

UDC: 37/005.6

DOI: <https://doi.org/10.30546/09081.2024.1.1017>

## ANALYSING RISK FACTORS IN HEIs: APPLICATION IN BAKU ENGINEERING UNIVERSITY (BEU)

**KHAZAR NAJIMBAYLI**

Baku Engineering University,  
Baku, Azerbaijan  
[xanacimbayli@beu.edu.az](mailto:xanacimbayli@beu.edu.az)

**SAID JAMALOV**

Baku Engineering University, Bachelor's degree  
Baku, Azerbaijan  
[camalovsc@gmail.com](mailto:camalovsc@gmail.com)

ARTICLE INFO	ABSTRACT
<p><i>Article history:</i> Received: 2024-07-07 Received in revised form: 2024-08-07 Accepted: 2024-09-11 Available online</p> <p><b>Keywords:</b> Risk, Risk management, Risk statistics, Risk analyzing</p>	<p><i>In recent years, the subject of risk management has received increasing attention both in the academic literature and in the world of business and management. This method aims to eliminate potential threats in a planned and programmed manner and to create plans to intervene in the situation before possible negative events occur. In this article, first of all, what is the risk? Risk management in a higher education institution and what the risks are, followed by explanations about the statistical data obtained as a result of the survey research conducted by (BEU) (with the participation of students studying in the 2023-2024 academic year).</i></p>

### ALİ TƏHSİL MÜƏSSİSƏLƏRİNDƏ RİSK FAKTORLARININ TƏHLİLİ: BAKİ MÜHƏNDİSLİK UNIVERSİTETİNDƏ TƏTBİQİ

#### XÜLASƏ

Son illərdə risklərin idarə edilməsi mövzusu həm akademik ədəbiyyatda, həm də biznes və menecment dünyasında artan diqqəti cəlb edir. Bu üsul planlı və proqramlaşdırılmış şəkildə mümkün təhlükələri aradan qaldırmaq və mümkün mənfi hadisələr baş verməmişdən əvvəl vəziyyətə müdaxilə etmək üçün lazımi planlar yaratmaq məqsədi daşıyır. Bu yazıda ilk növbədə risk nədir? Ali təhsil müəssisəsində risklərin idarə edilməsi və Universitetlərdə risklərin nədən ibarət olması, ardınca (BEU) tərəfindən (2023-2024-cü tədris ilində təhsil alan tələbələrin iştirakı ilə) aparılan sorğu araşdırması nəticəsində əldə edilən statistik məlumatlar haqqında izahatlar verilir.

**Açar sözlər:** Risk, Risklərin idarə edilməsi, Risk statistikas, Risk təhlili

### АНАЛИЗ ФАКТОРОВ РИСКА В ВУЗАХ: ПРИМЕНЕНИЕ В БАКИНСКОМ ИНЖЕНЕРНОМ УНИВЕРСИТЕТЕ ("БЭУ")

#### РЕЗЮМЕ

В последние годы тема управления рисками привлекает все больше внимания как в научной литературе, так и в мире бизнеса и менеджмента. Этот метод направлен на планомерное и запрограммированное устранение потенциальных угроз и создание планов по вмешательству в ситуацию до наступления возможных негативных событий. В этой статье мы рассмотрим, во-первых, что такое риск? Управление рисками в высшем учебном заведении и что такое риски, а затем пояснения по поводу статистических данных, полученных в результате исследования, проведенного БЭУ (с участием студентов, обучающихся в 2023-2024 учебном году).

**Ключевые слова:** Риск, Управление рисками, Статистика рисков, Анализ рисков

## INTRODUCTION

This article explains what risks exist in the academic world, what risk management is, why it is important, etc. [9]. Risk management at universities is essential for everyone. Because in universities (for example as teachers or students) we often face problems and risks. If these risks are not identified, prevented, or managed, this creates problems for us (big or small) and these risks can become the main cause of these problems, regardless of whether the risks are big or small.

### Information about Risk and Risk Management

#### What is risk?

Risk – This refers to the impact of Uncertainty or problems on objectives [9]. It was sometimes referred to as the likelihood that a hazard will cause harm, together with the severity of the injury, damage, or loss that may occur.

#### What is risk management?

Risk management theory provides a framework that includes identifying potential risks, analyzing the probability of each risk, developing appropriate risk mitigation strategies, and monitoring and adjusting the risk management plan [9]. This process aims to maximize potential benefits while minimizing potential negative consequences. [9]

Risk management has become an important topic in both academic and business circles in recent years. A widely accepted risk management approach usually consists of 4 steps [13]

**Identification:** Identifying possible risks and determining threats that the organization may face.

**Risk Classification:** At this stage of the risk management process, discovered risks are usually classified according to the following characteristics, although this classification may vary from sector to sector [13]

1. Nature of the Risk: Frequency of Occurrence, Severity, Likelihood (figure 2)
2. Type of Risk: Speculative Risk and Pure Risk (no gain possible)
3. Scope of Risk: Project. Organizational Unit. Whole Organization

**Risk analysis** involves identifying consequences, classifying risks, estimating impact using data (quantitative/qualitative), interpreting the results, and deciding on risk distribution (figure 1). Where data are not available, rough estimates are used for impact and probability assessment. [13]

LIKELIHOOD	CONSEQUENCES				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium	Medium	High	Extreme	Extreme
Likely	Low	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	High
Unlikely	Low	Low	Medium	Medium	Medium
Rare	Low	Low	Low	Low	Medium

Figure 1. Australia - New Zealand Standard for Risk Management [7]

Risk Matrix			LIKELIHOOD				
			VERY HIGH	HIGH	MEDIUM	LOW	VERY LOW
			10	8	6	4	2
SEVERITY	VERY HIGH Death	10	100	80	60	40	20
	HIGH Severe injury, Permanent disability	8	80	64	48	32	16
	MEDIUM Lost time injury	6	60	48	36	24	12
	LOW Non lost time - Medical Treatment	4	40	32	24	16	8
	VERY LOW Minor treatment	2	20	16	12	8	4

Figure 2. Evolution Of Risk Matrix [11]

**Monitoring and Review:** Continuously monitor implemented strategies' effectiveness, identify new risks, and update strategies. Risk mitigation is the process of minimizing hazards through strategies specific to the organization's industry, financial situation, and legal framework. Risk mitigation involves responding to analyzed risks in four possible ways. [13]

**Avoid** risky actions to prevent potential harm.

**Transfer:** Transferring the impact of risk to a third party through insurance or other mechanisms.

**Mitigation:** Taking measures to minimize the impact or likelihood of risk.

**Acceptance:** Choosing to do nothing and face the risk, trusting to chance. [13]

**Risk Management Standards and Certifications -** So far, we have learned concepts such as what is risk, what is risk management, etc. Are there official standards or certifications for risk management? So which are they?

Here is one of the world-renowned RISK Management certificates **ISO 31000**

**ISO 31000 Risk management**

The long-term success of an organization depends on many factors, including constantly evaluating and updating its offerings and optimizing its processes. As if that were not enough of a challenge, they also need to account for the unexpected in risk management. This is why ISO 31000 was developed for risk management.

ISO 31000 assures organizations at the level of operational continuity, economic resilience, professional reputation, and environmental and safety outcomes. In a world of uncertainty, ISO 31000 is specifically designed for any organization seeking clear guidance on risk management. [2]

**What is ISO 31000?**

ISO 31000, as an international standard, provides organizations with a scientific perspective on risk management. This standard includes general principles and guidance for organizations

to identify, analyze, assess, treat, monitor, and communicate risks. Organizations can create an effective risk management framework using this standard and through this framework, they can achieve their strategic goals more safely by increasing their sustainability. [2]

### **Why is ISO 31000 important?**

ISO 31000 is crucial because it promotes a shared understanding of risks, integrates risk management into strategic decision-making, enhances operational efficiency, encourages a proactive approach to risk, and boosts stakeholder confidence by signaling robust preparedness to navigate uncertainties [2]

**BENEFITS** - Standard risk management principles provide efficient risk mitigation, resource allocation, and decision-making. They offer a consistent, adaptable framework for any organization, fostering communication and promoting a culture of continuous improvement. [2]

### **1. RISKS IN ACADEMIA (BEU UNIVERSITY)**

Academia is a special place where people think deeply and discuss important ideas. Some think it has nothing to do with risks, usually connected to sports or business. However, this idea is not true. Risks are a part of everything we do, and academia is no different. Sometimes, academia forgets that things can change, and it might not be as safe as it seems. [13]

Let's try to understand the potential risk factors at a university :

- ◆ Academic risks
- ◆ Faculty-related risks
- ◆ Ethical risks
- ◆ Management risks
- ◆ Students-related risks
- ◆ Institutional risks
- ◆ Commercialization
- ◆ Violence
- ◆ Security
- ◆ Declining reputation
- ◆ Faculty Desertion [13]

### **Information about risks at the university**

**Academic Risks** - Academic risks refer to potential risks linked to the activities of academics within the institution. These risks often include specific challenges in research and teaching. [13]

### **Research Risks**

-Poor quality of research: Research that is not generally accepted by the scientific community or does not produce meaningful results, or even no results at all

-Wasteful research: A research project that spends more money and other resources than it has budgeted for.

-Environmentally damaging research [13]

### **Education Risks**

- Ineffective Teachers: Teachers who convey inadequate information, and use outdated or irrelevant materials. [13]
- Inadequate Educational Resources: Teacher shortages, lack of teaching assistants, and lack of necessary materials.
- Unfair or Challenging Exams: Exams that do not measure the subject matter or are overly challenging.
- Students who do not complete their education: Students who pose an academic risk and try to accelerate their graduation at the expense of the institution's standards. [13]

### **Faculty-related risks**

*Ineffective Teachers:* Motivating teachers who provide up-to-date information is important.

*Educational Resources:* Invest in adequate materials and technology.

*Fair Exams:* Exams that measure real understanding should be prepared.

*Graduation Rate:* Support should be provided to students. [13]

### **Ethical Risks**

Ethical Risks are risks that may be present in the activities of higher education institutions. Higher education institutions have additional ethical risks beyond those of non-academic institutions [13]. These risks include the following:

*Unethical Research Practices:* Disregarding safety rules, violation of known regulations and practices - especially in research involving humans - misuse of research funds.

*Plagiarism:* Using the work of others without proper attribution.

*Unethical Use of Students:* Unauthorized experiments for private purposes or assistance in teaching.

*Unethical Grading:* Allowing grades awarded to students to be determined by improper influences. This risk can also arise from personal preferences unrelated to the student's performance on the course. [13]

### **Management Risks**

Higher education institutions face unique management risks due to their distinct organizational structure. Let's delve into some of these risks:

*Delayed Replacement of Weak Managers:* Weak managers are sometimes not promptly replaced despite poor performance. This issue arises from the tradition in academic circles where faculty members themselves elect management positions.

*Rotation of Successful Managers:* Necessary rotations, such as changing rectors, deans, and department heads every few years, can disrupt successful leadership just when managers have settled into their roles. [13]

**Students-related risks** – Risks related to students can affect the success of higher education institutions and are important issues that need to be carefully addressed [13]:

Low Entrance Grades: Students' low entry grades can negatively affect their future performance. This damages the reputation of the institution and can lead to lower entry grades in future classes.

Grade Pressure and Easy Exams: Grade pressure is common among students and teachers. Grade inflation can affect the future careers of undergraduate and graduate students.

To mitigate these risks, institutions should develop programs and methods that support student success. Student-teacher communication and quality of education are also important.

#### **Institutional risks:**

##### **Financial Risks**

- Insufficient Funding for R&D: Lack of necessary funds for sustainable operation poses a serious risk, potentially forcing the institution to adjust its size, and activities, or face bankruptcy. [13]

- Bankruptcy: Closure or restructuring with significant consequences. [13]

##### **Insufficient (non-financial) resources**

For an institution to grow strongly, it needs more than just money and good teachers. It must also deal with important problems. [13] These problems include:

Classrooms: If there aren't enough classrooms, the timetable can be bad, and programs and activities won't work well.

Laboratories: If there aren't enough lab resources, it's hard to do research, which slows down the institution's progress.

Equipment: If there's not enough important equipment, the institution can't do its job well.

Knowledge Gap: If there's not enough information, things don't work well, and different processes aren't effective. [13]

##### **Commercialization Risks**

One big problem for universities is the constant risk of commercialization. As Bok (2003) points out, the most critical part of this risk is the danger of the university losing its "spirit and essence." Commercialization means the institution might shape itself according to its commercial interests, leaving aside academic values. [1], [13]

**Violence** - Behaviors involving violence perpetrated by students, faculty, or staff, or by outsiders accessing the institution's premises, pose significant risks.

##### **Safety and Security**

Everyone accepts a secure organization and offers a trustworthy environment. Distrust can have negative consequences, making the organization ostracized and negatively affected.[13]

##### **Declining reputation**

The reputation of higher education institutions can be significantly affected by internal or external factors. The institution's activities or external factors include potential risks that can negatively affect its reputation. Therefore, institutions should develop effective strategies to protect and strengthen their reputation.[13]

## Faculty Dropout

An unplanned reduction in the number of teachers at a university can lead to serious problems. Faculty members are the foundation of a university, and their departure can negatively affect the reputation of the institution. Therefore, the unexpected departure of faculty members carries a great risk.[13]

### Statistics from some official sources

1) In a study of HEIs, the Higher Education Funding Council for England (HEFCE, 2001) identified the risk categories (Fig. 3) they cover in their latest risk review;

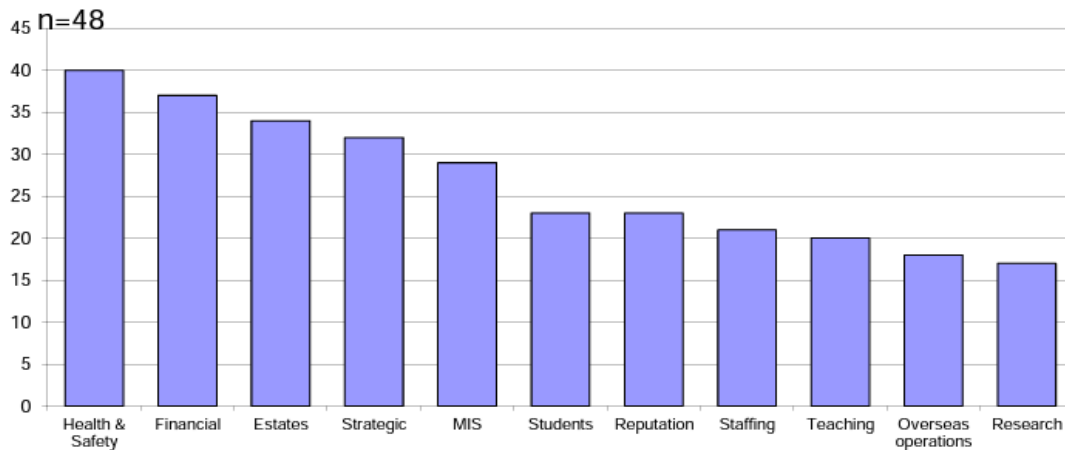


Figure 3. (HEFCE, 2001) Identified the risk categories in HEI's [10]

2) Each year, United Educators (UE) invites its members to share their institutions' most pressing risks in its Top Risks Survey (Fig 4). This year's list of top risks reflects responses from 105 colleges and universities that completed the survey in September 2022. The percentages in this report show the percentage of respondents who identified a specific risk.

Rank	2022 Top Risks*	Rank in 2020-21	Rank in 2019-20	Rank in 2018-19
1	Enrollment	1	1	1
2	Data Security	2	2	4
3	Recruitment and Hiring	Not ranked	9	Not ranked
4	Operational Pressures	4	6	3
5	Student Mental Health	New in 2022**		
6	External Pressures	Not ranked	Not ranked	7
7	Regulatory and Legal Compliance (Non-Title IX/VAWA)	7	5	8
8	Facilities and Deferred Maintenance	6	4	Not ranked
9	Public Safety	10	Not ranked	10

Figure 4. UE September 2022 Top Risks Survey [12]

Participants were also asked about identifying emerging or evolving risks that they predicted would gain greater urgency in the coming years (Fig. 5).

2019/20	2020/21	2021/22	2022/23
Pensions	Cyber security and information governance	Financial sustainability	Cyber security
International student recruitment	COVID-19	Cyber security	Sustainability, environment and climate change
Business continuity / cyber security	Student experience	Student experience	Financial sustainability
Postgraduate student recruitment	Mental wellbeing	Research	Infrastructure: university estates and capacity
Undergraduate student recruitment	Student recruitment	Infrastructure	IT infrastructure

Figure 5. Risks by Year (2019-23) [12]



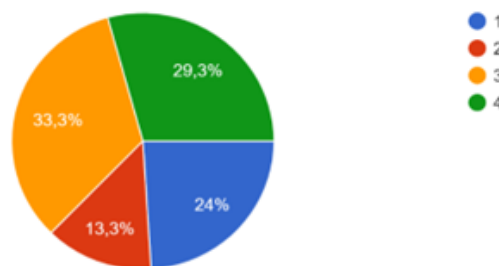
## 2. Risk Statistics Were Obtained From Surveys Conducted At Baku Engineering University during the 2023-2024 Academic Year.

So far, we have talked about everything related to Risk Management and then showed you some statistics from some sources. Now we have conducted an online survey with the students of Baku Engineering University for the academic year 2023-2024 about the risks at the university. Finally, as a result of this survey we have obtained important statistics and information about the risks or challenges faced by some of the surveyed students.

We share with you the results of this survey:

First of all, we would like to give a brief overview of the students who participated in the survey before moving on to the results. 75 students participated in the survey. Of these participants, 96 % were BEU students. **75 responses**

Also, according to our statistical results, we know which semester (A) students they are and which faculty they are studying at (B). **75 responses**



(A) Which semester they are students



**( B ) Faculty the students study in :**

- a. Faculty of Engineering – 21.3 %
- b. Pedagogical faculty – 17.3
- c. Faculty of Economics and Management – 20 %
- d. Faculty of Architecture and Construction – 41.3%

**3. STATISTICAL RESULTS OF QUESTIONS**

So, now you have a brief overview of the participating students. Now let's take a look at the statistical results of the survey questions answered by BEU students in the 2023-24 academic year.

**75 RESPONDENTS**

**1) How do you assess the public safety of the university?**

STRONG – 49.3%    NORMAL – 49.3 %    WEAK – 1.4%

**2) Are you satisfied with the general health services of the university?**

Very satisfied - 17.3%    Satisfied – 56%    Partially satisfied – 24%    Not satisfied – 2.7%

**3) Are you satisfied with the quality and health of the food sold in Canteens or Dining Halls?**

Very satisfied – 20 %    Satisfied – 57.3 %    Partially satisfied – 13.3 %    Not satisfied – 9.3 %

**4) Does the university have any measures in place to protect the health and well-being of students, and if so, do you use them?**

Yes, I use it – 28.8 %                      No, I don't use it - 47.9 %                      Events are not held – 23.3%

**5) Are you satisfied with the resources of your university (laboratories, classrooms, auditorium, smart board, library, etc.)?**

Delighted – 29.3 %    Satisfied – 41.3 %    Partially satisfied – 29.3 %    Not satisfied – 8 %

**6) Do you agree with the teaching or teaching methodology of the course offered at the university?**

I completely agree – 32 %    I agree – 48 %    Partially Agree – 12 %    I do not agree – 8 %

**7) Are you satisfied with the functioning of exams and subjective evaluation at your university?**

I completely agree – 29.3 %    I agree – 44 %    Partially Agree – 21.3 %    I do not agree – 5.4 %

**8) Are you satisfied with the transportation system you use to get to (or from) your university?**

Delighted – 13.3 %    Satisfied – 22.7 %    Partially satisfied – 34.7 %    Not satisfied – 29.3 %

**9) Where or to whom do you turn to solve the problems, you face when planning your university career?**

*In the responses to this question, 44 % of the students answered "none", 25 % received support from Career Counseling services, 12 % received help from Mentors, and the remaining percentages were divided into some categories. Students generally solved their problems either on their own, with their families, or with their teachers or academic advisors.*

**10) In conclusion, are you satisfied with your choice of university?**

Delighted – 42.7%    Satisfied – 36 %    Partially satisfied – 17.3 %    Not satisfied – 4 %

#### **4. RESULTS AND SUGGESTIONS**

**Finally, as a result of this survey, we obtained important statistics about the risks and challenges some of the surveyed students faced.**

75 students participated in the survey. And based on the participation of these students 4 main risks were identified at Baku Engineering University. And we learn that there is at least one ISO Certification to manage each risk.

**So let's get to know the most important risks of Baku Engineering University and learn about the ISO standards that are necessary for us to manage them:**

**A. One of the biggest risks at the moment is the transportation problem for the university. Students have a lot of trouble using transportation and waste a lot of time on the roads.**

Solution Suggestion: Shuttles running on standard routes can be established for BEU students. ISO 39001 standard can be applied to solve the transportation problems faced by the university. This standard aims to reduce the risks that may occur in transportation. [5]

**B. The second major threat: is safety and health. Since BEU's land is vast and semi-desert, some animals can be dangerous (foxes, snakes, etc. have been seen on the campus grounds).**

Solution: Students should know first aid rules. The health services of the university should be strengthened. Safety and health concerns related to possible encounters with dangerous animals in a semi-desert area can be addressed by implementing ISO 45001 certification, which focuses on occupational health and safety management. ISO 45001 can help identify and manage the risks associated with wildlife encounters and ensure the safety of individuals on university grounds.[4]

**C. Unfortunately, students and even professors experience problems with projectors, smart boards, or computers in some classrooms during lectures. As a result, the effectiveness and quality of the lecture is reduced.**

Solution: The ISO 41012 standard can be applied to this situation. The ISO 41012 standard covers facilities management systems and ensures that facilities are managed effectively. This can improve the quality of lessons by ensuring that the technological equipment in classrooms is working properly. [3]

**D. Another problem for students is that food products sold in canteens and cafeterias are sold at high prices and not at reasonable prices.**

Solution Suggestion: The university could finance this and redesign the pricing strategy with students in mind. Or the ISO 22000 standard can be implemented to solve this problem. The ISO 22000 standard covers food safety management systems and sets requirements to ensure the safety and quality of food products in the supply chain. It also helps businesses manage food safety risks and provides consumers with reliable and affordable food products.[6]

#### **5. CONCLUSION**

This article explains what risk is, how risk management is applied, how we learn about risks, etc. Then we saw what problems students face as a result of the research.

And the university needs to be able to manage these risks. They need to know that risk-averse institutions are not exempt from potential problems, so universities need to know and practice effective risk management and if they can manage risks properly, they can see that there are many benefits of practicing risk management in higher education institutions. For example, to mention

- Increased risk sensitivity of academic and administrative staff
- Efficient use of resources, increased success rate;
- Stronger resilience in the face of risks (financial, reputational, organizational). They will be able to reap benefits in such areas.

**REFERENCES:**

1. BOK D.C., *Universities in the Marketplace: The Commercialization of Higher Education*, Princeton University Press, Princeton, New Jersey, 2003.
2. International Standards organizations website (ISO 31000:2018)  
Website: <https://www.iso.org/iso-31000-risk-management.html>
3. ISO 41012: 2017 - Facility management. Website: <https://www.iso.org/standard/68168.html>
4. ISO 45001:2018 - Occupational health and safety.  
Website: <https://www.iso.org/iso-45001-occupational-health-and-safety.html>
5. ISO 39001:2012 - Road traffic safety (RTS) management systems  
Website: <https://www.iso.org/standard/44958.html>
6. ISO 22000:2018 - Food safety management  
Website: <https://www.iso.org/iso-22000-food-safety-management.html>
7. Kent Wall, *THE TROUBLE WITH RISK MATRICES*
8. L. Ruzic-Dimitrijevic. *A Publication of the International Institute for Applied Knowledge Management Volume 2, Issue 1, 2014 (2014)*
9. Marek Polak. *Risk Management in Internationalization of Higher Education Volume No. 2, 2018. ID: 13689403-0-1*
10. PricewaterhouseCoopers International Limited website. <https://www.pwc.co.uk/industries/government-public-sector/education/managing-risk-in-higher-education.html>
11. Safety - The Health and Safety Learning Platform Website: <https://safeti.com/what-is-risk-assessment-what-when-why>
12. United Educators. *2022 Top Risks Report: Insights for Higher Education*  
<https://www.ue.org/4902a8/globalassets/risk-management/reports/2022-top-risks-report-he.pdf>
13. Yossi Raanan 2017 - *Risk Management in Higher Education - Do We Need it?*