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Türkiye'deki Yer Hizmeti İşletmelerinde Uygulanan İş Sağlığı ve Güvenliği Yönetim Sistemlerinin Başarı Faktörlerinin Belirlenmesine Yönelik Bir Çalışma*

A Study to Identify the Success Factors of Occupational Health and Safety Management Systems Implemented by Ground Handling Companies at Airports in Turkey

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Abstract

Successful implementation of Occupational Health and Safety Management Systems (OHSMSs) ensures the safety of employees and protects their health and thus has an important role in increasing their productivity and efficiency. This role is an important tool for companies in realization their objectives and in reducing social cost. Therefore, there is a great benefit in increasing the success of OHSMSs. In this study, it has been aimed to identify factors affecting and to appreciate which factors have the greatest impact on the success of OHSMSs implemented by ground handling companies operating at airports in Turkey. The data were collected from senior OHSMSs' managers and experts by using nominal group technique.

The results of the study indicated that professional independence of OHS practitioners, place of the senior management's OHSMS commitment in the implementations, senior management's awareness of OHSMS implementations, resource allocated by senior management to OHSMS implementations and the continuity of the OHSMS audits play an important role for the successful implementation of the OHSMSs. Professional independence of OHS practitioners being an extremely important success factor draws the attention since it does not stand out in the findings of the other researches.

Keywords: *Occupational Health And Safety Management Systems, Aviation Safety, Critical Success Factors, Airport Ground Handling Companies, Civil Aviation Management*

Öz

İş Sağlığı ve Güvenliği Yönetim Sistemlerinin (İSGYS) başarıyla uygulanması çalışanların emniyetini sağlamada, sağlıklarını korumada ve bu sayede etkinlik ve verimliliklerini artırmada önemli bir role sahiptir. Bu rol işletmelerin amaçlarını gerçekleştirmesinde ve toplumsal maliyetlerin azaltılmasında önemli bir araç konumundadır. Bu nedenle İSGYS›lerin başarısının artırılmasında fayda vardır. Bu çalışmada, Türkiye'de hava taşımacılığı sektöründe faaliyet gösteren yer

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hizmeti işletmelerinin uygulamış oldukları İSGYS' lerin başarısını etkileyen faktörler tespit edilmiştir. Çalışmada veriler İş Sağlığı ve Güvenliği yöneticileri ve uzmanlarından Nominal Grup Görüşmesi yöntemiyle toplanmıştır.

Araştırma verilerinin analizi sonucunda yer hizmeti işletmelerinde uygulanan İSGYS'lerin başarılı olabilmesi için İş Sağlığı ve Güvenliği profesyonellerinin bağımsızlığı, üst yönetimin İSGYS'ye desteği, üst yönetimin İSGYS'ye kaynak ayırması ve sürekli denetimin olması gerektiği ortaya çıkmıştır. Katılımcıların en önemli gördükleri faktör ise İSG profesyonellerinin bağımsızlığı faktörü olmuştur.

Anahtar Kelimeler: *İş Sağlığı ve Güvenliği Yönetim Sistemleri, Havacılık Emniyeti, Kritik Başarı Faktörleri, Havaalanı Yer Hizmeti İşletmeleri, Sivil Havacılık Yönetimi*

Introduction

In the last 12 years, air transport industry has grown globally by 5% in terms of total number of passengers, whereas in Turkey this growth rate has been 14.5%, which is almost 3 folds of the world's average (Ministry of Transport, Maritime Affaires and Communications, 2014). Between 2014 and 2015, passenger traffic has increased by 199%, airplane traffic has grown by 144% and cargo traffic has grown by 120% in Turkey (General Directorate of State Airports Authority-[DHMİ] 2015). Based on this growth rate, the number of people employed in the industry has reached up to 180.000 at the end of the 2013, whereas it was only 65.000 people in 2003 (UDHB, 2014). This growth in the industry has naturally increased the airport traffic and the number of employees, and as a consequence occupational health and safety (OHS) risks at workplace. It is considered that airport ground handling service personnel working under intensive time pressure, is extensively influenced by increasing occupational health and safety risks.

Ground handling services operating at airports became obliged to fulfil occupational health and safety requirements with the law numbered 6331, took effect in 2012 in Turkey. The primary aim of this law is to increase health and safety of employees and then to improve production and workplace safety. Looking at the reflection of this piece of law to the aviation industry, it won't be incorrect to state that it also aims at improving the flight and airport safety. Companies use Occupational Health and Safety Management Systems in order to meet OHS requirements in a more systematic, effective and efficient manner and also to achieve above listed objectives. In this case the success of the Occupational Health and Safety Management Systems used by companies will increase health and safety of employees, mitigate risks and improve aviation safety. This will bring many benefits to employees, companies and countries from the point of social and economic issues.

Therefore, identification of the factors influencing the success of the OHSMSs implemented in ground handling services at airports are highly important to improve these managements systems, increasing health and safety of employees and aviation safety and finally to increase the success rate of the companies. Going through the literature many studies on the success factors of OHSMSs can be found (Simonds et al., 1977; Smith et al., 1978; Cohen, 1977; Gallagher, 1997; Alli 2008; Wurzelbacher, 2006; Chen et al., 2009). However, although aviation industry pioneers other industries in many areas and attaches greater importance to safety, it is clear that the number of studies on OHSM implementations, which is highly important from economic and social perspectives in this industry, is not adequate. So the objectives of this study are specified as follows:

- To identify the factors affecting the success of OHSMS activities implemented by ground handling companies operating at airports in Turkey,
- To identify the factors having more influence over the success rate when compared to others, and to score these factors relatively in terms of the significance of achieving this efficiency.

Literature Review

Occupational Health and Safety Management Systems

Although the precautions taken by states and international institutions to prevent work accidents and occupational diseases are being implemented in the

professional life, they fall short in completely preventing accidents and these diseases. The fact that not being able to stop workplace accidents and occupational diseases mobilised states, international agencies and non-governmental organisations. As a result, management systems to help implement OHS activities in a systematic, planned and efficient manner emerged. These are named as Occupational Health and Safety Management Systems (OHSMS). International Labour Organization (ILO, 2011) defines OHSMS as "an approach dealing with the identification of hazards and risks systematically and scientifically in order to avoid accidents and other factors that are harmful to health caused by various reasons at workplaces during performance of a certain job, and also dealing with the provision of a better work environment and taking precautions against those hazards and risks".In other words OHSMS is the systematic, proactive, effective and efficient management of relevant resources to make sure that hazards and risks that might occur during the performance of a job remain in acceptable limits. Within this scope, things having the potential of causing undesirable events (hazards), their likelihood of occurrence and the seriousness of the consequences are identified in advance. To put it in a different way, relevant risks are calculated. Then, precautions to eliminate hazards and mitigate risks are discovered and implemented. OHS performance is measured and observed in time, some predictions are made; if the performance is poor additional precautions are taken and the efficiency of these precautions are examined. In this context, it can be stated that OHSMS has 5 main components (Environment Health and Safety Committee [EHSC], 2009; Work Safe Victoria, 2015):

- **Senior management commitment and policy:** Principles that are used by the senior management in choosing among alternatives while making decisions about OHS could be defined as the policy. Thanks to policies, principles to guide decisions at all levels of the organisation are identified. Therefore policies are important factors influencing OHS to achieve their objectives. It is suggested that policies are developed in a way to protect human resources and reduce financial losses (Health and Safety Authority [HSA], 2006; Zimolong and Elke, 2006). Senior management makes a commitment in relation to its future OHS decisions by identifying and announcing these policies. Target audience of this commitment is all parties, primarily employees.

- **Planning:** Planning is the component where the OHS objectives of the organisation is identified, decisions to allocate necessary resources to achieve these objectives are made, time scheduling is completed and relevant arrangements are made for the coordinated practice of the activities(HSA, 2006; Comcare, 2012). Health and Safety Executive (HSE, 2008) stated that effective planning should be about the identification and removal of hazards and risks, and the control of them in case of a failure to remove.

- **Implementation:** At the implementation phase, previously developed plans to achieve OHS aims and objectives are transferred to practice within the framework of OHS policies. At this stage responsibilities are settled, employee participation is ensured, OHS trainings are delivered, hazard and risk analysis are made and risk mitigating measures are identified and put into practice, possibilities of communication within and outside of the organisation are determined and documentation processes are developed (HSA, 2006).

- **Measuring and evaluation:** At this stage, shortly, efficiency of the activities implemented and workers' health and safety performance is measured and evaluated. For instance, it is examined whether hazard analysis and risk assessments represent the reality when compared to the results of the measurement; if the risk mitigating precautions are implemented or not; whether they worked in real life; if the aims are met; how occupational safety and health will look like in the future; if the registry and documentation were made appropriately; and in the light of all these what to do and how to do it in the future(New South Wales [NSW] Government, 2007).

- **Review and improvement:** At this phase, necessary arrangements are made to fill in the gaps of OHSMS in the light of the data gathered during previous steps. Review and improvement stage has a leading role for the senior management, who is the major responsible and operator of the OHSMS (Public Services Health and Safety Associations [PSHSA], 2010). Senior management may revise OHS policy, aims, objectives or plans if deems necessary (Ramroop et al., 2004).

In all the mentioned steps, key element is consultation. Consultation covers sharing of information between employees and employer about health and safety issues, provision of opportunities to employees to express their views and taking their views into consideration (Work Safe Victoria, 2015).

Previous Studies

It is seen that the number of studies on the implementation of OHS in aviation is very few. It is also noticed that limited number of existing studies are not directly related to OHS, they rather examine human factors and errors in accidents (Dekker, 2011; Maurino et al., 1995), stress and fatigue influencing cabin crew (Mallis et al., 2012; Kushnir, 1995; Causse et al., 2013; Ribak and Cliene, 1995) and impact of radiation, that is they are only indirectly relevant to OHS (Bagshaw, 2008). However when the literature is reviewed in a way to cover all sectors, it is found out that many studies have been carried out about the success factors of OHSMSs.

When the studies about the success factors of OHSMSs are analysed it is found out that the first period studies took place in 1970s (Simonds et al., 1977; Smith et al., 1978; Cohen, 1977). In one of Cohen's (1977) studies many success factors were identified, but strong support from the senior management and a frequent and close communication among employees, auditors and managers were prominent. Gallagher (1997) identified critical success factors of OHSMS as, incorporating OHS practices into normal production and service activities, provision of support and commitment by the senior management and adapting organisation system to OHS.

Wurzelbacher (2006) revealed two main factors for the success of OHS and listed these as the support of the management and the participation of employees. According to Alli (2008), support provided by the senior management, and the amount of the resources allocated, training, participation of employees and the organisation's view on OHS were found important for the success of OHS practices. Chen et al., (2009), similarly stated the importance of the commitment and support expressed by the senior management in the implementation of OHSAS 18001, constant improvement of PDCA cycle and the inclusion of all employees into to the system. When exploring the obstacles against the successful implementation of Safety Management System, which is a management tool similar to OHSMS in aircraft maintenance organizations, Gerede (2015) identified 'just culture' as a significant challenge. Information gathered as a result of the literature review is presented in Table 1.

Table 1. Success Factors According to the Literature

Research	Factors
Cohen (1977)	Strong support of the management
	Frequent and effective communication among employees, auditors and managers
Gallenger (1997)	Incorporating OHS implementations into the real life production and service processes
	Support and commitment of the senior management
	Adapting organisation to the OHS system
Lee et al. (2002)	Effective communication
	Maintaining safe labour force
	Clean and comfortable working conditions
	More training opportunities and higher quality trainings
	High job satisfaction
	Democratic, collaborative, humane management and leadership
	Senior management's commitment to safety
	A strong safety focus
	Effective organisational learning

Table 1. Success Factors According to the Literature

Wurzelbacher (2006)	Support of the management
	Participation of employees
Hart and Aryan (2007)	Support of the senior management
	Employees participation
	Proactive risk management
	Integration of organisational factors with other management systems
	Comprehensive auditing
Mohammad et al. (2007)	Support of the senior management
	Quality and the quantity of the trainings
	Continuous improvements
	Performance measurement
	System and process
Alli (2008)	Support of the senior management and resources allocated by them
	Quality and the quantity of the trainings
	Participation of employees
	Organisation's view on OHS
Chen et al. (2009)	Support and commitment of the senior management
	Continuous improvement of PDCA (Plan-Do-Check-Act) cycle
	Participation of all employees into the system
Hussain (2009)	Organisation's attitude towards the OHS practice
	Positive safety culture
	Participation of employees
Haadir and Panuwatwanich (2011)	Support of the senior management
	Clear and reasonable objectives
	Attitudes of the employees
	Team work
	Effective implementation of the OHS practices
	Safety trainings
	Appropriate guidance
Saifujllah and Ismail (2012)	Training and education
	Safety and health performances of contractors
	Brief, concise and clear OHS practices

When Table 1 is examined it is seen that many researchers attached importance to the support of the senior management and the participation of employees for successful OHS practices. Certainly, success factors vary depending on the type, characteristics and industry of the job. However when the success factors obtained from the literature is assessed, senior management's support and employee participation stand out as the most important factors for the success of OHSMSs, which are desired to be implemented in organisations.

Success factors of the OHSMS implementations belonging to other industries might have similarities with the aviation and ground handling industries. However, it should be noted down that success factors may also differ according to the industry, time, region, in short according to the context. It is considered that this study, which tries to put forth the success factors of OHSMSs implemented by the ground handling companies in Turkey by basing upon the knowledge, experience and perceptions of the field experts, will contribute to the scarce OHS literature

in aviation. Additionally, increasing the success rate of OHSMSs will bring many significant social and economic benefits to humanity and countries.

Methodology

Qualitative research method used in this study examines the factors affecting the success of the occupational health and safety management systems within airport ground handling services. In this context, the study covers all group A licensed ground handling companies operating in Turkey and group C licensed catering companies whose risk levels are high due to operating in ramp area[1]. As a data gathering tool, nominal group technique (NGT) and brainstorming were used together; NGT was moderated by the researchers. Written consent of all participants was taken, in order to use collected data in scientific studies. Data source of the study is identified as occupational health and safety experts responsible for the implementation and control of the occupational health and safety management systems, workplace doctors and occupational health and safety managers. Data gathered via this study were shaped according to the knowledge, experiences and perceptions of people who are selected through purposeful sampling and believed to have the best understanding of the factors influencing the success.

In order to enable data collection, an invitation letter involving the aim and methodology of the study was sent to all companies within the scope of the study. All companies except for a catering company attended to the study. In this regard, the study was conducted with 9 experts from the mentioned companies. These 9 individuals participating in the study represent almost all group A and group C licensed companies operating in Turkey, identified as the target population of the study.

NGT used in this study is a group interviewing technique developed by Van de Ven and Delbecq in 1971 to avoid limiting impacts of traditional interviewing techniques (Graefe and Armstrong, 2011). NGT can be used to manage group interviews in order to collect qualitative data (Van de Ven and Delbecq, 1974). NGT is designed to find out ideas of all the members of the group and to ensure agreement in the final decision making process (Dowling and Louis, 2000). Main stages of the NGT are listed as follows Spencer (2010):

- In line with the stated aim, participants think silently, generate ideas and write them down on the cards without any interaction,
- Ideas generated by participants and written on cards are hang on the boards,
- Process of generating ideas silently is repeated as many times as needed,
- When the idea generation stage is over, they are pre-assessed by having a general discussion: Understanding the ideas, filtering out the irrelevant ones, combining similar ideas, classifying them if necessary, discussing the reasons behind selecting these ideas,
- Ideas are listed and recorded,
- Following discussions on ideas receiving the highest importance, participants score ideas on their own silently.

Literature suggests that NGT is more advantageous compared to traditional interviewing techniques (Graefe and Armstrong, 2011). NGT stands out as an interview technique as the outputs of NGT are more consistent, less influenced by dominant members of the group of participants, less changeable depending on the moderator's attitudes, and this technique produces higher quality ideas in a given time and the equality among participants is better preserved (Sutton and Arnold, 2013). NGT is a process of bringing the experts of a certain field together in order to collect data on a research question, look for agreement on these data and make final decisions in this context. NGT is preferred in this study assuming a qualitative research model, to receive data directly from the practitioners who are experts in this field and to benefit from the above-mentioned advantages. NGT interview took place on 18.02.2014 in Istanbul where all the participants worked through two sessions of four hours in a day.

1 Group A licensed ground handling companies provide all services under ground handling (passenger services, field operation services, ramp, cabin cleaning and so on). Group C licensed ground handling companies only provide catering services.

Before the start of the study moderator gave a 45-minute training on NGT so that the participants better understand NGT as a data collection tool. Additionally, processes of a formerly conducted study whose data were collected through NGT were shared with them in detail. During the NGT interview, the following question was asked to the participants in order to identify the success factors of OHSMSs implemented in ground handling companies, they were asked to think and generate ideas silently and write down these ideas on cards they were given:

In your opinion what are the factors influencing the success of the implementation of OHS Management System in ground handling companies in Turkey?

Participants wrote down their ideas on cards without interacting. Those cards were collected and each was hang on a board visible to all. Participants were given enough time to see all the ideas generated and they were asked to go through them. And then they discussed what is actually meant by those ideas as the whole group. Similar procedures were repeated twice more for the rest of the study, so in total, idea generation phase was repeated three times. With the completion of this phase, detailed brainstorming stage started. At this stage each idea was interpreted with all details, explained, assessed and classified based on their common features. It was assessed why these ideas were listed as success factors at the end of these stages and a comprehensive list of success factors, under various groups, without considering their degree of importance was developed. Categories created at this stage were transferred to the study without being changed, as they were the products of NGT participants. In fact these factors can always be divided into categories in different ways.

The last exercise in NGT is finding out the degrees of importance of these factors. Participants graded the list in two separate methods using their impressions throughout the whole process and their previous knowledge and experiences. Rating phase was also silent and non-interactive.

Findings and Discussions

During NGT a total of 63 success factors, under 11 categories were identified. In order to find out relative importance of these, two different methods namely "12 point priority rating" and "Likert-type scale rating" were utilised. Success factors obtained at the end of the process and rating data according to both methods can be seen in Table 2.

The results of the '12 point priority rating' can be seen on the left column of the Table 2, and the results of 'Likert-type scale rating' on the right. As explained previously, factors affecting success were identified with the agreement of the group during NGT sessions. Additionally, in Likert-type scale rating it was examined whether participants agree the level of importance of the factors in the list. Standard deviation and interquartile range values were taken into consideration to this end. It was seen beneficial to explain findings of two rating systems separately for a better understanding of the factors collected.

Table 2. OHSMS Success Factors and Ratings

12 Point Rating			Likert Scale Type (1-5) Rating			
R	**S**	**Support of the Senior Management**	**R**	**M**	**SD**	**IQR**
1	76	Professional independence of OHS practitioners	2	4,87	0,35	0
2	55	Place of the senior management's commitment within the OHS implementations	6	4,37	1,06	1
3	43	Senior management's awareness on OHSMS practices	6	4,37	0,51	1
5	34	Content of the senior management's commitment on OHSMS practices	4	4,62	0,51	1
6	28	Resource allocated by senior management to OHSMS practices	1	5,00	0	0
15	11	Value attached to reporting by the senior management	9	4,00	0,92	2
16	10	Senior management's attitude towards the analyses of events	14	3,37	1,06	1
16	10	Duration to put corrective actions into practice	10	3,87	0,99	1
22	4	Duration to react to reports in OHSMS practices	11	3,75	0,88	1,5
	30,11	Mean Mean		4,24		
R	**S**	**Reporting**	**R**	**M**	**SD**	**IQR**
10	0	Accessibility of the reporting system	26	3,37	1,16	1,5
10	17	Employees' awareness of the reporting system	29	3,25	1,06	1,5
26	0	Encouraging reporting (reward-punishment)	31	3,62	1,12	2
12	15	Cooperation and coordination among public, private and non-governmental bodies	29	3,87	1,18	2
5	34	Cooperation and coordination among the airport authority and other stakeholders	31	3,62	1,24	2
	13,2	Mean Mean		3,54		
R	**S**	**Audit**	**R**	**M**	**SD**	**IQR**
17	9	Measuring the success of OHSMS implementations	37	4,62	0,51	1
26	0	Auditing compliance with the relevant regulations	29	3,62	0,74	1
26	0	Auditing compliance with the customer requests	24	3,00	0,75	1
11	16	Assessing the OHSMS audit results	35	4,37	0,74	1
15	11	Continuity of OHSMS audits	3	4,75	0,46	0,5
18	8	Assessing the effectiveness of the tools within the context of OHSMS	27	3,37	0,74	0,5
	7,33	Mean Mean		3,95		
R	**S**	**Culture**	**R**	**M**	**SD**	**IQR**
8	20	Features of just culture within the organisation	32	4,00	1,19	2
9	19	Features of just culture of the stakeholders at the airport	28	3,50	0,92	1
13	13	Organisation culture supporting the OHSMS implementations	35	4,37	0,74	1
23	3	Features of positive OHS culture	31	3,87	0,83	1,5
22	4	Level of support of the social culture characteristics to OHSMS practices	29	3,62	0,51	1
	11,8	Mean Mean		3,87		
R	**S**	**Regulation**	**R**	**M**	**SD**	**IQR**
16	10	Suitability of the regulation to the industry	29	3,62	1,06	1,5
	10	Mean Mean		3,62		
R	**S**	**Operation**	**R**	**M**	**SD**	**IQR**
4	35	Time pressure	35	4,37	1,18	1
7	23	Relative priority of operational and financial targets when compared to OHSMS implementations	34	4,25	0,88	1,5
18	8	Identification of measurement indicators within the scope of OHSMS	28	3,50	1,19	2
26	0	Appropriateness of ground handling equipment for operations	29	3,62	1,18	2
18	8	Maintenance of ground handling equipment	27	3,37	1,5	3
	14,8	Mean Mean		3,82		

Table 2. OHSMS Success Factors and Ratings (Devamı)

R	S	Authority	R	M	SD	IQR
26	0	Just culture practices of the airport authority	29	3,62	1,4	2
17	9	Just culture policies of airport authority	28	3,50	1,41	2
26	0	Non-compliance of the representatives of authority to the rules they've set	25	3,12	1,45	2,5
26	0	Representatives of authority lacking knowledge on the rules	30	3,75	1,28	2,5
	2,25	Mean Mean		3,49		
R	**S**	**Training**	**R**	**M**	**SD**	**IQR**
24	2	Life long training of OHS practitioners	32	4,00	0,75	1
21	5	Content of the OHS training delivered to employees	31	3,87	1,12	2
26	0	Appropriateness of the training delivered to employees in terms of duration	30	3,75	0,88	0,5
26	0	Measuring the performance of OHS trainers	30	3,75	1,03	1,5
14	12	Evaluating the effectiveness of OHS trainings	31	3,87	0,83	1,5
26	0	OHS richness of the organisation's library	25	3,12	0,83	1,5
26	0	Diversity of the materials used in trainings	27	3,37	1,06	1,5
26	0	Appropriateness of learning outcomes of OHS trainings	33	4,12	0,99	2
	2,37	Mean Mean		3,73		
R	**S**	**Environmental Factors**	**R**	**M**	**SD**	**IQR**
10	17	Physical conditions of the airport	31	3,38	1,35	1,5
26	0	Climate conditions	28	3,50	1,19	1
	8,5	Mean Mean		3,44		
R	**S**	**Organisational Factors**	**R**	**M**	**SD**	**IQR**
19	7	Coordination of SMS and OHSMS practices	27	3,37	1,18	2
25	1	Employee participation to OHSMS implementation	37	4,62	0,51	1
7	23	Employee turnover rate	36	4,50	0,92	1
26	0	The number of employee working for specific periods	32	4,00	0,53	0
10	17	Employees' belief in the benefit of OHSMS practices	30	3,75	1,28	2,5
21	5	Work motivation of the employees	30	3,75	1,28	2,5
18	8	Building up mutual trust (employee, OHSMS manager and senior management)	30	3,75	1,03	1,5
15	11	OHS practitioners' belief in the benefit of OHSMS practices	30	3,75	1,16	2
20	6	Favouring the employee-job harmony	33	4,12	1,12	1,5
16	10	Existence of organisational learning	29	3,62	0,91	1
18	8	Success of the original root-cause analyses	33	4,12	0,35	0
25	1	Creation of OHS implementations within the organisation	30	3,75	0,7	1
	8,08	Mean Mean		3,92		
R	**S**	**Other**	**R**	**M**	**SD**	**IQR**
26	0	Auditing the compliance of national authority's implementation of its own regulation	25	3,12	0,64	0,5
10	17	Competence of OHS practitioners (knowledge and experience)	36	4,50	0,53	1
26	0	OHS practitioners' openness to development and improvement	33	4,12	0,64	0,5
6	28	Assessing hazard and risk factors	36	4,50	0,75	1
26	0	Exchange of experiences within the industry	29	3,62	1,06	1,5
25	1	Sharing OHS god practices	31	3,87	0,99	1
	7,66	Mean Mean		3,95		

12 Point Priority Rating Findings and Discussions

Participants of the study primarily used the priority rating system to identify relative importance of success factors collected. In this system, out of 63 success factors, 12 most important factors were selected and they were scored between 1 and 12, 1 being the lowest and 12 the highest. In this way comparative levels of importance of the success factors were identified. Success factors ranking the first three as a result of the scoring of participants is presented in Table 3.

Table 3. Top Three Results of the 12 Point Priority Rating

Category	Success Factor	Priority Rating	Priority Order	Likert Order
Support of the senior management	Professional independence of OHS practitioners	**76**	1	2
Support of the senior management	Place of the senior management's OHSMS commitment in the implementations	**55**	2	6
Support of the senior management	Senior management's awareness of OHSMS implementations	**43**	3	6

As seen in Table 3, 'professional independence of OHS practitioners' ranked the first in the ratings done by the participants. OHS professionals are comprised of occupational health and safety experts, workplace doctors and OHS managers. Professional independence of OHS practitioners means that all their decisions and actions under the OHSMS are results of their free will, not under the influence of anyone. If these experts perform their jobs bewaring of management and operational departments, their effectiveness may diminish to a great extent. Primary task of the OHS practitioners is ensuring the effective running of OHSMSs. Not being independent enough reduce the effectiveness of these practitioners, consequently effectiveness of the following activities may also be reduced: Audits within the organization, identification of problems, hazards, and risks that might arise from those, developing suggestions to mitigate risk, running the reporting system, analysing reports and taking proactive measures, examining accidents and incidents to draw lessons and dissemination of these lessons throughout the organization, measuring and monitoring OHSMS performance in time. It is possible to state that if the effectiveness of even a couple of these activities decreases, the overall success rate of the OHSMS will go down.

This factor stands out to be critically important for OHSMSs. Thus, it is 21 points ahead of the closest factor in the order of priority rating. The fact that this factor ranked the second in the Likert-type scale rating supports this result. Additionally, as IQR value is 0 and standard deviation is smaller than 0,5 it can be said that participants fully agree on the level of importance of this factor. 7 of the participants gave5 points to this factor, while only one participant gave 4 points. Therefore this factor missed the first rank by a hair's breadth.

'The place of the senior managements' OHS commitments in practice' ranked the second in the priority rating. This factor can be interpreted as the senior management actual approach in fulfilling or not their commitments under real life conditions. If the senior management support OHS requirements only on paper and ignore incorporating them to real life operations, OHSMSs' success will undoubtedly drop. As a result, employees' belief in OHSMS may go down, their trust in the senior management, and in OHSMS may be shaken, and in-house OHS culture may be weaken (Zimolong and Elke, 2006: 685). In addition, senior management's fulfilment of commitments will be determinant on the resources to be allocated to the OHSMS practices (finance, time, hardware and human resources) and on OHSMS's operational processes. Whether or not the senior management fulfil their commitments, might have a negative influence on middle managers of sub-functional units where

the actual production is made, therefore hazards and risks emerge. This factor ranked the sixth in Likert-type scale rating. Its IQR value is 1 and standard deviation is very close to 1, so it can be stated that there is a strong agreement on this factor.

'Senior management's awareness of OHS implementations' ranked the third in the priority rating. Senior management's awareness of the OHS implementations indicates their knowledge of direct and indirect benefits and necessity of these activities, in addition to the costs of them. To exemplify; it includes being aware of the indirect costs of workplace accidents and occupational diseases besides the direct costs of those, and on the other hand knowing the benefits of ensuring employee motivation, and increasing employees' commitment to the company. When this awareness increases, support for the full implementation of OHSMS will increase although the practices are costly. This factor ranked the sixth in the Likert-type scale rating. As the standard deviation is 0,52 and IQR value is 1, it is understood that there is a strong agreement on it.

When the first three factors receiving the highest scores in priority rating are taken into consideration, it is seen that they are interrelated. Senior management's awareness of the OHS implementations and the place of their OHS commitments in practice are factors directly related to the support they provide to OHSMSs. On the other hand, independence of OHS practitioners may also be linked to the senior management's support. Lacking the senior management's support, it is not possible for OHS practitioners to remain independent, to report incidents they face without fearing from state authorities, managers of the operational units and employees, to design and submit necessary suggestions and even to resort to disciplinary procedures in case of a non-compliance to OHS regulations. Thus O'Dea and Flin (2003) considered senior management's support as the most important success factor for the safety in organizations.

In conclusion, the main factor obtained from the priority rating is the senior management's support to OHSMSs. Indeed, when the averages of the category scores of the success factors graded by the participants are taken into consideration, it is understood that the participants evaluated the category of senior management's support to be more important than any other category. Total scores and averages of the success factors grouped under categories can be seen in Table 4. Category of senior management's support put forth its importance by doubling its average points compared to operation category, which is the closest to the former.

Table 4. Priority Rating Scores and Averages of the Success Factor Categories

R	Name of the Category	Total Score	Number of Factors	Average
1	Support of the Senior Management	271	9	30.11
2	Operation	74	5	14.80
3	Reporting	66	5	13.20
4	Culture	59	5	11.80
5	Regulation	10	1	10.00
6	Environmental Factors	17	2	8.50
7	Organisational Factors	97	12	8.08
8	Other	46	6	7.66
9	Audit	44	6	7.33
10	Training	19	8	2.37
11	Authority	9	4	2.25

When the total points of categories of the success factors graded by participants are considered, second and third categories receiving the highest scores are respectively operation and reporting categories. When the success factors under these categories are examined, it is understood that many of those can only occur with the support of the senior management. For instance, factors such as time pressure and relative priority of operational targets compared to OHS implementations are in fact related directly with the senior management. Similarly, factors such as the accessibility of the reporting system and encouraging reporting grouped under the category of reporting are directly linked to the senior management.

When the Table 4 is examined, it is seen that the other categories with a high average value are culture, regulation and environmental factors. At this point, it can again be stated that some factors under the culture category might be linked with the support of the senior management. Hence, senior management's support plays an important role with regards to the characteristics of the in-house just culture and to an organisational culture supporting OHS implementations.

Findings of Likert-Type Scale Rating and Discussions

Participants secondly used Likert-type scale rating in order to identify the relative importance of success factors. In this rating system each success factor was given points from1 to 5. The participants were asked to rate 5 if the effect of a factor to OHSMS success is considered great and to rate 1 if the effect is thought to be negligible.The list of success factors graded by participants according to Likert-type scale rating is shown on Table 5.

Table 5. Top Three Factors Resulting from the Likert-Type Scale Rating

Category	Success Factor	Likert Score	Likert Average	Likert Order	Priority Order
Support of the senior management	Resource allocated by senior management to OHSMS implementations	40	5.000	1	6
Support of the senior management	Professional independence of OHS practitioners	39	4.875	2	1
Audit	Continuity of OHSMS audits	38	4.750	3	15

According to the results of the Likert-type scale rating the most important success factor was 'the resources allocated by the senior management to OHSMS implementations'. This factor received full rating from all participants in Likert-type scale and ranked the first. Therefore this is a success factor on which all participants fully agreed (SD=0 and IQR=0). Resources allocated by the senior management to OHSMS are not limited to financial resources, but cover human resources, time and hardware. Within this context whether senior management allocates necessary resources to OHSMS implementations will influence the success of OHSMS even at the establishment stage of the system, as the successful foundation and operation of the system will initially require human and financial resources. Establishment and operation of the system will need some time. Timing, volume and the way of allocating the listed resources is determined by the senior management. If staff working to meet the requirements of OHSMS needs to allocate even more time to their main jobs, their workload, time pressure on them and risks in the operation field will also increase. This might result in workplace accidents and decline in the success of OHSMS.

'Professional independence of OHS practitioners' ranked the second in Likert-type scale rating. This result is parallel to the result of the12 point rating. 'Continuity of the OHS audits' factor ranked the third. It is remarkable to see it among the first three factors in Likert-type scale rating, as it ranked 15threceiving 11 points in the priority rating. Standard deviation and IQR values are 0.5, which points out a strong agreement on this factor. This can be interpreted as participants find the continuity of audits important for the success of OHSMS, however they prioritise other factors for the overall success of OHSMS under the given circumstances. In Likert-type scale rating "commitment of senior management on OHS implementation" ranked the fourth with a small difference. Standard deviation and IQR values suggest that there is a strong agreement on this factor.

Category scores, created according to the Likert-type scale rating of NGT participants are presented in Table 6. When the Table 6 is examined, it is seen that "the support of the senior management" ranked the first in Likert-type rating system, just like it did in the priority rating system.

Table 6. Category Scores and Averages of the Likert-Type Scale Rating

R	Name of the Category	Likert Average
1	Support of the senior management	4.250
2	Audit	3.958
3	Other	3.958
4	Organisational Factors	3.927
5	Culture	3.875
6	Operation	3.825
7	Training	3.734
8	Environmental Factors	3.688
9	Reporting	3.650
10	Regulation	3.625
11	Authority	3.500

A general assessment on the success factors obtained from both ratings can be conducted following NGT procedures. Relations among the top three critical success factors gathered from the two separate ratings used by NGT participants can be seen in Figure 1. NGT participants judged "professional independence of OHS practitioners" among the top three success factors in both rating systems. As emphasised earlier, independence of OHS practitioners will emerge through the support of the senior management. If the senior management does not provide a professional free space and independence to OHS practitioners, it is possible that they do not fulfil their professional requirements when faced a negative situation in an organization, due to the fear of punishments, sanctions and even dismissal. Therefore this is a factor influencing the success of the OHSMS.

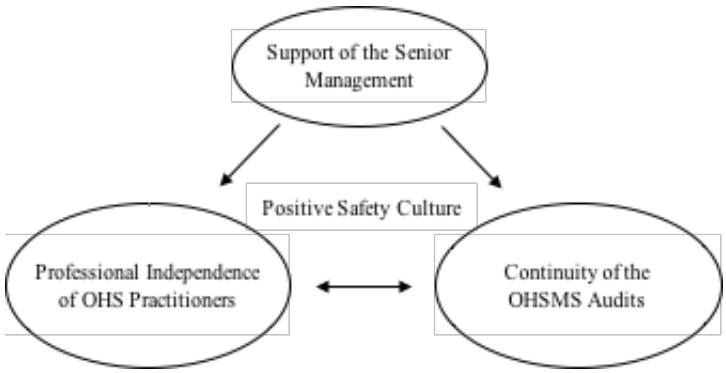

Figure1. Relations among the Top Three Most Important Success Factors Identified by NGT Participants

On the other hand, OHS practitioners being not independent enough professionally are not expected to conduct effective audits and ensure the continuity of this task. Audits might result in the recording of these findings by state authorities and may cause deviation from operational targets, increase in operating costs and loss of prestige of certain sub-divisions within the organisation. Therefore the effective and continuous auditing depends upon the support of the senior management. Senior management's support will affect both the independence of OHS practitioners and the continuity of the audits.

Content of the senior management's commitment and its place in the implementation, senior management's awareness of OHS practices, resources allocated to OHSMS by the senior management; all these factors received high scores in both ratings, all in essence pointing out the senior management's support to OHSMS. Senior management's awareness of OHS indicates that the senior management knows the benefits and necessity of OHSMS implementations and therefore they will support those. Senior management's resource allocation to OHSMS practices mean both financial resource allocation and provision of personnel, hardware etc. for the OHSMS implementations. The content of the senior management's commitment and its place in practice cover the promises made by the senior management both during and after the establishment phase, and whether they keep their promises or not. Within this context, commitment of the senior management draws the attention as a success factor incorporating many other success factors directly. Managers of an organisation are the ones setting targets, developing plans to achieve them, establishing the organisation and holding the authority to use resources to reach these targets (Daft, 2008). In OHSMS implementations, decisions to set the objectives, to develop plans and to use resources are made by managers. In this regard, in an OHSMS implementation where the support of the senior management is assured, realistic objectives will be set, effective and appropriate plans to reach these objectives will be developed and by using both financial and human resources adequately, success of the OHSMS will be ensured.

On the other hand, findings of the research point out that the positive safety culture is also seen as an important success factor. For instance, 'organisation culture supporting OHSMS implementations' on which participants agreed strongly ranked the 6th in Likert-type scale rating and the 13th in the other rating system. Researchers interpret these findings in the way that above explained 3 factors will be meaningful in a strong positive safety culture. It is considered that if the organisation has a poor positive safety culture all these factors will be negatively affected.

Conclusion

Increasing the success of the occupational health and safety management systems is highly important for the safety and health of workplaces, employers and employees. Therefore success factors of the OHSMS

should be identified and it should be assured that organisations attach importance to those. Via this study, it is understood that there are several factors playing a role in the success of the OHSMSs and special attention should be paid to each stage and component of OHSMSs. According to the findings of the study, the group of factors that is seen the most important for the success of OHSMSs is the support of the senior management. Managers should take the responsibility of protecting the health and safety of their employees and provide the necessary support to OHSMSs. Otherwise, it is understood that OHSMSs will remain just as a tool to gain legitimacy for organisations.

One of the most significant conclusions of the study is that the professional independence of OHS practitioners is an extremely important success factor. Results of the research suggest that unless their professional independence is ensured at an adequate level, it is not realistic to expect success from OHSMSs. Researchers think that this conclusion, which does not stand out in the findings of the researches done for other industries, results from the context of the country. However it will be beneficial to examine this important conclusion in other industries and contexts more closely.

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