



FAITH
**“Increasing the Financial Autonomy and
Accountability at public higher education institutions in
Kosova”**

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Report D1.2

“Analysis of specific infrastructure needs”

WP	WP1
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Analysis of specific infrastructure needs

As the main objective of the project is to strengthen the financial autonomy of the Higher Education Institutions in Kosovo, an essential part to achieve this goal is to enable the responsible persons within the institutions to cope with the daily tasks regarding financial management.

The hardware infrastructure shall be composed of two parts:

1. Server Infrastructure:

Basic server infrastructure that can host standard software solutions for financial management (application servers, database servers, backup servers and accessories)

2. Workstation Infrastructure:

Up-to-date workstation computers for the staff in financial departments (PCs, monitors, multifunctional printers and accessories)

One of the first observations made in the analysis of the partner universities was that the hardware and software equipment of the institutions for the handling of processes in financial management can be considered substandard.

Another problem that has emerged during the study visits and workshops is the availability of information in the field of finance. The analysis of the software portfolio of the partner universities shows that no adequate software solutions (for a modern and transparent financial management) exist at the moment. Currently, there are various financial management procedures between the universities and the Ministry of Education, Science and Technology.

It also became obvious that it will be necessary to analyse the currently utilized governmental finance management software FreeBalance - which is used by governments around the world - in a more detailed way, to find the software solutions fitting the actual processes. This would facilitate rolling out the results of the project to other universities, which are not part of the project consortium in a further step. Thus a higher acceptance and a sustainable development of the entire Kosovar higher education system can be achieved.

The project consortium came to the conclusion that these requirements might be fulfilled by using existing standard software for financial accounting. In order to elaborate on the requirements in detail, a visit of the financial departments of the Kosovan Universities with IT experts from Germany and Austria will be organised as a part of an upcoming project workshop.



Nevertheless, some **key requirements** could be identified that might be the basis of the software infrastructure improvement:

- Possibility to record bills and receipts
- Registration of cost elements and cost categories
- Daily reporting of the execution of the budgets
- Interfaces to reporting tools of the responsible state institutions

Another important result of the analysis is that the existing hardware equipment of the partner universities will not be able to run any new software solution. To make sure that extended software for financial accounting, based on the key requirements mentioned above, can be implemented within this project, it is necessary to establish an adequate hardware infrastructure at the three partner universities.

The modernization of the server structure and the extension of the server capacity will primarily be used to strengthen the resilience for the digitization of the financial management and hosting the FAITH platform. Furthermore, it is a first step to modernize the working places of the respective employees of the Vice Rectors of Finance and the affiliated Finance Departments to fulfil their tasks adequately.

By building up additional IT-infrastructure capacities, we will avoid the functioning of the core IT-infrastructure, which is required for the daily work as a university, being a potential hazard.

To ensure the cost-effective use of the financial resources, the IT acquisitions of the last 2 years were analysed at each of the partner universities in detail. In order to realize the procurement process of the hardware infrastructure parts, the project consortium recommends the following minimum specifications:



Minimum specifications for the procurement of Server Equipment

Application Server	Processor	Minimum 2x Intel Xeon E5-2620 v3 2.4GHz 15MB cache 6core
	Form	Rack 2U
	memory	16 GB RDIMM 2133MHz.
	HDD	HDD controlled by RAID adapter with at least 1GB cache, 1st group of HDD to be configured in RAID5 3x 1TB NearLine SAS 7.2 Krpm 3.5"
	Optical drive	CD / DVD \pm R/RW
	Power Supply	Minimum 2 PSUs 750W (redundant) with 2 cables C13/C14
	NIS	Integrated NIC 4 port Gigabit
	Rails	Sliding rack rails
	OS	No OS
	Warranty	3 years
Database Server	Processor	Minimum 2x Intel Xeon E5-2620 v3 2.4GHz 15MB cache 6core
	Form	Rack 2U
	memory	16 GB RDIMM 2133MHz
	HDD	HDD controlled by RAID adapter with at least 1GB cache, 1st group of HDD to be configured in RAID5 3x 1TB NearLine SAS 7.2Krpm 3.5"
	Optical drive	CD / DVD \pm R/RW
	Power Supply	Minimum 2 PSUs 750W (redundant) with 2 cables C13/C14
	NIS	Integrated NIC 4 port Gigabit
	Rails	Sliding rack rails
	OS	No OS
	Warranty	3 years
Backup Server	Processor	Minimum 2x Intel Xeon E5-2620 v3 2.4GHz 15MB cache 6core
	Form	Rack 2U
	Memory	16 GB RDIMM 2133MHz
	HDD	HDD controlled by RAID adapter with at least 1GB cache, 1st group of HDD to be configured in RAID5 3x 1TB NearLine SAS 7.2Krpm 3.5"
	Optical drive	
	Power Supply	Minimum 2 PSUs 750W (redundant) with 2 cables C13/C14
	NIS	Integrated NIC 4 port Gigabit
	Rails	Sliding rack rails
	OS	No OS
	Warranty	3 years



Rack 42U	Same brand rack with servers offered in art. 1	
	Size	42U
	Should be included	side panels, adjustable vertical mounting rails, front door, split-perforated rear door, keys
	Features:	Adjust-depth, integrated cable-management
	Maximum weigh	1300kg
	Warranty	3 years
UPS for Server	UPS – external (Rack Size 3U) for servers	
	Input Voltage	AC 230 V
	Power Capacity	5.4 kW / 6000 VA
	Output Connector(s)	2 x power IEC 320 C13 1 x power IEC 320 EN C19
	Rack Mounting Kit	Included
	Networking	RS-232, USB
	Interfaces	1 x management (RS-232) - RJ-45, 1 x management (USB) - 4 PIN USB Type B
	Cables	1 x serial cable - external 1 x USB cable – external
	Warranty	1 year

Quantity:

University of Pristina

- Application Server 1 piece
- Database Server 1 piece
- Backup Server 1 piece
- Rack 42U 1 piece
- UPS for Server 1 piece

University of Peja

- Application Server 1 piece
- Database Server 1 piece
- Backup Server 1 piece
- Rack 42U 1 piece
- UPS for Server 1 piece

University of Prizren

- Application Server 1 piece
- Database Server 1 piece
- Backup Server 1 piece
- Rack 42U 1 piece
- UPS for Server 1 pieces



Minimum specifications for the procurement of workstation computers

CPU		Intel Core i3 3.5GHz 3MB
System	Chipset	Intel H87 or more advanced
	Form factor	Micro-ATX
	Power Supply	250 W, low noise
	Graphics	On board Intel HD Graphics 1024 MB, 850/1100 MHz DirectX 10.1 DVI max. resolution 1920 x 1200 @ 60 Hz RGB max. resolution 2048 x 1536 @ 75 Hz
	Memory	8 GB DDR3 (16 GB max.), 4 DIMM sockets
	LAN	On board Gigabit (10/100/1000 Mbits/sec)
	Audio	On board HD-Audio
Hard disk		1 TB SATA-II, Minimum 550 GB
Disk drives		1 optical (CD / DVD \pm R/RW)
I/O	Parallel	Optional
	LAN / COM / VGA / DVI / HDMI	1 / optional / 1 / 1 / optional one PCIe x16 available for graphic card
	USB	4x USB 2.0, 4x USB 3.0
	SATA-II / eSATA	3/1
	PS/2 mouse / PS/2 keyboard	Yes / Yes
	Firewire	Optional
	Cardreader	Yes
Case slots	3,5" / 5.25" / 2.5"	1 / 1 / 2
Accessories	Keyboard	Standard 101/104-key PS/2 or USB, US layout
	Mouse	3-button optical wheel mouse PS/2 or USB
	Power cable	Yes
	Display	TFT-LCD active matrix monitor, 24" Available ports 1x VGA, 1x DVI-D, 1x DisplayPort, 2x USB2.0
	Operation System	Windows 7 / Windows 8.1

Quantity:

University of Pristina

- Working station 15 pieces
- Display 15 pieces

University of Peja

- Working station 10 pieces
- Display 10 pieces

University of Prizren

- Working station 10 pieces
- Display 10 pieces



Minimum specifications for the procurement of multifunctional printers

Printing Copy Fax	up to 21 pages A4 black&white, up to 21 A4 color	
	DADF	Po
	Duplex	Automatic
	Copies	up to 99 copies
	Sheet input (standard)	250 sheets + 50 Sheet
	Multipurpose tray + DADF	50 pages
	Duty cycle	40000 pages
	Toners	Should be included factory preinstalled toners black, cyan, yellow, magenta
System	Memory	256 MB
	Processor	700 MHz
	Display	3.2inch diagonal touch screen
	Connection	Ethernet 10/100 dhe USB 2.0
Scan	Scanner resolution	Optical up to 1200 x 1200 dpi,
	Scanning features	Scan-to-email, Scan-to-USB, scan-to-cloud, Scan-to-network folder, LDAP e-mail lookup

Quantity:

University of Pristina

- Multifunctional Printer 15 pieces

University of Peja

- Multifunctional Printer 15 pieces

University of Prizren

- Multifunctional Printer 15 pieces