

## **IMPROVEMENTS OF THE FOOD SAFETY MANAGEMENT SYSTEM BROUGHT BY THE ISO 22000:2018 WITH APPLICABILITY TO THE CANTEEN OF THE „VASILE ALECSANDRI” UNIVERSITY OF BACAU**

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**Abstract:** This paper aims to summarize the conceptual changes brought by the ISO 22000:2018 to the food safety management systems and to present a practical approach to their implementation. A case study is carried out for the canteen of the „Vasile Alecsandri” University of Bacau (UBc), a Romanian university that has implemented a food safety management system (FSMS) since 2012, which must be updated to the new requirements of the standard by the end of the transition period. Due to the large amount of work involved in such a task, the analysis included in this paper addresses only the first new clauses of the standard – understanding the organization and its context and understanding the needs and expectations of interested parties, respectively, in the light of a risk-based thinking approach.

**Keywords:** *food safety management system, interested parties, ISO 22000:2018, organizational context, risk-based thinking, transition, „Vasile Alecsandri” University of Bacau*

## INTRODUCTION

Ensuring food security is a main concern, globally addressed, as a component of the Goal 2 of the 2030 Agenda for Sustainable Development: *End hunger, achieve food security and improved nutrition and promote sustainable agriculture* [1]. The food safety management systems (FSMS) have an important contribution to the achievement of this goal, focusing on the production of quality food as well as the food safety and security of consumers [2].

ISO 22000 is the well-known internationally recognized standard that specifies the requirements to be met by the organizations directly or indirectly involved in the food chain, providing food or services, that may affect food safety or consumer health. The adoption of a food safety management system is a strategic decision for an organization that has multiple benefits for both consumers (safety products, better health, increased satisfaction) and the organization itself (official recognition of its ability to produce/distribute/market safe food for consumers, qualification as a supplier of important producers/commercial networks, compliance with applicable statutory and regulatory requirements, better communication with regulatory and control authorities, improved image on market and competitive advantage, staff motivation etc.) [3 – 5].

In 2018, an updated version of the ISO 22000 standard was published to address both, the emergent food safety challenges, and the need to align the food safety management system with other management systems, into an integrated approach, at the global level. Compared to the edition from 2005, the new one came with conceptual and structural changes, as it is shown in Figure 1. The transition period for compliance with the new requirements ends in December 31, 2021.



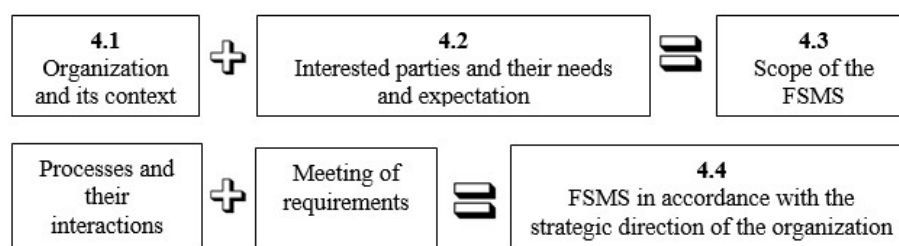
**Figure 1.** Improvements brought by the ISO 22000:2018

This paper aims to summarize the conceptual changes brought by the ISO 22000:2018 to the food safety management systems and to present a practical approach to their implementation. The case study is carried out for the canteen of the „Vasile Alecsandri” University of Bacau (UBc), a Romanian university that has implemented a FSMS since 2012, which must be updated to the new requirements of the standard by the end of the transition period. Due to the large amount of work involved by such a task, the analysis included in this paper addresses only to the first new clause of the standard - context and interested parties.

## CONCEPTUAL CHANGES BROUGHT BY THE ISO 22000:2018 STANDARD TO THE FSMS

### Operational planning and strategic direction

The new edition of all ISO management system standards (MSS) stipulates that the management system of an organization needs to include an understanding of, and an alignment with its strategic direction, since it is the “road” towards the achievement of the organizational goals. But defining the strategic direction of the organization implies a very good knowledge and a very good understanding of all internal and external issues that can affect its capability to get the intended results, which, in terms of the ISO MSS, represents the **organizational context (clause 4)**. This is a new concept of the ISO 22000:2018 and requires the organization looks at itself (clause 4.1) and its interested parties (clause 4.2) to determine the scope of its FSMS (clause 4.3) and then to design it in accordance with its strategic direction (clause 4.4), as it is shown in Figure 2.

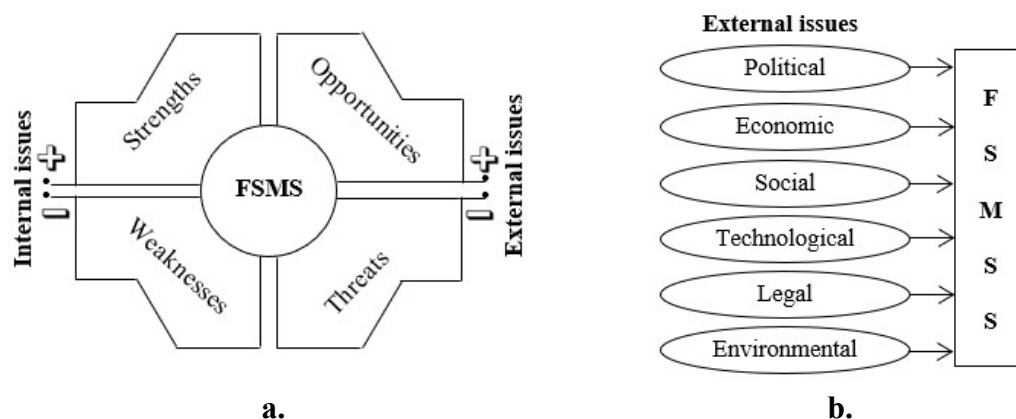


**Figure 2.** Context of the organization according to ISO 22000:2018

Therefore, to comply with the clause 4 of the ISO 22000:2018 standard, the organization must firstly *identify and assess the inside and outside issues* that affect or have the potential to affect the performance of its food safety management system (e.g. what pushes and pulls it to be what it is, what things it needs to comply with, what it is trying to achieve etc.). These issues can be positive or negative, but equally considered to define the context. There are different qualitative methodologies whereby an organization can undertake an analysis of internal and external issues that can influence its operation, from the perspective of a strategic planning approach (e.g. Figure 3). Such an analysis provides clear evidence that a comprehensive process has been carried out to understand the context within which the organization operates.

Once the context is determined, the organization should maintain it as a documented information, even if the standard does not explicitly require it, as it is a very useful tool for developing, implementing and improving the effectiveness of the FSMS (e.g. it

underpins the determination of the system's scope and policy, highlights the associated risks for the system's planning, facilitates the establishment of food safety objectives and provides a full analysis and understanding of the internal and external issues for the management review).



**Figure 3.** Assessment methodologies of the organization context:  
a. SWOT analysis, b. PESTEL analysis

The second element the organization must focus on, related to the context, refers to the *identification of the relevant interested parties* that may be impacted or interested in the organization's activities, and, subsequently, to the *determination of their needs and expectations* and if any of them need to be adopted as a *compliance obligation*, whether contractually or voluntarily or imposed by legal requirements. The relevance and significance of an interested party and its needs and expectations can be established by analyzing if they affect the FSMS ability to deliver its intended results and to what extent. The analysis must be done for current and potential effects and the obtained results should be retained as a "tactical planning document" to support the organization food safety policy and to provide a road map for the achievement of its associated objectives. Moreover, the organization must update periodically the information related to the interested parties and their requirements because they may change over time. Planned changes of the FSMS should also be preceded by an analysis of interested parties and their needs and expectations to ensure that the system has the ability to consistently provide products and services that meet customers and applicable statutory and regulatory requirements regarding food safety.

Based on the two identified and assessed elements – internal and external issues and the interested parties with their needs and expectations, the organization will be able to *establish/to redefine the scope of its FSMS*, that will be the foundation upon which the entire system will be built and within whose boundaries it will operate. In view of this, the organization must plan its food safety management system by *determining all the processes and their interaction* in a manner that supports the process approach and risk-based thinking (concepts addressed below).

### Process approach

ISO 22000:2018 adopted the process approach for the development and implementation of a food safety management system and improvement of its effectiveness, to enhance

production of safe products and services while meeting applicable requirements. Such an approach allows the organization to achieve the intended results in accordance with the food safety policy and its strategic direction, through a systematic definition and management of its processes and their interactions [3].

The management of processes and the system, as a whole, can be achieved using the Plan-Do-Check-Act (PDCA) cycle. It is a widespread framework that enables organizations to ensure that their processes are adequately resourced and managed, and to determine the improvement opportunities.

In ISO 22000:2018, the process approach uses a two-level PDCA cycle: one at *organizational level*, covering the overall frame of the FSMS (clause 4 to clause 7 and clause 9 to clause 10) and another one at *operational level*, based on HACCP principles, covering the operational processes within the *food safety system* (clause 8), as it is shown in Figure 4. Communication between the two levels is very important for such an approach to achieve its goal, namely reduction of harms that the organization may have in the food chain and an effective and efficient control of hazards [3, 6].

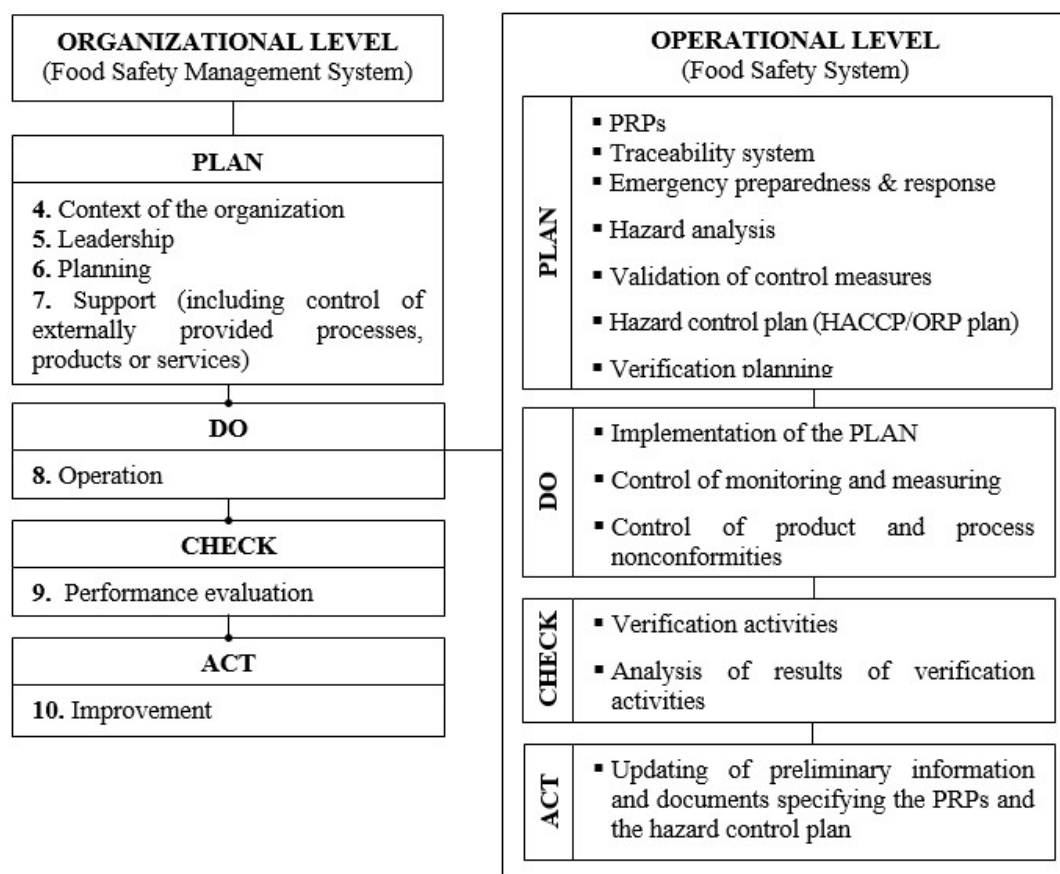


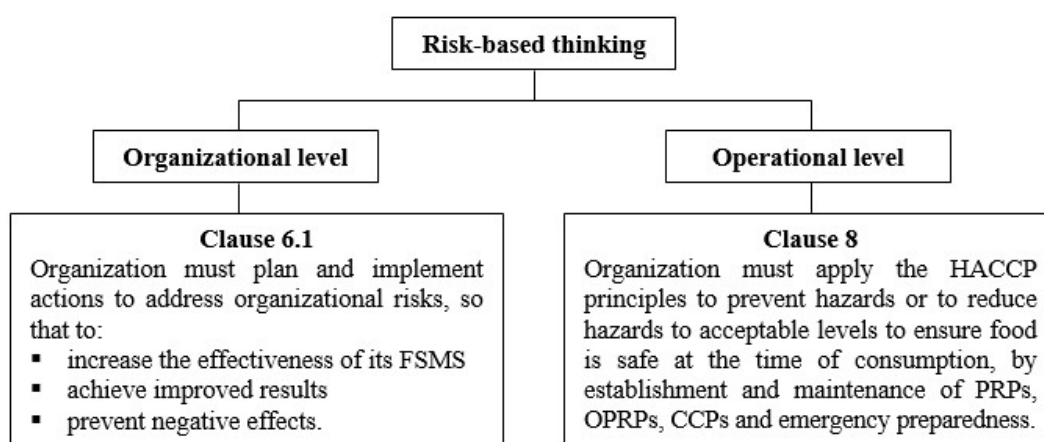
Figure 4. Two-level PDA cycle

### Risk-based thinking approach

The risk, generically defined by the ISO management system standards as an “effect of uncertainty” [7], is present in any organization, irrespective of type and dimensions, as a direct consequence of the lack of information about the future and expected results. The

effects of uncertainty are not only negative but can be also positive, so that, by using proper tools and resources, any positive deviation arising from a risk can be valorized as opportunities [3]. The essence of the risk-based thinking approach refers to taking appropriate proactive actions to minimize the expected risk and maximize the expected opportunities which are relevant to the implementation of a food safety management system [8].

Compared to the old edition, where risks were associated to the food safety system (how to prevent, reduce and eliminate the food safety hazards), ISO 22000:2018 considers also those risks that can affect the entire food safety management system (FSMS) of the organization and could make an impact on food safety (FS). Therefore, risk-based thinking is addressed on two levels, *organizational* and *operational*, in accordance with the process approach described in the previous section (Figure 5).



**Figure 5.** Two-level risk-based thinking approach

So, the organizational risk management requires the organization to incorporate risks throughout all its processes, from planning to performance evaluation, with the participation and commitment of the highest levels of management and implement plans and actions for converting them into opportunities. Even risks associated with externally provided processes, products, and services (outsourcing) must be identified, assessed, and monitored. A proper assessment of the organizational context and interested parties' requirements facilitates the identification of risks and opportunities.

At the operational level, which is the core of the FSMS, hazard analysis and assessment are required to identify the potential hazards and determine their significance so that appropriate measures for hazards control, such as prerequisite programs (PRPs), operational prerequisite programs (OPRPs), HACCP plans, to be then implemented to prevent or reduce the significant food safety hazards to acceptable levels. A key factor here is the competence of the food safety team in assessing food safety hazards and making strategic decisions, especially with respect to the identification and assessment of potential hazards [6, 9]. However, although expert opinion is a valuable asset, the standard recommends that the decision-making process within HACCP should have a scientific basis, be free from bias and documented [3]. This means that the collection, analysis, and interpretation of quality data, as well as data management, are essential tasks for the implementation of a risk-based system. On the performance of the three dimensions of hazard analysis - identification, assessment, and control - depends the effectiveness of HACCP (second PDCA level) [9, 10].

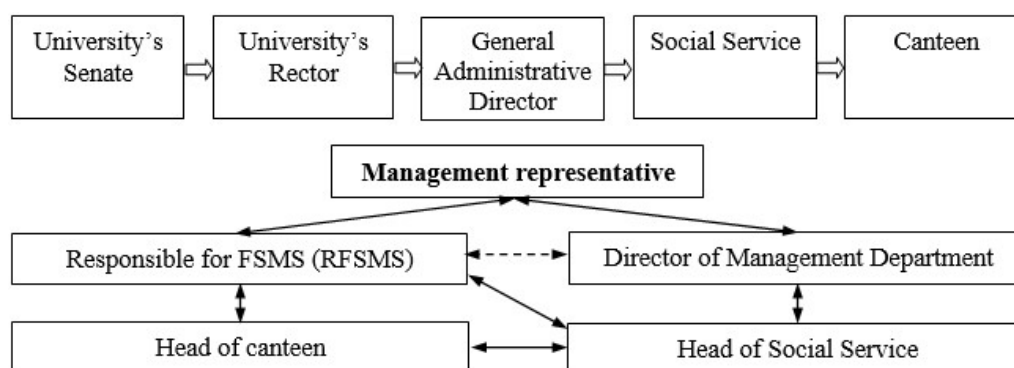


## IMPLEMENTATION OF THE ISO 22000:2018 CHANGES TO THE FSMS OF THE “VASILE ALECSANDRI” UNIVERSITY OF BACAU CANTEEN

### Short presentation of the university and its management systems

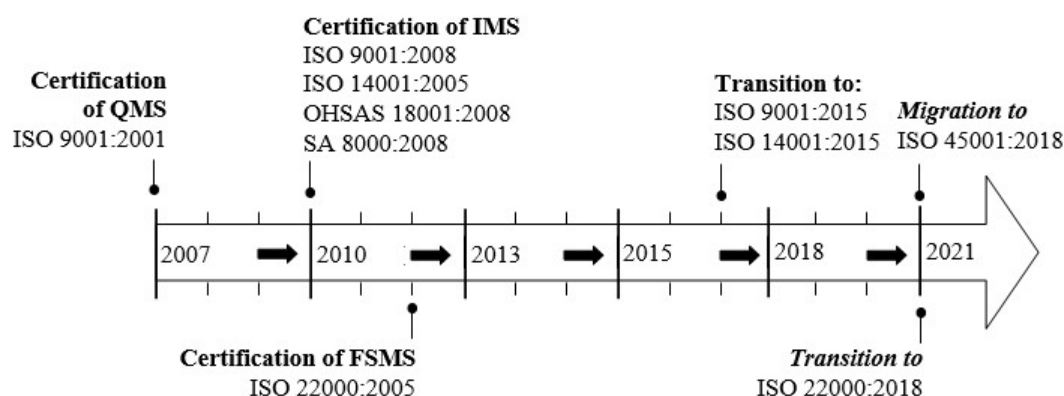
“Vasile Alecsandri” University of Bacau (UBc) is an academic institution of public interest, apolitical, having a non-profit character, with legal personality and accredited according to the national legislation that controls the higher educational system in Romania. Its mission is didactic and of scientific research, focused upon regional necessities and open to partnerships with academic and economic entities, both nationally and internationally [11]. Its current structure consists of five faculties, with a total number of 5355 students enrolled in the academic year 2019-2020.

Among different facilities offered to its students, the “Vasile Alecsandri” University of Bacau has its own canteen, with a capacity of 400 seats, where, currently, around 300 people - staff, and students - serve daily meals. The hierarchical and functional relationships of the canteen with other entities/functions are presented in Figure 6.



**Figure 6.** Hierarchical and functional relationships of the university's canteen

In 2012, the university implemented in the canteen the food safety management system (FSMS), in accordance with the requirements of the international reference standard ISO 22000:2005. The system was recertified at every three years and the university's management intends to do the transition to the ISO 22000:2018 in December 2021, so that the FSMS become part of the university's IMS (Figure 7).



**Figure 7.** Management systems implemented in UBc

### Context and interested parties of the university's canteen

To address the internal and external issues of the university's canteen as well as the needs and expectation of the interested parties that have the potential to impact upon the food safety management system's ability to deliver its intended results, a qualitative methodology was applied, combined with a risk based-thinking approach (Appendix 1 and Appendix 2).

The assessment of risks was performed according to [12], by estimating the probability of risks materialization and the impact on the objectives/activities in the case of their materialization and by calculating the risk exposure (risk factor), as it is shown in Table 1, Table 2 and Table 3.

**Table 1.** Assessment of the probability of risks materialization

Probability level		Explanation
1	Low	It is unlikely to happen over a long period of time (3-5 years); it has happened very rarely so far.
2	Medium	It is likely to happen over a medium period of time (1-3) years; it has happened several times in the last 3 years.
3	High	It is likely to occur over a short period of time (<1 year); it has happened several times in the last year

**Table 2.** Assessment of the risk impact

Probability level		Explanation
1	Low	With low impact on activities and achievement of objectives and/or with very low financial impact.
2	Medium	With medium impact on activities and achievement of objectives and/or with medium financial impact.
3	High	With major impact on activities and achievement of objectives and/or with major financial impact.

**Table 3.** Establishing the risk exposure

Risk factor: [P] x [I]		Probability [P]		
		Low	Medium	High
Impact [I]	Low	1	2	3
	Medium	2	4	6
	High	3	6	9

Depending on the resulting level of tolerance (risk factor), different strategies will be applied to manage the identified risks (Table 4).

**Table 4.** Risk management strategies

Risk factor		Explanation
1-2	Tolerable	Does not require any control measures
3-4	Medium tolerance	Requires medium/long term control measures
6-9	Intolerable	Requires urgent control measures



## CONCLUSIONS

The aim of this study was to highlight the main conceptual changes brought by the ISO 22000:2018 standard to the food safety management systems. Since June 2018, when the standard was published, the organizations directly or indirectly involved in the food chain have had three years to comply with the new standard's requirements, irrespective if they have already implemented a food safety management system (as is the case of the "Vasile Alexandri" University of Bacau, addressed in this study) or they might be running an uncertified system. In the current context of the COVID-19 pandemic, the transition deadline has been extended by 6 months, to December 31, 2021.

The transition to the new standard is actually a systematic approach, starting with a transition plan, underpinned by a gap analysis to determine the differences between an existing FSMS, certificated or not, and the new requirements, continuing with the plan implementation, evaluation of its effectiveness and, depending on the results, undertaking actions to fill the gaps and ensure the compliance with the new requirements.

Due to the large amount of work involved in such a task, the practical approach included in this paper addresses only a slice of this process, namely compliance with the first two sub-clauses of the standard – understanding the organization and its context (4.1) and understanding the needs and expectations of interested parties (4.2), respectively, in the light of a risk-based thinking approach. The results are presented in appendix 1 and appendix 2 of the paper.

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## Appendix 1

## INTERNAL/EXTERNAL CONTEXT OF THE UBc's CANTEEN

No.	Issues	Identified risk	Risk assessment			Adopted risk strategy/ risk management actions	Risk management responsible(s)	Risk monitoring	Opportunities
			Probability [P]	Impact [I]	Risk factor [P] x [I]				
1	2	3	4	5	6	7	8	9	10
EXTERNAL ISSUES									
<b>E1 Political issues</b>									
1.1 Political stability and coherence of the economic policies		1.1.1 Changes in government policy's orientation	1	3	3	- adapting the development strategy of the university; - updating the SMSA policy;	Rector MR	When updating the SMSA policy and objectives	Coincidences of opinions
		1.1.2 Changes in investment programs	1	3	3		RFSMS		A new orientation of the university's investments;
		1.1.3 Budgetary adjustments	1	3	3				Coincidences of opinions
		1.1.4 Structural and management changes at government level	1	3	3	- establishing/revising the SMSA objectives in line with the new guidelines			
1.2 National/international legislation Documents of the regulatory authorities		1.2.1 Amendment of legislation on food safety and public health	1	3	3	- adapting the documented information of SMSA to the new requirements; - establishing internal enforcement measures;	Rector MR	When updating the SMSA policy and objectives	-
		1.2.2 Application norms for legislative acts	1	3	3		MD RFSMS		-
		1.2.3 Legislative requirements of the regulatory authorities applicable to the university's canteen (for staff, investment, environment, OSH, etc.)	2	3	6	- establish measures to comply with the new requirements;	Senate AC		-

1	2	3	4	5	6	7	8	9	10
	1.2.4 Government decisions/Ministerial Orders/Decrees issued as a result of epidemics/pandemics (exp. COVID-19)		3	3	9	- suspension of activity			
	1.3 War, conflicts, temporary bans	1.3.1 Major conflict (state of necessity, state of war)	1	3	3	- suspension of activity	Senate AC		-
<b>E2</b>	<b>Economic issues</b>								
	2.1 Relevant interested parties: a. clients (university's students) b. suppliers; c. control and regulatory authorities	2.1.1 Decrease of the number and value of orders (competition, low satisfaction)	2	3	6	- promoting a healthy diet among university's students; - conducting surveys to identify the needs and expectations of the university's students	RFSMS SS Student League PDC	Periodic surveys Monthly financial analysis	Increasing the students' satisfaction concerning the services provided by the university
		2.1.2 Disputes with customers/suppliers, complaints, decreased level of satisfaction	1	3	3	- monitoring the level of customer/supplier's satisfaction; - urgent handling of complaints; - appropriate evaluation, selection and monitoring of the external suppliers.	PDC SS AC GAD	Periodic surveys/analyses; Supplier feedback analysis; Internal Audit	Improving the image of the university
		2.1.3 Administrative sanctions, fines, restriction/suspension of activity	1	3	3	- identification of legal and other applicable requirements, permanent compliance with them; - adequate training of staff and verification of the training effectiveness.	RFSMS	Periodic analyzes Internal Audit	"Zero" sanctions; Improving the image of the university; Increasing employee performance



1	2	3	4	5	6	7	8	9	10
	2.2 The national economy and its trends	2.2.1 Economic deadlock due to delay of transfer the budget allocations and collection of fees (with direct effect on the university's own revenues, part of which is allocated to the canteen) 2.2.2 Modification of the amount of dormitory-canteen subsidies	2	3	6	- insurance of financial reserves; - modification of the contractual terms regarding the payment of tuition fees	Senate AC	Monthly financial analysis	-
	2.3 Seasonality and/or weather or public health issues	2.3.1 Natural disasters 2.3.2 Epidemics/pandemics (e.g. COVID-19)	1	3	3	emergency preparedness, simulations of emergency situations, critical reserve insurance	RES SS AC	Internal Audit	Improving the response capacity; Reduction of damage
	2.4 Market	2.4.1 Increasing competition	3	3	9	suspension of activity	Senate	Weekly meetings	
	2.5 Exchange rate	2.5.1 Large and sudden exchange rate depreciation/appreciation	2	3	6	market research, competition monitoring	SS FSMS team	Periodic analyzes	Making new food preparations
			2	3	6	reserve funds in a stable currency	Financial office AC	Financial analysis	-
<b>E3 Social issues</b>									
	3.1 Changes in consumption patterns	3.1.1 Students' preference for fast food	3	3	9	behavioral education (promoting a healthy eating style among students)	SS Student League	Periodic surveys	Preparing some healthy fast food at the canteen
	3.2 Attitudes and opinions of students	3.2.1 Negative feedback, complaints, decreased level of students' satisfaction concerning the quality/diversity of food, relationship with the canteen staff	1	3	3	- assessing students' satisfaction; - adequate and regular training of the canteen's staff and evaluation of the training's effectiveness	PDC SS	Periodic surveys	Increasing the students' satisfaction; Improving performance of the canteen's staff

1	2	3	4	5	6	7	8	9	10
3.3 Social events with major influences	3.3.1 Strikes, order disturbances, etc.		1	3	3	- ensuring stable working conditions (for the canteen's staff); - ensuring the operation of the canteen (at least part-time)	Senate AC	Periodic analysis Management review	Increasing the students' satisfaction;
	3.3.2 National holidays, public holidays, etc. (with implications on the number of portions/statistics reported to the Education Ministry, depending on which the university receives the subsidies for dormitories-canteens)		2	3	6	respecting the students' right to participate in these events	Senate AC	Statistical situations from the faculties' secretariats	Organizing social events at the university's canteen on those days (e.g. events organized by the Student League)
	3.4 The image of the canteen		2	3	6	promoting a healthy diet among the university's students	SS Student League	Periodic analysis	Improving the image of the canteen (e.g. a more diversified menu, creating a phone application for transmitting/consulting the menu, etc.); Increasing the students' satisfaction
3.5 Communication at global level	3.4.2 Inadequate working environment		2	3	6	improving the working environment	AC GAD		Improving the image of the university;
	3.5.1 Partial or incorrect determination of the external communication responsibilities		1	3	3	determining exactly what, who, when, to whom and how it is communicated	Rector	Periodic analysis	Improving the image of the university;
3.6 Ethnic, religious component	3.6.1 Different days for religious holidays (with implications on the number of consumed portions, which in turn influences the amount of subsidies for dormitories-canteens)		2	2	4	respecting the students' right to celebrate those days	AC	Statistical situations from the faculties' secretariats	Improving the image of the university;
	3.6.2 Disfavoring of some ethnicities/religions		1	1	1	non-discriminatory treatment	AC		



1	2	3	4	5	6	7	8	9	10
	3.7 Students' health and well-being	3.7.1 Reducing the number of daily portions (epidemics/pandemics, chronic/occupational diseases, insufficient income of students)	2	3	6	- periodic analyzes of students' situation; - a better communication with students (for a better understanding of their issues)	AC FC Staff PDC	Periodic surveys/ analyzes	Increasing the students' satisfaction;  Improving the image of the university
	3.8 Demographic component	3.8.1 Decreasing the number of students	2	3	6	promoting the university's educational offer and facilities	Staff Student League	Periodic analyzes	Improving the image of the university
<b>E4 Technological issues</b>									
	4.1 Requirements for used equipment	4.1.1 Restrictive requirements; high maintenance costs caused by the high speed of evolution/wear of the used equipment	2	3	6	- market research and procurement of reliable, high-performance equipment; - applying optimal maintenance strategies.	GAD	Periodic analyzes	Using optimized equipment/technologies
		4.1.2 Investments in equipment/technologies for the canteen depend on the university's own revenues (subsidies cannot be used for this purpose)	3	2	6	achieving a high amount of own revenues, part of which can be directed to investments for the canteen	AC GAD	Monthly financial analysis	Identification of possibilities to increase the own revenues (e.g. research contracts, contracts with the economic agents, etc.)
	4.2 Information and communication	4.2.1 Power/natural gas/drinking water supply shutdowns without prior notice	2	3	6	determining exactly what, who, when, to whom and how it is communicated	Rector GAD	Periodic analyzes	Improving the response capacity in case of emergency situations
	4.3 Legislation regarding the used technique/materials	4.3.1 Restrictive requirements regarding the technological flows, used materials	1	3	3	identifying and complying with legal requirements; establishing feasible alternatives	RFSMS Head of canteen	Periodic analyzes	Reduction/elimination of fines, sanctions etc. Improving the image of the university



INTERNAL ISSUES									
1	2	3	4	5	6	7	8	9	10
II	Interested parties	1.1 University's management Employees	1	3	3	clear establishment of responsibilities and authorities of the members of Senate/AC/GAD director/ RFSMS/ Head of canteen	Senate AC	Internal Audit Management review	-
		1.1.1 Changes in the structure of the university's/GAD's/canteen's management	1	3	3	- rapid management of conflicting states; - consulting employees concerning the work environment; - establishing a salary level corresponding to the professional level	RFSMS SS Head of canteen AC	Periodic analyzes	Increasing the professional satisfaction;  Increasing the employees' loyalty
		1.1.2 Employees' dissatisfaction concerning the work environment	1	3	3				
		1.1.3 Allocation of tasks inappropriate to the experience and skills	1	2	2	staff training	RFSMS SS Head of canteen	Internal Audit Periodic analysis	Hiring competent people
		1.1.4 Staff fluctuations	1	3	3	- adoption of protectionist measures; - employees' motivation	AC Head of canteen	Periodic analyzes	Decreasing absenteeism Stability/availability of human resources
		1.1.5 Failure to achieve the FSMS objectives	1	3	3	- communication and regular monitoring of objectives; - staff training and verification of the training effectiveness	RFSMS Head of canteen	Periodic Internal Audit	Minimum expenses, Maximum benefits

1	2	3	4	5	6	7	8	9	10
<b>I2</b>	<b>Economic issues</b>								
	2.1 Relevant interested parties: employees (canteen's staff, staff of other university's entities)	2.1.1 Decrease of the number and value of orders (competition, low satisfaction)	2	3	6	consulting employees to identify their needs and expectations	MD	Periodic surveys; Monthly financial analysis	Increasing the employees' satisfaction; Providing confidence that their opinion matters in the decision-making process.
		2.1.2 Wage capping	2	2	4	identifying own financial resources	AC	Monthly financial analysis	-
		2.1.3 Insufficient funds for canteen investments	2	2	4	identifying possibilities/sources to increase the university's own revenues	AC GAD	Monthly financial analysis	-
		2.1.4 Limited menu offer (due to insufficient/ lack of funds for raw materials/ materials)	2	2	4				Identifying diversified recipes that do not require high financial effort; Increasing the employees' satisfaction
<b>I3</b>	<b>Social issues</b>								
	3.1 Organizational culture	3.1.1 Inadequate/insufficient staff motivation methods	1	3	3	- employees' consulting; - identifying and applying incentive methods/means to employees	SS AC	Periodic analysis Internal Audit	Increasing the professional satisfaction; Increasing the employees' loyalty
	3.2 Staff structure	3.2.1 Non-identification of specific requirements and risks by categories of personnel; staff shortage	1	3	3	periodic analyzes by personnel categories	RFSMS SS Head of canteen	Working sessions Internal Audit	Decreasing absenteeism Increasing the employees' satisfaction
	3.3 Internal communication	3.3.1 Insufficient/inefficient/erroneous communication between canteen staff and between canteen and other university's entities	2	3	6	- determining exactly what, who, when, to whom and how it is communicated	RFSMS SS Head of canteen	Periodic analyzes Internal audit	Ensuring an efficient information flow

1	2	3	4	5	6	7	8	9	10
3.4 Training	3.4.1 Professional skills of employees inadequate for the position they hold		1	3	3	- clear establishment of staff selection criteria; - periodic evaluation of job descriptions	RFSMS SS Head of canteen audit	Periodic analyzes Internal audit	Insuring competent human resources; Increasing the individual performance of the canteen's employees
	3.4.2 Incorrect establishment of the collective/individual training programs; inefficient training		1	3	3	- periodic evaluation of the canteen's staff; - evaluating the effectiveness of the provided trainings; - improvement courses; - allocation of resources for training.	RFSMS SS Head of canteen audit AC	Periodic analyzes Internal audit	Finding more effective, efficient, and captivating training methods; Developing skills and increasing the professional competence of employees.
	3.5 Professional development	3.5.1 Incorrect professional evaluation of employees	1	3	3	- assuming responsibility by the persons making the evaluation	RFSMS SS Head of canteen audit	Periodic analyzes Internal audit	Increasing professional satisfaction; Increasing the employee's loyalty
	3.5.2 Lack of a professional development scheme		2	2	4	- motivating staff through promotion opportunities (e.g. shift manager)			
I4	Technological issues								
	4.1 Used equipment/ monitoring and measuring devices (MMDs)	4.1.1 Non-performing equipment in relation to customers/employees' requirements, environmental and OSH requirements	1	3	3	- modernization/change of equipment; - allocation of appropriate resources	AC GAD SS	Periodic analyzes Internal audit Management review	Increasing employees' satisfaction; Improving the image of the university
		4.1.2 Non-calibrated / unverified MMDs at specified intervals	1	3	3	strict compliance with MMDs calibration/ verification requirements	Head of canteen audit	Internal audit	Reducing losses; Increasing employees' satisfaction.



1	2	3	4	5	6	7	8	9	10
	4.2 The potential for innovation	4.2.1 Non-identification of innovative solutions for the preparation of dishes / diversification of the menu and improvement of the infrastructure and the working environment 4.2.2 Insufficient allocation non-allocation of funds for canteen investment, with direct influence on the infrastructure	2 2	3 3	6 6	- employees' consultation; - market studies  identifying possibilities/sources to increase the university's own revenues	SS GAD  AC	Periodic analyzes  Monthly financial analysis	Increasing employees' satisfaction; Improving the image of the university
<b>I5</b>	<b>Environmental issues</b>								
	5.1 Processes / activities carried out within the canteen	5.1.1 Accidents/incidents/emergencies: accidental pollution of the atmosphere, soil, water	1	3	3	- elaboration of action plans for emergency situations; - staff training and evaluation of training effectiveness; - carrying out simulation exercises on emergency situations/ potential incidents	RES RFSMS Head of canteen	Periodic analysis Internal Audit	Minimizing the risks related to environmental accidents/incidents
	5.2 Waste management	5.2.1 Improper waste management	1	3	3	waste management in accordance with applicable statutory and regulatory requirements	Canteen staff	Periodic analysis Internal Audit	Avoiding of fines/penalties Minimizing the risks of cross-contamination
	5.3 Compliance obligations	5.3.1 Omission/non-identification of applicable requirements of the environmental legislation	1	3	3	identification of environmental legislation and compliance with the applicable requirements	RFSMS	Periodic analysis Internal Audit	Avoiding fines/penalties Improving the image of the university

1	2	3	4	5	6	7	8	9	10
<b>I6</b>	<b>OSH issues</b>								
	6.1 Processes/ activities carried out within the canteen	6.1.1 Incidents/accidents at work or occupational disease	1	3	3	- identification and elimination of hazards and reduction of risk (development of OSH risk assessment studies, prevention and protection plans); - periodic training of OSH staff	ROHS	Periodic analysis Internal Audit	Minimizing risks related to work accidents/ incidents
		6.1.2 Accidents/incidents with impact on food safety	1	3	3		FSMS team	Periodic analysis Internal Audit	Minimizing risks related to accidents/incidents that endanger food safety
	6.2 Working environment	6.2.1 Inadequate technical condition of technical equipment, improvisations, lack of protective devices. Work environment unsuitable for carrying out the activity due to the lack of investments in infrastructure, sanitary facilities, microclimate, etc.	1	3	3	- providing resources for equipment maintenance and a safe working environment; - equipping with appropriate personal protective equipment (PPE); - periodic medical examinations	AC GAD	Periodic analysis Internal Audit	Increasing performance
	6.3 Compliance obligations	6.3.1 Omission/non-identification of applicable requirements of the OSH legislation	1	3	3	identification of OSH legislation and compliance with applicable requirements	RFSMS	Periodic analysis Internal Audit	Avoiding fines/ penalties Improving the image of the university
		6.3.2 Failure to comply with the imposed limits of applicable statutory and regulatory requirements	1	3	3	- carrying out monitoring - internal control	FSMS team	Working sessions Periodic analysis Internal Audit	Increasing performance

## Appendix 2

## INTERESTED PARTIES OF THE UBc's CANTEN

No.	Interested parties	Needs and expectations	Identified risk	Risk assessment			Adopted risk strategy/management actions	Risk management responsible(s)	Risk monitoring	Opportunities
				Probability [P]	Impact [I]	Risk Factor [P] x [I]				
1	2	3	4	5	6	7	8	9	10	11
<b>EXTERNAL INTERESTED PARTIES</b>										
E1	Customers (university's students)	- quality and safe products; - more diversified menu; - fast food dishes (e.g. pizza, shaorma, kebab) - low prices; - overtime for serving food/three meals a day; - improved working environment (e.g. ventilation system)	food safety incidents negative feedback, complaints, decreased level of satisfaction regarding: quality/diversity of served food, relationship with canteen staff, few options for students with restricted diet (e.g. with health problems, vegetarians, etc.) decreasing the number and value of orders unconsumed dishes that become food waste.	1	3	3	- monitoring activities and ensuring traceability; - carrying out periodic surveys to identify the students' needs and expectations; - identifying possibilities to reduce the prices/free meals; - monitoring competition; - adequate training of the canteen staff and testing the effectiveness of training.	FSMS team SS AC GAD	Periodic analysis;  Internal Audit	Increasing the students' satisfaction; Improving the image of the university
				2	3	6				
				2	3	6				



1	2	3	4	5	6	7	8	9	10	11
<b>E2</b>	<b>Suppliers</b> of products (water, juices, cakes), equipment, and services (maintenance, pest control, disinsection and disinfection, MMDs control, general cleaning of the spaces within the canteen)	<ul style="list-style-type: none"> <li>- stable partnerships;</li> <li>- stability and transparency in the application of regulations specific to both parties;</li> <li>- compliance with contractual clauses;</li> <li>- mutually beneficial relationships;</li> <li>- fast communication.</li> </ul>	<ul style="list-style-type: none"> <li>blockages/deviations in the operation of internal processes;</li> <li>negative feedback, complaints;</li> <li>unavailability of financial resources/late payments</li> </ul>	<ul style="list-style-type: none"> <li>2</li> <li>1</li> <li>1</li> </ul>	<ul style="list-style-type: none"> <li>3</li> <li>3</li> <li>3</li> </ul>	<ul style="list-style-type: none"> <li>6</li> <li>3</li> <li>3</li> </ul>	proper management	AC GAD	Periodic analysis Internal Audit	<ul style="list-style-type: none"> <li>Development of lasting partnerships;</li> <li>Improving the image of the university</li> </ul>
<b>E3</b>	<b>Authorities, Regulatory and Control Institutions</b>	<ul style="list-style-type: none"> <li>- compliance with applicable statutory and regulatory requirements;</li> <li>- correct and fast resolution of non-compliances found in the application of statutory and regulatory requirements;</li> <li>- secure and fast communication.</li> </ul>	<ul style="list-style-type: none"> <li>administrative sanctions, fines, restriction/ suspension of activity</li> </ul>	1	3	3	<ul style="list-style-type: none"> <li>- identification of legal and other applicable requirements, compliance with them;</li> <li>- adequate training of the canteen staff and testing the effectiveness of training</li> </ul>	RFSMS Canteen staff	<ul style="list-style-type: none"> <li>Working sessions;</li> <li>Internal Audit</li> </ul>	<ul style="list-style-type: none"> <li>Avoiding fines/penalties;</li> <li>Improving the image of the university</li> </ul>

1	2	3	4	5	6	7	8	9	10	11
INTERNAL INTERESTED PARTIES										
II	University's management	achieving FSMS objectives and performance indicators	failure to achieve/partial achievement of the objectives and performance indicators	2	3	6	- adequate management of activities; - ensuring adequate infrastructure, financial and human resources	AC	AC meetings Management review	Increasing performance; Improving the image of the university
		optimal organizational climate, oriented towards the achievement of the FSMS objectives	canteen's staff fluctuations, frivolity, irresponsibility, etc.	1	3	3	- good internal communication; - well-established roles/responsibilities; - elaboration of decisions, procedures/internal regulations	AC	AC meetings Internal Audit Management review	Internal organizational climate based on professional competence, responsibility, integrity, honesty
		competent staff at all functional levels	observations, complaints, penalties	1	3	3	- recruitment of competent staff; - adequate training of the canteen staff,	HRS RFSMS SS Head of canteen	Working sessions Internal Audit	Increasing customer satisfaction; Achieving the objectives
		- legal compliance for authorizations; - maintaining compliance with applicable statutory and regulatory requirements; - safe working environment in terms of food safety, environment and OSH requirements	- non-compliance with applicable statutory and regulatory food safety requirements, fines, sanctions, activity restriction, suspension of operating authorization; - accidents/ incidents on food safety, environment, OSH	1	3	3	identifying and complying with legal and other applicable requirements	RFSMS FSMS team	Working sessions; Internal Audit	Minimum level/avoidance of fines/sanctions; Improving the image of the university

1	2	3	4	5	6	7	8	9	10	11
I2	Canteen's employees	regulated organization and functioning framework	lack/insufficiency of rules concerning activities, organizational roles and responsibilities	1	3	3	managing internal processes, the interaction between them and the associated contextual relationships	FSMS team	Working sessions; Internal Audit Management review	Increasing efficiency, optimization of resources' usage
		internal climate based on competence, responsibility, integrity, honesty	emergence of incompatibilities/ conflicts of interest	2	3	6	- good internal communication; - well-established roles/ responsibilities; - elaboration and implementation of internal procedures/ regulations	RFSMS Head of canteen	Working sessions;	Optimal internal climate
		sufficient staff to carry out the processes in conditions of effectiveness and efficiency	frequent changes in the internal structure	1	3	3	employees' motivation/reward	RFSMS Head of canteen AC	Working sessions; AC meetings	Increasing the professional satisfaction; Increasing the employees' loyalty
		effective and efficient communication and reporting	lack of an organized internal communication	2	3	6	determining exactly what, who, when, to whom and how it is communicated	RFSMS Head of canteen	Working sessions	Adequate feedback, informed decisions; Increasing satisfaction through the involvement in the decision-making process



1	2	3	4	5	6	7	8	9	10	11
I3	Employees of the other university's entities	- quality and safe products; - more diversified menu; - improved working environment.	food safety incidents negative feedback, complaints, decreased satisfaction decreasing the number and value of orders Unconsumed dishes that become food waste.	1 1 2 1	3 3 3 3	3 3 6 3	- monitoring activities and ensuring traceability; - consulting employees; - monitoring competition; - adequate training of canteen staff and testing the effectiveness of training	FSMS team SS AC GAD	Periodic analysis Internal Audit	Increasing the professional satisfaction;  Increasing the employees' loyalty

**Abbreviations:**

MR – Management Representative  
RFSMS – Responsible with Food Safety Management System  
MD – Management Department  
AC - Administrative Council  
SS – Social Service  
GAD – General Administrative Direction  
PDC - Professional Counseling Department  
RES – Responsible with Emergency Situations  
ROHS - Responsible for Occupational Health and Safety  
HRS – Human Resources Service