenditure on higher education;
8. Government expenditure per student as percentage of GDP per capita.

MESTI has started the practice of publishing indicators on education from the 2009/10 school year. The first publication for the 2009/10-2011/12 (MASHT, 2012) school years also included some indicators on higher education such as:

- Percentage of students in public universities by level;
- Percentage of female students in public universities by level;
- Percentage of students in higher education by field of education (ISCED-F was not yet in effect at that time);
- Percentage of graduates in higher education by field of education (ISCED-F was not yet in effect at that time);
- Percentage of students in private universities by level;
- Percentage of female students in private universities by level;
- Percentage of students in private universities vs. public universities, by level;
- Number of students in higher education per 100,000 inhabitants;

While the following publications for the 2012/13-2013/14 (MASHT, 2014) and the later school years included only indicators for pre-university education that are comparable to international indicators. Starting from

2015, indicators are usually published at the end of the calendar year for the previous school year (MASHTI, 2022c).

Whereas the first publication that focuses on higher education indicators is from November 2022 and provides data on higher education statistics by field of education for the 2021/2022 academic year, namely on indicator 5 from the above list (ASK, 2022a). According to the KAS roadmap, a similar overview of indicators for the 2022/23 academic year is expected to be published in October 2023 (ASK, 2022b).

4.4. Experiences from neighboring countries

Experiences of neighboring countries with the collection, processing, and publication of data on higher education were analyzed as part of this research. Albania, North Macedonia, Montenegro, and Serbia are candidate countries for the European Union and members of UNESCO, therefore, as a rule, EUROSTAT and UNESCO report their data. Despite the fact that the methodology of data collection and processing is not completely in line with the standards of these two organizations, they are still able to derive a significant number of indicators for these countries.

Additionally, the relevant institutions of neighboring countries also publish data on their websites.

Albania

The competent authority for statistics is the Institute of Statistics (INSTAT), which publishes data on higher education (INSTAT, 2022a) (INSTAT, 2022b):

- Number of students in higher education by type of institution and sex;
- Number of students in higher education by level of education and sex;
- Number of students in higher education by field of education;
- Number of graduates in higher education by level of education and sex;
- Number of graduates in higher education by field of education and sex.

While more detailed data are published in the statistical yearbooks of the Ministry of Education and Sports (MAS, 2022), as well as on the INSTAT database (INSTAT, 2023).

North Macedonia

The State Statistical Office (MAKSTAT) collects data through individual statistical reports that are completed on the occasion of student enrollment and graduation, where data on academic personnel is also provided. The data are reported through publications, but also on the database, which is a matter of public record (MAKSTAT, 2023). The data are sufficiently detailed and make it possible to calculate many indicators, some of which are also reported in regular statistical publications.

Montenegro

The collection of data is performed through individual statistical reports from the Department of Statistics (MONSTAT), which publishes data in separate periodic reports, as well as on the database (MONSTAT, 2023). However, the data that are published are quite limited in terms of variety and do not allow the calculation of many indicators.

Serbia

The competent authority is the Republican Statistical Office (RZS), which publishes data on higher education on an annual basis, producing quite comprehensive reports with a variety of criteria (RZS, 2022). Additionally, the data are also published on the database (RZS, 2023).

5. Main challenges with higher education statistics in Kosovo

Complete and qualitative statistical data are essential to track progress and make informed decisions in the field of higher education. The process of collecting, processing, publishing, and using statistical data faces numerous challenges related to policy and legislation, organizational issues, technical and human capacities, and inter-agency coordination. This chapter outlines some of these challenges based on information gathered from existing sources and interviews conducted with competent officials of MESTI, KAS, higher education institutions, and education experts.

5.1. Policy and legislation

The Law on Official Statistics, as amended, (Ligji Nr. 04/L-036, 2011) (Ligji Nr. 06/L-058, 2018) determines KAS as the principal responsible body for official statistics in Kosovo. KAS coordinates the state system of statistics and ensures the harmonization of statistical data. There is also the Statistical Council, an advisory body established to ensure better inter-agency coordination, with representation from the ministries and agencies on whose scope statistical data are collected, as well as from academic institutions, the business community, and civil society.

One of the legal obligations of KAS is to draft the Official Statistics Program, which provides the framework for the development, production, and distribution of official statistics in Kosovo. This is a 5-year program and is subject to approval by the Government of the Republic of Kosovo. The program includes statistical research, required for the provision of data, and determines the competent public authorities (ministries, agencies, etc.) for the collection of certain statistical data. The Official Statistics Program 2018-2022 authorizes MEST "to record the number of schools, students, and teachers at each level of education" (ASK, 2017). The program provides for the regular annual publication of education statistics without specifying their content. While the Adult Education Survey was announced as a new product to be rolled out in 2021, its implementation is still pending. This tool has been included in the 2023 Plan along with the publication of education data according to ISCED 2011 and ISCED-F 2013 on fields of education and training (ASK, 2022b).

The EU Progress Report on Kosovo in the field of statistics indicates that Kosovo has made some improvements in the reporting period but needs to make further efforts in many areas (European Commission, 2022). KAS is expected to increase the number of statistical products and improve coordination and access to administrative data sources. In the field of social statistics, the Report finds that Kosovo has not managed to provide complete and regular statistics for all the necessary fields. In the field of education, it is noted that the data are partial in relation to international standards and are not fully classified according to ISCED 2011. However, they are regularly updated, while the fact that demographic data are not updated is perceived as an obstacle to the production of quality statistics in the field of education.

The Stabilization and Association Agreement provides for "developing an efficient and sustainable statistical system in Kosovo capable of providing, reliable, objective and accurate data, comparable with European statistics, needed to plan and monitor the process of transition and reform in Kosovo." (Qeveria e RKS, 2022). For this reason, the statistical system features as a special chapter of the National Program for Implementation of the Stabilization and Association Agreement (NPISAA) 2022-2026 (Qeveria e RKS, 2022). NPISAA 2022-2026 provides special measures for strengthening KAS and improving the quality and volume of official statistics. Notably, such measures include, inter alia efforts to improve coordination between the main institutions for statistical data, which means increasing the number of administrative data sources, as well as increasing the number and coverage of statistical publications.

Implementation of legislation and policies in practice is a separate chapter. Despite having a defined legal status of the institution responsible for official statistics, KAS has communications problems with the institutions that should supply statistical data to the agency. From POS 2018-2022 and in conversations with KAS officials, we learned that KAS does not have access to the EMIS and HEMIS systems, which are managed by MESTI. Ensuring access to these two systems is among activities planned under the POS 2018-2022, however implementation is pending. Additionally, KAS experiences significant challenges in collecting data from HEIs, which do not always respond to its requests. It is reported that one reason for this could be the lack of institutional coordination, since the data from HEIs are requested in different periods and for different purposes, by KAS, MESTI, and KAA, while these three institutions do not share data with each other.

The legislation foresees punitive provisions for legal and physical persons who interfere with operations for the collection of statistical data, but from the interviews we learned that such provisions are not enforced in practice. It has been reported that, in the recent past, some institutions of higher education failed to respond to KAS requests for the submission of statistical data and that this problem was overcome with the intervention of KAA and MESTI.

5.2. Quality and alignment with international standards

The Law on Official Statistics (Ligji Nr. 04/L-036, 2011) defines the applicable criteria for qualitative statistics: relevance, accuracy, timeliness, accuracy, access and clarity, comparability, and coherence. KAS is responsible to ensure that statistical methodologies used in Kosovo are in line with those used in other countries in the region and in Europe. To be able to implement these objectives, KAS consistently updates its data collection, processing, and publication procedures. However, the quality of the statistics produced in Kosovo and their harmonization with international standards is subject to criticism.

All our interlocutors agree that the quality of higher education statistics in Kosovo leaves much to be desired. The data collection process itself is fragmented. While MESTI collects data only on new entrants through the HEMIS system, KAS collects data through questionnaires on an annual basis. On the other hand, KAA collects data only on the occasion of program accreditation, while there is no data sharing between the three institutions. Our interlocutors identify two key reasons for the unsatisfactory quality of higher education statistics:

1. Lack of a functional electronic system which would ensure that the statistics are complete and up to date, in compliance with the applicable standards; and

2. Insufficient human capacities for the collection and qualitative processing of statistical data.

There is a general consensus that higher education statistics are not in line with international standards. This is also confirmed by the Progress Report, where it is noted that, in terms of social statistics, only demographic statistics are in line with the requirements of the acquis (European Commission, 2022). A good part of the statistical data on higher education is completely missing, e.g., data on the age of students, etc., are not collected. However, some data are not at all in line with international standards. Here we would like to bring an example from the KAS questionnaire for higher education institutions, where data is requested on the staff of such institutions by status (regular, adjunct, administrative staff) and by sex (at the level of program of study). Data collected in this manner can be misleading, since academic and administrative staff in higher education institutions often contribute to multiple programs. For this reason, the applicable UOE Guidelines (2022) also require that, in such cases, staff intensity of participation should be pro-rated by program or level of education to avoid duplication and to allow drawing conclusions about staff at the level of program or education, respectively. According to our interlocutors, KAS is familiar with the UOE standard and regularly reports to EUROSTAT, but it does not have sufficient human and material resources to meet the requirements for statistics, in compliance with international standards.

5.3. Using data in decision-making

Our interlocutors affirm that the use of higher education statistics for decision-making is quite limited, and this happens due to the lack of statistical data and their shortcomings. The fact that the data are neither complete, nor adequately broken down, nor correlated to the data from the labor market is perceived to be an issue. KAA is among the institutions that use statistics to determine student enrollment trends when making decisions on the accreditation of study programs.

The lack of indicators on higher education represents a serious handicap to the use of statistical data in the decision-making process. As elaborated in section 4.3 of this report, eight indicators on higher education are already part of the Education Indicator Framework, but none are reported.

6. Next steps – options to address the problem

The evident shortcomings in higher education statistics in Kosovo must be addressed in a systematic way. Firstly, the requirements applicable to statistical data should be determined, so that they are in harmony with accepted international standards and result in relevant information for all stakeholders. Subsequently, there should be consideration given to data collection and processing systems, which make it possible for the statistical data to be stored and used in the best possible way. It is important to develop a package of national indicators on higher education, while the indicators included in the current indicator framework (MASHT, 2017) can serve as a good starting point. And, finally, determine the needs for new capacities, as well as for the division of duties and responsibilities between the competent institutions for higher education statistics, primarily MESTI and KAS.

6.1. Determining data requirements

In order to ensure qualitative and comparable statistics for higher education, the requirements for statistical data must be clearly defined. To this end, the joint manual of UNESCO, OECD, and EUROSTAT can serve as a point of departure (UOE, 2022) as it sets out a wide range of data required by all three organizations. Such data can be broken down into three groups: student data (ENRL, ENTR, and GRAD), academic personnel data (PERS), and expenditure data (FIN). These are the minimum data sets, and it is desirable to collect other data, if possible.

6.1.1. Student data

In the context of Kosovo, the basic unit applied for student data collection is the program of study. In the 2022/23 academic year in Kosovo, there are in total 395 programs of study of ISCED 6-8 accredited by KAA (AKA, 2023). ISCED 5 programs are subject to accreditation by the National Qualifications Authority (NQA) and in the 2022/23 academic year there are in total 33 programs offered by 12 different institutions (AKK, 2023). In addition to these programs, there may be other programs that have not been re-accredited but continue to work with students until the expiration of the legal deadline for the completion of studies.

If student data are collected by program, the 3-digit code of ISCED 2011 and the 4-digit code of ISCED-F-2013 for each program must be required from the reporting institution, from which the corresponding codes with fewer digits are then derived. The classification of data by type of institution does not represent any challenge, since in Kosovo higher education institutions are either public or private (subtype: independent).

Table 3 gives an example of a student data set, which to a large extent corresponds to the UOE (2022) requirements. As indicated in Table 3, for each of the three categories of student data according to UOE (2022) – students enrolled (ENRL), new entrants (ENTR), and graduates (GRAD) – the following data are required:

- number by age and sex;
- number of foreign nationals by age and sex;
- number by ethnicity and sex.

TABLE 3. Potential requirements for statistical data on students by program of study

Data	Correlation with data according to UOE (2022) from Table 1	Comment
Students enrolled (ENRL)		
Number of students by age and sex	ENRL1A-INST ENRL2-AGE&P ENRL4-FIELD	Ages less than 49 years should be expressed in single year of age, then in age groups 50-54, 55-59, 60-64, 65+, and "unknown"
Number of foreign national students by country of origin and sex	ENRL5-MOB&FIELD ENRL6-MOB&COUNTRY	The two-letter country codes defined by ISO 3166-1 shall be used for the country of origin.
Number of students by ethnicity and sex		Such data are not required by international institutions such as UNESCO, OECD, and EUROSTAT, but are of interest in the context of Kosovo.
Number of new entrants (ENTR)		
Number of new entrants by age and sex	ENTR1-AGE ENTR3-FIELD	Ages less than 49 years should be expressed in single year of age, then in age groups 50-54, 55-59, 60-64, 65+, and "unknown"
Number of foreign national new entrants by age and sex	ENTR2-MOBILE&AGE	The two-letter country codes defined by ISO 3166-1 shall be used for the country of origin.
Number of new entrants by ethnicity and sex		Such data are not required by international institutions such as UNESCO, OECD, and EUROSTAT, but are of interest in the context of Kosovo.
Graduates (GRAD)		
Number of graduates by age and sex	GRAD1-INST GRAD2-AGE GRAD5-FIELD	Ages less than 49 years should be expressed in single year of age, then in age groups 50-54, 55-59, 60-64, 65+, and "unknown"
Number of foreign national graduates by country of origin and sex	GRAD6-MOB&FIELD GRAD7-MOB&COUNTRY	The two-letter country codes defined by ISO 3166-1 shall be used for the country of origin.

Data	Correlation with data according to UOE (2022) from Table 1	Comment
Number of graduates by ethnicity and sex		Such data are not required by international institutions such as UNESCO, OECD, and EUROSTAT, but are of interest in the context of Kosovo.

In the event of inability to report data by single years of age, the ENRL2-AGE&P, ENTR1-AGE, and GRAD2-AGE categories required by UOE (2022) shall be excluded, while the ENTR2-MOBILE&AGE category shall be truncated. Due to the specifics of Kosovo's education system, data cannot be required for the "ENRL3-AGE&P – Number of part-time students by age and sex" category, because part-time studies are not available. Likewise, it is difficult to provide data for first-time graduates, as higher education institutions may not have such information, therefore the GRAD3-FIRST&AGE and GRAD4-MOB&AGE categories are also excluded from UOE (2022).

On the other hand, the number of students, number of new entrants, and number of graduates, by ethnicity and sex, is required due to the specifics of the Kosovo context, even though it is not included in the requirements of the UOE (2022).

6.1.2. Academic personnel data

According to the definitions in the UOE Guidelines (2022), academic personnel are considered all employees in higher education institutions whose primary duty involves teaching or research, including personnel holding academic management positions such as rector, dean, vice dean, head of department, etc.

While it is reasonable to collect data on students by program of study, this does not apply to academic personnel data, because academic personnel are usually engaged in multiple programs and at different levels of study. Therefore, data on academic personnel are collected at the level of the higher education institution. The UOE Guidelines (2022) provide three (3) categories of data for academic staff.

PERS1-STUD: Number of students with coverage adjusted to academic staff by level of education, program orientation, type of institution and intensity of participation.

In the Kosovan context, the level of education (ISCED 5-8) also provides information on program orientation, since ISCED 5 programs are vocational, while those of ISCED 6-8 are academic. The type of institution (public or private) can be derived from the institution that provides the data, while the intensity of participation can be only one – full-time – as part-time studies are not available. For this reason, the data collected on the total number of students by program of study do not need any kind of adjustment and can serve as data for the PERS1-STUD category.

PERS2-INST: Academic staff by type of institution, intensity of participation, and sex

Data are reported at the level of the institution, which can be public or private (type of institution). Regarding the intensity of participation, according to the UOE Guidelines (2022), for each member of the academic personnel, it should be pro-rated in relation to the intensity of participation of full-time personnel. For example, a professor who teaches four (4) hours per week out of six (6) hours, which is the typical intensity of participation of academic

personnel, is considered to have an intensity of participation of 0.67 (67%) and this unit, in the terminology of UOE (2022), is referred to as *full-time equivalent* (FTE). If an academic personnel member has an intensity of participation of 90% or more, then they are considered to be full-time, otherwise they are considered to be part-time. In the case of PERS2-INST, the data must be reported for both sexes (female and male) broken down into full-time and part-time personnel, as well as providing the total. Additionally, they should be reported in the form of the sum of personnel intensity of participation (total FTE). This is illustrated in Table 4.

TABLE 4. Data on PERS2-INST

Female	Full-Time
	Part-Time
	Total full- and part-time
	Total FTE
Male	Full-Time
	Part-Time
	Total full- and part-time
	Total FTE
Total Female and Male	Full-Time
	Part-Time
	Total full- and part-time
	Total FTE

PERS3-AGE: Academic staff by level of education, program orientation, sex, and age

Reporting by level of education is done by distinguishing institutions that offer ISCED 6-8 and ISCED 5 programs. In the Kosovan context, this breakdown also determines the program orientation, because institutions that offer ISCED 6-8 programs are considered academic, while those that offer ISCED 5 programs are considered vocational. The UOE Guidelines (2022) require reporting the total number of academic personnel, broken down by gender and by age groups <25, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65+ and "unknown age".

6.1.3. Expenditure Data

Collecting data on expenditure in higher education represents a challenge in itself, since such expenditure occurs at different levels of government, in the private sector, as well as in households. In terms of the public sector, expenditure data can be provided by the Kosovo Financial Management Information System (KFMIS), while in the case of the private sector, expenditure data must be reported by the higher education institutions themselves. The UOE Guidelines (2022) define three (3) categories of expenditure data, while the possibility of collecting such data in the Kosovan context is outlined below.

FIN-STUDENTS: Number of students with coverage adjusted to statistics on educational finance (for the reference year and coverage of finance data) by type of institution and intensity of participation.

Considering that, in Kosovo, all students in higher education are considered full-time, there is no need for any adjustment of the data collected on students. Here it should be taken into account that the academic year and the fiscal year do not match, therefore it is reasonable that student data from the academic year beginning in September-October of any given year is used with the data for the following fiscal year.

FIN1-SOURCE: Educational expenditure by source, type of transaction, and level of education

Public institutions of higher education in Kosovo are funded by Government grant, but also collect own source revenues from student fees, commercial activity, as well as from research and academic projects. The Kosovo Accreditation Agency and the Student Center, which serve the higher education system, are also funded from the central budget. Other expenditure for higher education includes student scholarships which are awarded by the central and local levels. All expenditure of public institutions is recorded in KFMIS and can be easily broken down by expenditure category – wages and salaries, other current expenditure, and capital expenditure as required by the UOE Guidelines (2022).

Challenges emerge with reporting expenditure from private sources, such as household expenditure, which can only be collected through regular household surveys, which are not implemented in Kosovo. Under such circumstances, the correct reporting of public expenditure on higher education represents a significant step towards meeting international standards for statistical data.

FIN2-NATURE: Education expenditure by level of education, type of institution and nature

In the case of public institutions, such data can be obtained from the KFMIS system broken down into wages and salaries, other current expenditure (goods and services, municipal expenditure, and subsidies and transfers) and capital expenditure. The breakdown of wages and salaries for faculty and non-faculty personnel may present certain difficulties. Further, it can prove challenging to collect data of this nature from private institutions, as they are subject to financial reporting requirements established by other legislation.

6.2. Development of data collection and processing systems

All accredited institutions of higher education in Kosovo have electronic systems for student management, where they record student data needed, *inter alia*, for statistical purposes, such as: program of study, sex, age, citizenship, ethnicity, etc. In an ideal situation, such systems would be synchronized and would automatically transfer the data at scheduled times to a central system, where it would be processed, and different statistical reports would be generated as needed. The

development of a proper and comprehensive higher education management information system is part of MESTI's medium-term plans, since such systems provide not only the statistical data necessary for decision-making, but also allow a higher level of oversight in higher education institutions. A potential structure of such a system is outlined in the feasibility study drawn up by Tabaku (2021).

However, within a short-term period, a HEMIS could be developed, one that is not necessarily synchronized, but can collect and process data on students from higher education institutions. Student data that such a system could collect from HEIs on an annual basis is provided as follows:

Program of study
- Designation and/or code allocated by KAA
- ISCED level (3-digit)
- ISCED-F-2013 classification (four-digit)
- Language of study

Personal number
First Name
Last Name
Sex
Date of Birth
Place of Birth (Municipality)
State of Birth
Residence (Municipality)
Nationality
Ethnicity
Year of Studies
Indication if the student is enrolling for the first time in the given program. Date of Graduation (for Graduates)

Personal data such as personal number, name and surname do not have any function as statistical data but are used for verification purposes. The above data can be submitted in Excel spreadsheets and uploaded to the system. In the absence of a functional and dedicated system for higher education, applications such as Excel, SPSS, STATA, Access, etc., can also be used for data processing.

In order to cover the entire gamut of higher education, it is necessary to collect data from institutions offering ISCED 5 programs. These institutions differ from typical institutions of higher education and, in many cases, may be businesses or organizations, which perform other service activities. For this reason, their systems for student management may be different from those of institutions offering programs at ISCED 6-8.

In terms of academic personnel, data can be collected by HEIs on an annual basis and through special forms, without asking for personal data. Such forms have been developed by EUROSTAT and can easily be adapted to the needs of the higher education system in Kosovo.

Expenditure data must be processed by the Ministry of Finance, as the central authority for the supervision of public expenditure on higher education, using the methodology defined by UOE (2022) and the relevant EUROSTAT forms, which can be adapted to the Kosovan context.

6.3. Package of national indicators on higher education

As elaborated in section 4.3, Education Indicators Framework (MASHT, 2017) includes eight (8) indicators on higher education. In the following section, we will discuss these indicators from the perspective of the data requirements that ensure their calculation.

1. Gross Enrollment Ratio

   Number of enrollments at ISCED 5-8, regardless of age, in relation to the population of the age group corresponding to that ISCED level. In this case, the age group 18-23 years which follows the typical age of completion of upper secondary education or, according to the EUROSTAT model, the age group 20-24 years, may

be adopted. The data needed for this indicator are already available, in addition to data for students enrolled at ISCED 5.

2 Net Enrollment Rate

Number of students enrolled at ISCED 5-8, of the age group corresponding to that ISCED level, in relation to the population of that age group. As in the case above, the age group 18-23 years or 20-24 years (according to the EUROSTAT model) may be adopted. At the moment, such data are not available, and the Net Enrollment Rate cannot be calculated.

3 Number of students in higher education per 100,000 inhabitants

This indicator measures the overall level of participation in higher education, showing the proportion (or density) of students compared to the population in the country. As such, it can be calculated with data that are currently available, except for data on students enrolled at ISCED 5

4 Percentage of students in higher education by ISCED 2011 levels

This data is also available for ISCED 6-8 but is missing for ISCED 5.

5 Percentage of students in higher education by ISCED-F-2013

Fields of Education and Training KAS has already published the first report which provides data on this indicator (ASK, 2022a), but the report will be complete upon collecting data on ISCED 5 students. Additionally, if, in the future, data on fields of study are collected according to the 4-digit codes of ISCED-F-2013, such analysis could be even more detailed.

6 Gender Parity Index

Ratio of female to male number of students in higher education. With the existing data it can be calculated for ISCED 6-8, aggregated and individually for each level.

7 Percentage distribution of public current expenditure on higher education;

Public current expenditure on higher education as percentage of total public current expenditure on education. A prerequisite for the calculation of this indicator is the consolidation of data on current public expenditures for higher education as outlined in section 6.1.3, but also current expenditure on education in general, information that could be extracted from public accounts.

8 Government expenditure per student as percentage of GDP per capita.

This indicator measures on average the Government's expenditure per student at ISCED 5-8 in relation to the average income per capita. In this case, it should be taken into account that the Government provides funding only for public sector students, while the number of students should also include those in the private sector. In addition, data should be collected on students at ISCED 5, both in the private and public sector. Government expenditure per student is the quotient of total Government expenditure on higher education and the total number of students at ISCED 5-8. The value of the indicator is the ratio of this quotient to GDP per capita.

All the above indicators are relevant and could be reported at regular time intervals. In addition to them, other indicators could be added to the package of indicators following the example of the international organizations presented in Table 2. Some of these indicators are

given below, while full explanations for each of them can be found in Table 2:

- Percentage of enrollment in higher education at private institutions,
- Inbound Mobility Rate,
- Distribution of new entrants into higher education by field of education,
- Share of women among new entrants into higher education by field of education,
- Gross Graduation Rate,
- Completion Rate,
- Percentage of female academic personnel,
- Student-academic personnel ratio by type of institution (public, private),
- Share of current and capital expenditure in total higher education expenditure.

6.4. Capacities and division of responsibilities for higher education statistics

In Kosovo, it is still not completely clear which institution collects data on higher education. Despite the leading role of KAS, MESTI and KAA also request information from higher education institutions. Duplicate requests are not only an unnecessary burden on higher education institutions but could result in errors and lack of consistency in data. Therefore, it is important that the three institutions broker a form of cooperation regarding higher education data.

Higher education data are part of the joint publication of MESTI and KAS, where MESTI covers the part of pre-university education, while KAS covers the part of higher education. This could persist for a while, since in MESTI there is a lack of capacity for collecting and processing data on higher education, but, in the long term, the conditions must be created for MESTI to collect and process statistics from all levels of education, in coordination and under the professional supervision of KAS.

As for the indicators, it should be considered that their calculation, in most cases, requires the use of demographic, financial, or other data that are outside the scope of MESTI. Therefore, it makes sense that the values of the indicators are calculated by KAS, which has the professional staff and information resources for this work to be conducted successfully.

In addition to annual publications, statistical data and indicators should also be published on the KAS database (ASK, 2023) to be available to all stakeholders.

The collection, checking, cleaning, processing, and publication of data cannot be conducted effectively if there is not sufficient human capacity within the institutions charged with these duties. The problem of insufficient capacities is present at both KAS and MESTI, therefore it should be addressed as a priority.

7. Conclusions and Recommendations

Drawing from the research, a clear conclusion emerges that higher education statistics in Kosovo are far from meeting international standards in this field and need significant improvements. The problems are multifaceted in nature and include the following:

- Lack of a clear definition of statistical data and indicators to be reported.
- Data collection and processing systems that were not designed to guarantee effectiveness in the collection, storage, processing, and sharing of data between different institutions.
- Lack of technical and organizational capacities to ensure a reliable process of collecting, processing, and publishing statistical data and indicators.
- Use of statistical data and indicators to inform the decision-making process is vastly limited due to the lack of data, but also the culture of decision-making that is not data-driven results in lack of demand for data.

The examination shows that immediate measures should be taken to enhance the quality and use of statistical data in higher education in Kosovo, by investing in infrastructure, technology, and staff training. A more coordinated and focused approach to oversight, reporting, and data analysis is required. In the absence of such measures, the problems in the sector of higher education statistics in Kosovo may grow and harm the future development of higher education in the country.

Chapter 5 provides an analysis of key challenges related to higher education statistics in Kosovo, while Chapter 6 examines opportunities to address them. General recommendations for action to improve the state in relation to higher education statistics are provided as follows:

1. MESTI, KAA, and other government agencies, in coordination with KAS, should clearly define their requirements for statistical data that will serve to both inform the public and make informed decisions. UNESCO, OECD, and EUROSTAT methodological guidelines could provide a good starting point for this journey. m.
2. KAS should take the lead in coordinating the process of collecting, processing, and publishing higher education statistics, while MESTI, KAA and other government agencies should provide access to their data to this sector.
3. The HEMIS system for collecting data from higher education institutions should be built upon or developed from scratch to provide the required statistical data comparable to international standards. Such a process may require significant investment in information technology.

4. Until the development of a HEMIS system that would support the automated collection of data from higher education institutions and effective processing thereof, KAS and MESTI should produce temporary solutions, while collecting and processing the data through the currently available systems.

5. MESTI should introduce efforts to design a package of indicators on higher education, selecting indicators that can be calculated with the data that are available and serve to monitor progress in the field of higher education.

6. MESTI and KAS should analyze the needs for organizational changes and human resources allowing for the production of quality statistics in the field of higher education, clearly defining the responsibilities of each involved entity.

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Appendix: List of Interviewees

First Name and Last Name	Position	Institution
Naim Gashi	Director	Kosovo Accreditation Agency (KAA)
Ilirjanë Ademaj	Monitoring and Evaluation Senior Officer	Kosovo Accreditation Agency (KAA)
Naime Rexhepi	Head, Social Statistics Division	Kosovo Agency of Statistics (KAS)
Advie Uka	Education Statistics Officer	Kosovo Agency of Statistics (KAS)
Xhavit Rexhaj	Education Expert	AAB College, Prishtinë
Shqipe Bruçi	Deputy Head, European Integration Division	Ministry of Education, Science, Technology, and Innovation (MESTI)
Enver Mekolli	Statistics Officer	Ministry of Education, Science, Technology, and Innovation (MESTI)
Qazim Tahiri	Officer in Charge, Information Technology Office	University of Prishtinë
Edona Maloku-Bërdyna	Deputy Minister	Ministry of Education, Science, Technology, and Innovation (MESTI)
Burim Gashi	Deputy Director, Department of Higher Education	Ministry of Education, Science, Technology, and Innovation (MESTI)