

From Enterprise Resource Planning (ERP) to Universities Resource Planning (URP)

Guladi Tkhilaishvili 1^{a*}, Manuchar Loria 2^a

^a IAMU member - Batumi State Maritime Academy, Batumi, 6010, Georgia

g.tkhilaishvili@bsma.edu.ge (+995) 591 005 292

Abstract: The article discusses and analyses the importance of the Enterprise Resource Planning (ERP) principles in the University environment. It is crucial to properly evaluate and assess the effectiveness of the university's administrative and academic staff performances as an organizational form. In the last couple of years, besides the negative impact, COVID-19 positively impacted the technological development at the HEIs. So, the ERP system remains a powerful program that allows businesses to systematize all important processes. Drastically, doing so reduces costs and the possibility of making mistakes, thereby increasing efficiency and profitability. The ERP system comprises the main sections of an organization, such as financial, human resources, production, logistics, etc., but to the present does not cover the whole university's administrative and learning activities. Thus, most HEIs effectively implement technologies and E-Systems but, in most cases, are fragmented and do not cover whole university activities. The purpose of the article is to create one united platform based on an ERP system, whereby we will get the new model of the University Resource Planning (URP) system and will be implemented and facilitate the: unified digital database, improvement of university efficiency, less bureaucracy, delayed decisions and the and quality improvement. As a result, all the data will be shown as a "Dashboard" to the top management of HEI, which will perceive information about the weaknesses and gaps for achieving specific objectives.

Keywords: E-University; ERP; URP

Introduction

In 2018, we started working on the article, which includes introducing the ERP system in Higher Education Institutions (HEIs) as a unified platform that will improve the effective quality enhancement of HEIs in compliance with its mission, vision, and strategic goals. Besides, we examined four outstanding Georgian universities (*these HEIs did not allow us to publish their names*), and none of them did not have fully implemented ERP systems. Some of the aspects are used by them, but they are fragmented.

Recently, many international HEIs tend to be globally recognized and competitive in an education environment, but unfortunately, around 60% of all ERP systems fail to meet expected outcomes. In fact, due to the significant investments of resources made by organizations to adopt or shift to ERP systems, researchers have a strong desire to explain the causes and the factors that lead to good performance with ERPs.[1] We studied that the factors of failure are mostly related to the modern technological skills of employees. Academic and administrative staff who are more than 50 years old were not able to work in high technological softs, but nowadays - since COVID 19 almost 90% of employees more or less have gained such skills.

Optimistically, we can now revive implementing the ERP systems process as a unified platform for Georgian and foreign partner universities. The data used for the study are automatically resolved rationalizations of ERP adoption introduced by universities. Subject evaluation is used for these data. There is some proof to recommend groups are deemed to engage an obedient role to equipment and methods at the university.[2]

The world is moving toward maximizing the simplicity of human functions and duties. Over the last few decades, the technological capabilities of humankind have increased colossally, which has facilitated the transfer of monotonous and routine labour work to high technological activities. Thus, technology is being integrated into any field. By simplifying all organizational functions, small or large businesses are keen to lower costs and higher benefits.

Imagine the critical importance of ERP strategy implementation. Take a glance at the organization's integrated strategy, which covers various operational levels of the organization's structure, such as Human and asset management, Customer Relationship Management (CRM), Manufacturing resource planning, Supply chain management (SCM), and Financial management.

The ERP system's genuine value lies in the company's new methods to make its business successful. Many functions become redundant, and due to the quick access to the necessary information, the time to perform other tasks is significantly reduced. Based on new technologies, many large companies have been developing information systems since the 1970s. One of the most successful projects was creating a software product by the German company SAP AG called R/3.[3]

We could create and develop a new project form of ERP system for universities based on research. As a result, we will get a new form of Enterprise Resource Planning (ERP) for Universities Resource Planning (URP).

Figure N1. The Enterprise Resource Planning (ERP) in University Environment



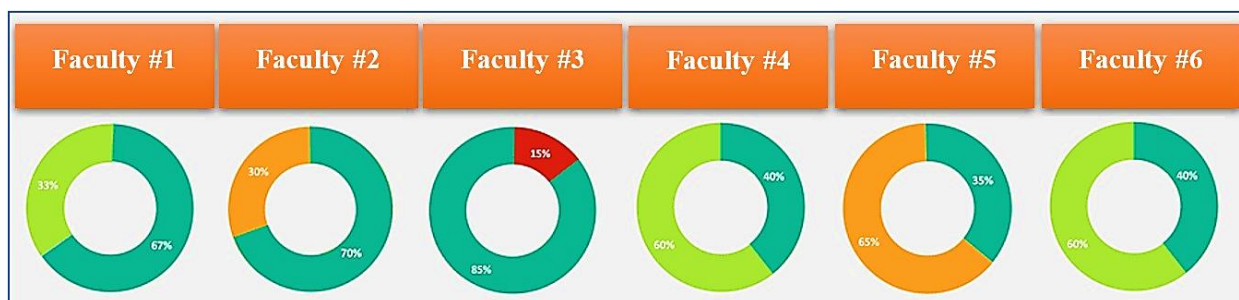
Source: The URP Structure is compiled by us. Batumi 2022. The dashboard is created in IT – Tech Operations.[4]

In **Figure N1**, we describe the main idea of how the URP system permanently might be presented to the top management. According to the faculties/departments/divisions or units, almost all universities have an action plan and try to report information by the end of the fiscal or academic year because the missing current achievements and progress of the university activity very often is time-consuming and inefficient.

With this dashboard, the top managers can see current progress, which of the structural unit is succeeding, and follow the planned activities. Which structural unit is behind its plan, and generally, what is the university's capability and actual performance?

For example, on the framework of the URP system, the top manager can click on the HUMAN AND ASSETS MANAGEMENT button and see detailed information according to the Faculties, which will be divided into two-part, Administration Staff and Academic Staff. The dashboard will show all faculties achievements and staff progress separately.

Figure N2. University Structural Unit (Faculties) performance



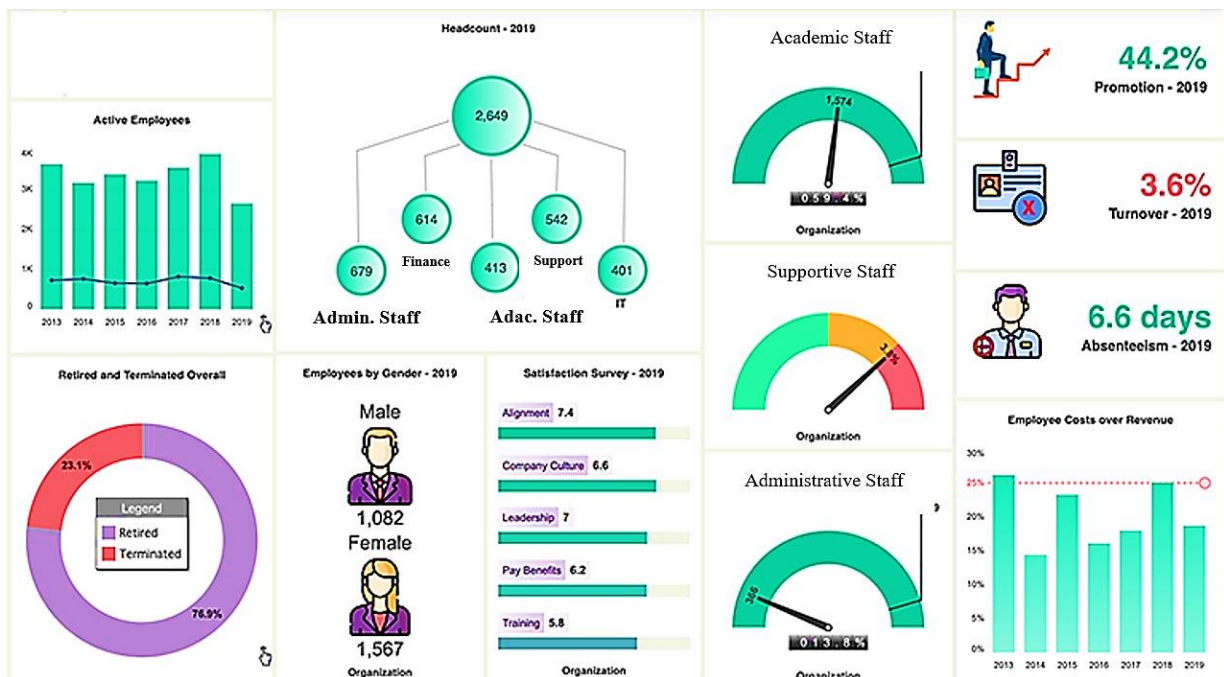
Source: The URP Structure is compiled by us. The KPI dashboard is created in SketchBuble. Batumi 2022 [5]

In **Figure N1**, we described the university's overall performance. Once the top management identifies the current problem, he/she can investigate that the university cannot use its capabilities, so they can go in deep and find why particular faculty could not reach the goal and discover the reasons for failure.

Figure N2 shows general information (*in our case*) on the faculty achievement progress. The Green coloured pie chart shows goal achievements, while other colours show the gaps in achievements. In this case, the best result has accomplished by Faculty #3, and the worst result has provided by Faculty #5. If we click on Faculty #5, we can see the detailed performance of each employee.

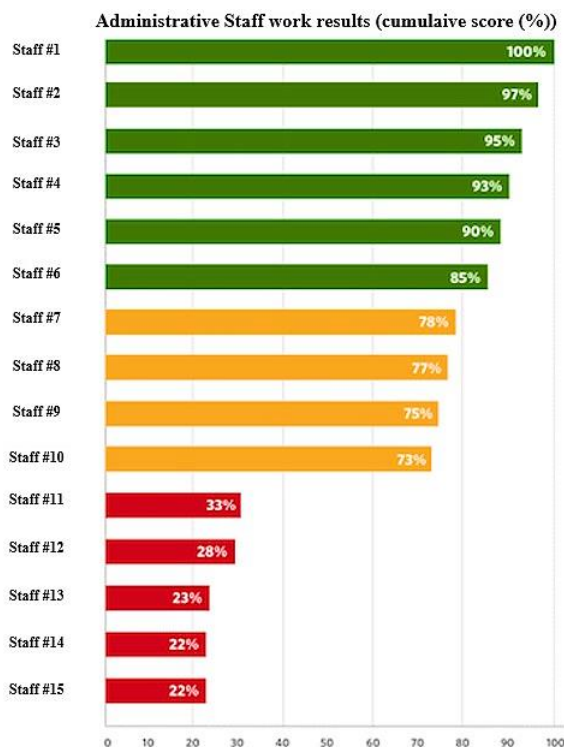
Figure N3 demonstrates the results of Faculty #5. From this dashboard, the management can easily find out which staff is not working efficiently or does not work at all. In our case, the Administrative Staff has the worst results, which reflects the overall result of the faculty, and in the end, it will be shown in the University results. After the URP System identifies the problem, the management can go into detail and determine which administrative staff does not work correctly.

Figure N3. Faculty #5 performance (%)



Source: The URP Structure is compiled by us. Batumi 2022. Generate Custom HR Dashboard & Reports [6]

Figure N4. Administrative staff work results cumulative score (%)



After problem identification, the management can click on the next button, Administrative Staff. This area will provide the complete staff evaluation of their work done. From staff #1 to #6, the results are excellent, staff #7 to #10 are evaluated as expected, but staff #11 to #15 have a worse result.

Now, the management has rated his/her employees and it's time to start analyzing why some of the staff have the best results and others are passive. The top management needs staff whose efforts are energized, directed, and sustained toward attaining a goal. Which of the McGregor's Theory X and Theory Y [8. Pg. 272-293] belongs to his/her staff and why? How to motivate and train them? Maybe the jobs are not fairly distributed among them? Thus, when top management will

Source: The URP Structure is compiled by us. Batumi 2022.[7] create a proper Job Characteristics Model (JCM); almost all staff will be motivated and well organized.

Figure N5. The overall annual performance assessment of the academic staff (%)

The overall performance assessment of the academic staff		17	%	Assessment by Admin. and Acad. Departments						The annual workload of academic staff. The minimum mandatory workload is 1800 hours		1	2	3	4	5	Academic integrity & Personality Traits - Max. 100 points (Sociability; Conscientiousness; Punctuality; Purposefulness; Responsibility)	The overall average performance assessment of the academic staff	
Academic position	Name and Surname	Attending faculty council meetings (17 Council meetings during the academic year)		Dean's assessment (20 points)	Acad. Department (15 points)	Evaluation of the Internationalization Service (25 points)	Evaluation by Quality Assurance Service - Auditory Attendance(40 points)	Sum	Research & Scientific activity (minimum requirement 100 points)	The minimum mandatory workload is1800 hours	annual workload of the academic staff	Comparison with minimum requirement (%)	Evaluation of students (evaluation with max. 5 points) "Average evaluation by groups in %"						
Professor	Lecturer #1	17	100	20	15	25	40	100	320	1800	2400	133	0	0	0	4	96	98	150
Assoc. Professor	Lecturer #2	16	94	18	13	22	36	89	220	1800	2100	117	1	1	0	8	90	95	123
assist.professor	Lecturer #3	14	82	16	13	18	32	79	180	1800	2000	111	0	0	5	10	85	91	109
Professor	Lecturer #4	10	59	12	11	17	25	65	170	1800	1950	108	4	0	4	11	81	82	97
Assoc. Professor	Lecturer #5	10	59	12	10	15	20	57	140	1800	1900	106	10	0	0	15	75	78	88
assist.professor	Lecturer #6	9	53	10	8	15	20	53	110	1800	1900	106	2	6	10	12	70	60	76
Professor	Lecturer #7	8	47	9	6	15	16	46	100	1800	1800	100	10	5	10	20	55	55	70
Assoc. Professor	Lecturer #8	6	35	6	5	12	15	38	90	1800	1750	97	9	1	25	15	50	50	62
assist.professor	Lecturer #9	2	12	5	2	8	15	30	80	1800	1600	89	30	5	15	10	40	45	51
Invited teacher	Lecturer #10	1	6	1	1	7	13	22	80	1800	1450	81	45	14	0	6	35	35	45

Source: The URP Structure is compiled by us. Batumi 2022.

In **figure N5**, we tried to present the overall performance assessment of the academic staff. One of the essential activities is to attend the faculty council meetings. In our case, let us suppose during the Academic year held 17 meetings and lecturer #1 has attended all 17 meetings; thus, he/she has 100% attendance and the best performance comparison to other academic staff. The next activity is assessing academic staff by the university administration units and academic departments. This measurement will be crucial in terms of project involvement and internationalization activities. Quality Assurance Service evaluates the academic staff and will be graded a maximum of 40 points. The following assessment is based on the research & scientific activities of the academician. The annual workload, evaluation of students, and academic integrity & personality assessment (Sociability; Conscientiousness; Punctuality; Purposefulness; Responsibility) will allow the management to determine the overall average performance of the academic staff.

We believe that all universities use the triangulation method in the evolution process, but they are not centralized and, in most cases, fragmented. Evaluation criteria of all structural units of the organization should be designed in advance.

Similar methods and approaches will be used with the rest structural units of the HEI. The management can measure the financial, HR (CRM) results, Quality assurance, and other departments. Despite the classification of the gap in the operation activities, with a centralized and unified database, the management can easily create a new project. Particular unit managers should investigate how many staff they have, what qualifications they need, and which academic or administrative staff are currently free to be involved in the project. Even though they will need to have information about university financial situations and whether the university can finance a particular project or not? For planning such activities, the most critical part is material resources, where should work for the project team, how many and what kind of equipment is needed for project development, and how to measure the results?

Conclusion

ERP Systems in Higher Education Institutions (HEIs) have increased substantially over the past decade. Though this demand continues to grow. Thus the idea of the article is to **create a URP project for HEIs** on the

bases of an ERP system. Implementing a URP system in the HEI requires a team of professionals. It is necessary to be entirely aware of the business processes of the organization in order to be able to optimize the system for the specific requirements of the university. But after the development and implementation of this software, all the data will be shown as a "Dashboard" to the top management, which will merely perceive information about the difficulties and gaps in achieving specific objectives. The URP program will have students learning process and analyses their academic results. Thus, the result is to create a commercialized product that will involve partner universities, create a commonwealth development strategy, and compare ratings according to created criteria. Thus, we believe that in Georgia and even in the Caucasus region and East Europe, E-university (URP) system will be an innovative, demanding, commercialized and profitable project.

Bibliography

- [1] Abugabah Ahed, Sanzogni Louis. Enterprise Resource Planning (ERP) System in Higher Education: A Literature Review and Implications. Queensland, Australia 2010
https://d1wqtxts1xzle7.cloudfront.net/81001227/68694_1-with-cover-page-v2.pdf?Expires=1653674640&Signature=H4dLpagQLs-DaiUGLnNjxWQIvbpU-Jw11GX-q8Egeu0qKXtOJzhUIr736sQCnkBcssUzWQ~pJBSBVBylZvslwBwdpYCVLI0IYGr-1xMrN00U-mIXO~U4Z59MigDqYaumqV8AGfUqwenOH0xZKKmCY7SAHsE5aBF2~6hJnfd5fAzcbqJ5LEiloZzCEbqIPMqu8U80r-QdkUFgUHvGY9GEXVOPbELrTohBNmkoiPwaTV0idUGVMNvXxi6YvHMeAm8UT81~VNXVdfZ6pEkwgYF90ehdcR5v6np9oCvxRCGtAcNb5ygeC~iRkogpBvf5TmNiqnd2JHVz02kNNIDNutnmw &Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA
- [2] Dave Oliver, Celia Room. Justifying enterprise resource planning adoption. Journal of Information Technology. Volume 17, 2002 - Issue 4. <https://www.tandfonline.com/doi/abs/10.1080/0268396022000017761>
- [3] Irma Becerra-Fernandez, Kenneth E. Murphy, Steven J. Simon. Integrating ERP in the business school curriculum. Singapore 1999) <https://dl.acm.org/doi/fullHtml/10.1145/332051.332066>.
- [4] Dashboard. IT – Tech operations. Dashboard example 2022. <https://www.idashboards.com/dashboard-examples/it-dashboard-example-tech/>
- [5] KPI Dashboard. Sketchbubble. <https://www.sketchbubble.com/en/presentation-kpi-dashboard.html>
- [6] Roundinfinity Easing Digitalization For Companies. Generate Custom HR Dashboard & Reports. <https://www.roundinfinity.com/hr-workflows.html>
- [7] Waterford. District main dashboard. <https://www.waterford.org/news/announcing-dashboards-big-data-help-little-learners/district-main-dashboard/>
- [8] Stephen P. Robbins; David A. Decenzo; Mary Coulter; "FUNDAMENTALS OF MANAGEMENT" Essential Concepts and Applications, Library of Congress Cataloguing-in-Publication Data, 8th edition. Pearson Education, Inc., New Jersey 2016.