



Examining the effects of internal control system on crisis management skills: The case of IMM fire service department

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ABSTRACT

This study examines the effects of the effectiveness of the internal control system (ICS) on crisis management skills (before, during, and after the crisis) in the event of a disaster through the Istanbul Metropolitan Municipality (IMM) Fire Service Department. Methodologically, a comprehensive survey questionnaire was used to collect data from 251 workers of the IMM fire service department located on the Anatolian side of Istanbul. Statistic Package for Social Sciences (SPSS) version 22 used to analyze data by running among other reliability tests, T-Test, ANOVA, and Regression analysis. The results of the study indicated that ICS of the Fire Service Department of IMM showed high levels of effectiveness in the event of a disaster and that the institution has a high level of crisis management skills. In addition, the study found that a high positive relationship existed between ICS and Crisis Management Skills of the IMM fire service department before, during, and after the crisis in the event of a disaster. Finally, the study revealed that, ICS has a positive and high impact on IMM crisis management skills before, during, and after the crisis, and that the effectiveness of ICS had increased the crisis management skills of the institution.

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Introduction

In the recent past, there have been accounting and auditing scandals in the United States, which began with Enron and became widespread and had a global impact. Various factors played a dominant role in the formation of scandals. One of the most important of these factors is the ineffectiveness of the internal control (IC) & internal control system (ICS) associated with some basic business functions (financial reporting, accounting, auditing, finance, oversight, corporate governance etc). IC weakness had a significant impact on global scandals.

At Enron, the ICS and crosschecks were disabled, excluded, and the effectiveness was not controlled. IC methods were eliminated and no work was done on the availability and competence of the system. Necessary inspections were not made to reduce mistakes. Corporate errors formed the basis for global scandals. In addition to this, the deliberate damage and violation of ethical principles such as accuracy, honesty, transparency, independence and accountability in scandals has also been effective. The Sarbanes-Oxley Act of 2002 (SOX, 2002) proposed important practices for CG failures that were instrumental in scandals. A variety of factors played a role in their occurrence. The most important factors are summarized as (Aksoy, 2005): unreliable information and financial reporting about businesses; inadequate corporate responsibility for fraudulent financial reporting; lack of CG; deterioration of auditor independence; lack of IC; ineffective ICSs; lack and ineffectiveness of management, external audit and public authority regarding the surveillance/follow-up/ monitoring of IC

Accordingly, effectiveness of ICS have become vitally important along with the ethical principles following the scandals. In other words, with the lessons learned from the scandals and the SOX enacted in the United States following the scandals, the importance of ICS become even more prominent in the world.

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In addition, Inter alia IC function has become one of critical 'safety valves' for the protection of the mutual interests of all stakeholders in terms of reliable reporting, achieving corporate goals, corporate governance and quality assurance, as well as transparency, accuracy, accountability, sustainability and competitiveness.

Furthermore, in addition to the scandals, a process of change and development has been taken place simultaneously throughout the world in recent years. During this period, a series of changes, new trends and developments (*i.e. Globalization, rapid change, technological developments, deregulation, environmental complexity and turbulence, digital technologies, sustainability, financial mobility, intensification of economic activities, increase in competition, convergence of markets, complexity, international standards, corporate governance, enterprise risk management, quality assurance, etc*) have profound and multi-dimensional impact on business ecosystem and all strategic business functions. All these developments and new trends have deeply affected and highlighted the importance of effectiveness of ICS which is also a crucial element of the business ecosystem.

On the other hand, institutions and businesses, like all people, also face unexpected events and disasters. Disasters are natural or human-induced extraordinary situations that interrupt the social and economic activities of people hence causing physical, social and economic losses. From time to time, people may face natural or man-made disasters unexpectedly (Şahin & Sipahioğlu, 2009). Correct and timely response to disasters is important both in preventing or keeping losses of life and properties at a minimum level. Besides, managing the crises have also close relationships with survival of the business, achieving the goals, maintaining the sustainability and competitiveness. So, in the occurrence of unexpected events and disasters, institutions need to be able to manage and overcome crises in a healthy way in order to come out of these disasters. For this reason, institutions that work in direct combat with disasters must have effective Crisis Management Skills (CMS). Crisis Management is defined as the organization of as well as the management of resources relating to all humanitarian aspects of emergencies in order to lessen the impact of disasters (Kadioğlu 2013). For an effective CMS to be achieved, there should be a methodology put in place to combat internal and external forces that might cause hindrances (Aksoy & Mohammed, 2020). Because disaster situations are a crisis process for institutions that respond to disasters and must be managed effectively.

Thanks to their crisis management skills, organizations can manage the crisis process successfully and ensure that there are no or minimal losses (Akar, 2013). Effective crisis/ disaster management and the existence of an effective ICS are among the key components of corporate governance. Effective ICSs are also thought to have a positive effect on the crisis management skills of institutions. Accordingly, crisis/disaster management processes and procedures together with their ICs should be predetermined and all responsibilities, duties, authorities, responsibilities and cross-checks in terms of compliance with corporate governance principles should be clarified and well known to all internal/external parties, including employees. It should be emphasized again that not only the establishment of these processes, but also the effectiveness and protection of crisis management processes together with their IC process is very important. IC is defined as the rules and policies adopted by the organization in order to achieve its goals and objectives. In short, it is the methods and methods of organization (COSO, 2013).

It is vital to have effective ICSs both in all organizational processes and especially in crisis management processes. The way to do this is to be prepared and have a high level of awareness for the disasters and crises that corporate organizations may be exposed to (Fidan & Gülsünler, 2003). It is important to have clear duties, authorities and responsibilities. It is considered that this will have an effect on reducing uncertainties encountered in crisis management and increasing crisis management skills. It is stated that the development within the institution can be possible with the implementation of corporate governance principles and the establishment of effective ICS. Since the authorities and responsibilities in corporate organizations will be determined precisely, there will be no disruption in the flow of information and there will be no negativity due to the strong/effective ICS (COSO, 2013).

As far as it is known, as a result of the literature review, although there are different specific studies on internal control, internal control effectiveness and crises/disaster management, there is no direct empirical study that addresses the effects of the effectiveness of the ICS on the organization's crisis management skills. The study is considered to be a first in its subject in this context. The study includes an application that examines the effectiveness of the ICS on the IMM fire department, which has an institutional organization that is likely to encounter disasters, on the crisis management skill of the institution.

This study aims to examine the effects of ICS on crisis management skills in the event of disaster of the Istanbul Metropolitan Municipality (IMM) Fire Service Department.

In this study, firstly, the conceptual background of internal control, COSO internal control framework and importance of ICS in crises management are briefly discussed. In addition, the literature review elaborated. Furthermore, a comprehensive questionnaire based on COSO-compliant statements about the effectiveness of the ICS and the Statements about employees' crisis management skills. More also, analysis of the data conducted and lastly, the study ends with the results, discussion, recommendations and references.

With focus on COSO IC framework, the study deems to examine the effects of ICS on crisis management skills in the event of disaster of the Istanbul Metropolitan Municipality (IMM) Fire Service Department.

And finally, this study seeks answers on (i) to whether there is a relationship between the effectiveness of IMM's ICS and crisis management skills?, (ii) to what is the effect of ICS's effectiveness on IMM's pre-crisis management skills?, (iii) to what is the impact of effectiveness of ICS has on during crisis management skills of IMM?, (iv) to what is the impact of effectiveness of ICS has on

post-crisis management skills of IMM?, (iv) to at what level the responds of the respondents vary according to descriptive characteristics (age, marital status, educational background, term of duty, scientific program participation status, training in disaster psychology /awareness/ management).

Literature Review

Theoretical and Conceptual Background

Agency theory

Agency theory has to do with the relationship that exist between a shareholder (owner) and manager (agent) in an organization. The theory which is also called agency relationship was introduced by Ross & Mitnick in 1973. The supposition of agency theory according to Lang (2007) is that, it leads to one party having more information than. To a large extend, the agents are well informed about the administration of the business entity than the owners (Eilifsen et al, 2006). Trust is tantamount to success (Mohammed, 2020). The owner vest more running power onto the agent to represent the utmost interest of the owner and this could lead goal conflict (Pratt & Zeckhauser, 1985). Therefore, the owner sets standards to control the actions of the agent. IC and auditing are the frequently used control means. The lack of trust between owner and agent, the issues of information disproportionateness and the fact that all parties are rational leads to agency cost that affects the performance of the business. According to Payne & Jensen (2003), IC serves as the best tool in reducing agency costs, hence, the importance of this theory to this study. 'IC monitors the actions of the agent and reports appropriately to the owner, which decreases the problem of information disproportionateness and increase performance, which results in high yields of profit for both parties' (Mohammed, 2020).

Contingency theory

This theory introduced by Drazin& Van de Van (1985; Badara, 2017) has to do with the environment in which an entity operates. It states that, the optimum organization of an organization depends on the environment within which it works. Contingency theory stipulates that an entity cannot achieve optimal performance if it does not place much attention on the environment within which it operates'. According to Jokipii (2006) firms consider the features of the environment in which they operate and structure themselves to fit in. Hence the need for an effective organizational structure to enhance and maintain performance. IC as a part of organizational structure is the best tool employed in this context. This theory is important to this study because the environment of an organization serves as the organizational attitude for effectiveness and efficiency.

Internal Control framework

IC refers to a wide process that is carried out by the Board of Directors (BoDs), senior management and all employees and provides reasonable assurance for realizing goals (i.e. achieving goals, protecting assets, avoiding loss/damage, accurate/reliable financial reporting, compliance with legal and internal/external regulations, increasing the efficiency and productivity of activities, etc.). This concept contains all kinds of policies, plans, procedures, measures, methods and systems applied in this direction (COSO, 2013).

IC is a concept that encompasses the process and actions taken by the BoDs, managers, employees and other relevant parties to achieve the business objectives, increase the likelihood of achieving goals, and manage risks (IIA, 2020).

IC is a vital part of the day to day management of an organization. It ensures effectiveness and efficiency in activities, budget accuracy, reliability and transparency of the financial statements and compliance with applicable laws and regulations (Güner, 2009). According to Basel (1998) IC is a procedure which affects the board of directors, senior management and all levels of personnel of an organization and Mayo & BPP (1988) posit that the main role of IC is to protect the resources against fraud and wastage whiles ensuring transparency in financial reports. IC stresses on the attainment of the organization's goals and mission. According to International Federation of Accountants (IFAC) IC helps managers to oversee and manage corporate risks (IFAC, 2011).

IC lacks a worldly acknowledged definition because as some scholars see it as a portion of an organization others see it to cut across all sections of the organization. Nevertheless, according to COSO (1994) the following points should be noted when defining and executing IC.

- IC is a process.
- It is a tool used to achieve goals.
- IC is not just a set of regulations and forms; is open to interaction with employees.
- IC can provide significant assurance, but not absolute assurance.
- The purpose of IC is to ensure the achievement of corporate goals.

According to Yılanci, (2006) COSO defined IC as a process carried out by the board of directors, management and other personnel of the institution in order to achieve the objectives of ensuring the effectiveness and efficiency of the activities, reliable financial reporting and compliance with the relevant laws and regulations. The American Institute of Certified Public Accountants (AICPA) adopted the definition in the COSO model in the auditing standard no 78 in 1995 (Demirbaş, 2005). In addition, Awe (2005) defined IC as an implemented organizational structures, procedures and policies to prevent risk and ensure that organizational goals are

attained based on management-initiated concerns. IC is a complete system established by management to ensure efficiency, adherence in management strategies, safeguarding of business properties and transparency in reports and accuracy in records (Olatunji, 2009).

The objectives of IC activities in the COSO ICS are categorized under three headings operational, reporting and compliance (COSO, 2013);

Operational Objectives: Refers to the operating system of an enterprise to show efficiency and effectiveness in protecting assets and in realizing operational and financial objectives.

Reporting Objectives: Includes transparency, reliability, time limits and other issues stipulated in internal/external financial/non-financial reporting by regulatory agencies and reporting to the top management.

Compliance Objectives: Includes laws and other regulations that the business is responsible for complying with.

Models of IC have been developed and used in different parts of the globe. Among them include COSO, CoCo, SysTrust, SAC, Turnbull and CoBiT.

COSO Internal Control Framework and Its Components

COSO is the widely used and highly developed model. It was developed by a commission known as the Committee of Sponsoring Organizations (COSO), created in cooperation with various accounting-audit-finance professional organizations in the United States which include AAA (American Accounting Association), AICPA (American Institute of Certified Public Accountants), FEI (Financial Executives International), IMA (Institute of Management Accountants), IIA (Institute of Internal Auditors).

COSO model consists of five interrelated components (COSO, 1994). These main components of IC which is vital for business survival and success are control environment, risk assessment, control activities, information and communication and monitoring activities. These components of IC are also parallel to those in international auditing standards-ISAs (IFAC, 2020). In an effective ICS, the following five components work to support the achievement of an entity's mission, strategies and related business objectives: (COSO, 2013).

This model has been adopted as the generally accepted framework for IC and is widely recognized as the definitive standard against which organizations measure the effectiveness of their ICSs (Protiviti, 2020). The COSO model defines IC as "a process effected by an entity's BoDs, management and other personnel designed to provide reasonable assurance of the achievement of objectives in the following categories:

- Operational Effectiveness and Efficiency
- Financial Reporting Reliability
- Applicable Laws and Regulations Compliance

COSO provides a road map to building a fundamental foundation of IC to ensure that the risks an organization takes are monitored and mitigated through sound business decisions. It is a flexible, reliable, and cost-effective approach to the design and evaluation of ICSs for organizations looking to achieve operational, compliance, and reporting objectives. COSO was updated in 2013. The 2013 Framework can be applied regardless of organization size or type: public companies, privately held companies, not-for-profit entities, and governmental entities (COSO, 2013).

Table 1: Five Fundamental Components and Principles of COSO-Based Integrated IC Framework

5 Fundamental Components	Fundamental Principles
Control environment	<ul style="list-style-type: none"> • Demonstrates commitment to integrity and ethical values • Exercises oversight responsibility • Establishes structure, authority, and responsibility • Demonstrates commitment to competence • Enforces accountability.
Risk assessment	<ul style="list-style-type: none"> • Specifies suitable objectives • Identifies and analyzes risk • Assesses fraud risk • Identifies and analyzes significant change
Control activities	<ul style="list-style-type: none"> • Selects and develops control activities • Selects and develops general controls over technology • Deploys control activities through policies and procedures
Information and communication	<ul style="list-style-type: none"> • Uses relevant information • Communicates internally • Communicates externally
Monitoring activities	<ul style="list-style-type: none"> • Conducts ongoing and/or separate evaluations • Evaluates and communicates deficiencies

Source: COSO (2013)

Control Environment (CE): The control environment is the basic element of IC, the success or failure of IC depends on the control environment in which the IC process takes place (Doyrangöl, 2001). The control environment dimensions include ethical values, management philosophy, board oversight, authorities and responsibilities, human resources policies and practices, commitment of management to expertise, the structure of the organization, and the transfer of authorities and responsibilities (COSO, 2013). In this respect, the control environment is also defined as the way the institution operates. Strong control environment increases the effectiveness and efficiency of the activities and managerial success; mistakes and cheats and contributes to the accuracy of corporate information and corporate transparency.

Risk assessment: It is the process of identifying important internal and external risks that prevent the realization of corporate goals, analysis of these risks and their management. The IC process should be carried out with a risk-oriented approach (Saltık, 2007). The prerequisite of risk assessment is that the goals and objectives of the institution are clearly, clearly and consistently (COSO, 2013).

If the goals and objectives of the institution are determined, possible risks that will prevent the achievement of these goals and objectives can be determined and managed.

Control Activities: Control activities are the policies and procedures that will help the organization to fulfil the orders and instructions of the management along with the risk management activities COSO (2013). Control activities are policies and procedures put in place to deal with the risks to achieve the goals of the organization and to achieve the goals of the organization. Control activities should be extended to all processes and activities of the organization.

Information and Communication: Information is needed at all levels of an organization to establish an effective ICS and achieve the goals of the organization. In order for employees to fulfil their responsibilities, information on IC must be recorded, classified and announced to the relevant parties immediately. The plans, control area, risks, control activities and performance of the organization should be announced in certain ways and periods and a proper communication should be established between senior managers and employees (COSO, 2013). Communication, beyond financial reporting, is about a clear understanding of IC policies and procedures, and how individuals become accustomed to and responsibilities regarding those policies and procedures. Communication can be written or verbal, depending on the size of the institution.

Monitoring: It is the continuous monitoring and evaluation of the ICS (Yılcı, 2003). Surveillance is one of the most important components in the COSO model. Continuous improvement can only be achieved by renewing the monitoring, evaluation and IC process (Güner, 2009). Surveillance is the process that consists of evaluating the quality of the IC activity at certain time intervals, the design and operation of the controls and the measures to be taken (COSO, 2013). The monitoring of the ICS can be done by different groups. The IC unit itself, the directors of the institution, the internal audit unit and the independent auditor can evaluate the ICS. At this stage, it is important to eliminate the deficiencies that arise as a result of the evaluation and to implement the suggestions for the continuous improvement of the ICS.

Empirical Review

Some instances of the applied research result related IC, ICS and its effectiveness/impact in the international literature can be exemplify this subject. In the study by Çevik & Ağmaz (2019), compliance action plans of metropolitan municipalities to public IC standards were analyzed in Turkey. He researched the general compliance status of the ICSs of metropolitan municipalities with the public IC standards. It has been revealed that the compliance of the ICSs of the metropolitan municipalities with the public IC standards is not at the desired level, and especially the compliance levels with the elements of risk assessment and control activities that form the basis of the ICS are quite low. In Ağmaz's (2017) study, the ICS was addressed as a concept; the importance, purpose and elements of an ICS as well as the ICS of the municipalities were examined; and the efficiency of the ICSs of the municipalities in Turkey was analysed on the basis of the findings of the external audit general evaluation report of the Turkish Court of Accounts. The study revealed the importance of an effective ICS for municipalities and that effective ICS contributes the elimination of the deficiencies detected in audits.

Yetiş (2017) aimed to evaluate the effectiveness of the ICS in hotel businesses and to investigate whether the elements of the ICS have an impact on the business performance. The questionnaire form prepared was applied to the managers of 4-star and 5-star hotel enterprises with tourism management certificate, and 55 people consisting of accounting or finance department managers and employees in the Central Anatolia Region. As a result of the research, it was found that control activities and monitoring, which are among the elements of the ICS, have an effect on the business performance; However, it has been determined that the control environment, risk assessment, information and communication elements have no effect on the business performance. In the study, it was also determined that the efficiency and operating performance of the ICS in hotel businesses do not differ according to the class (4-star and 5-star) and status (independent, national chain and international chain) of the hotel enterprises. Gezezen (2015) researched the role of municipal IC practices in achieving institutional goals as a management model. The research has revealed that IC practices have a positive effect on achieving corporate goals. The studies by Collins (2014), Mbilla et al. (2020), Mawand (2008), Chebungwe and Kwasira (2014), and Widyaningsih (2014) shown that ICS and IC activities have positive influence on firm performance.

Similarly, Çınar (2019) aimed to examine the factors affecting the efficiency of the public ICS on the employees of state universities. Purpose of Internal Auditors working in the direction of the state universities in Turkey and Head of the Department of Strategy

Development for employee survey was administered to 176 people. It has been concluded that the support of senior management to the public ICS, the competence of public employees and the use of information technologies in the public ICS positively affect the effectiveness of the public ICS. The study by Aksoy & Mohammed (2020) revealed that there is a linear correlation between the effectiveness of ICS and financial and non-financial performance in COSO-based Ghana banks. Karagiorgos et al., (2010) found that a well-organised IC plays great role in the survival and success of business and internal audit effectiveness. Muhunyo & Jagongo (2018) conducted their research to determine the effect of ICSs on financial performance in higher education institutions in Nairobi City County. In the research, they conducted a survey on 96 employees working in different departments of Higher Education Public Institutions in Nairobi City County, Kenya. As a result of the research, information and communication which is a part of the control environment, risk assessment, control activities and ICS; They conclude that Higher Education Institutions in Nairobi City have a significant impact on their financial performance. They found that the components of the ICS explained 99.1% of the changes in the financial performance of the institutions.

In Al-Hanini's study (2015), found the existence of the reliability of the IC methods on the computerized information systems in Jordanian banks. In his research, Korga (2017) aimed to reveal the role and importance of the control environment, risk assessment, control activities, information and communication, surveillance components determined by COSO in order to evaluate the effectiveness of the ICS of banks and to establish an effective ICS on the risk management process. Within the scope of the study, a questionnaire was applied to 110 people working in banks operating in Kırıkkale. As a result of the research, it was determined that there is a positive and significant relationship between IC components and the risk management process. In addition, it has been concluded that the components that make up the ICS have a statistically significant and positive effect on the risk management process. Çağlı (2019) researched the effect of ICS on institutionalization in state universities. The study was carried out for internal audit units within state universities. Questionnaires consisting of scales on institutionalization and IC issues were sent by mail to the internal auditors and heads of internal audit units working in the said internal audit units, and 68 usable questionnaires were reached. When the data obtained were analyzed, it was determined that there was a high degree of relationship between the institutionalization level of state universities and the ICS; It has been determined that the ICS also has a significant effect on the level of institutionalization.

Hayali et al.(2012) revealed that IC activities are observed to the international standards among Turkish banks. Olatunji (2009) revealed that ICS is very important in the prevention and detection of frauds in the banking sector. A Study by Saleh & Mohammed (2010) was on the role ICS play in reducing the risks related to auditing. The study revealed that the higher the risk resulting from ICS, the higher the risk concerning audit. Spira and Page (2003) based their studies on the role IC plays in changing internal audit and risk management. Several studies on IC have been related to other variables, such as framework for ethics initiatives (Schneider and Becker, 2010), study process (Verdina and Kasetiene, 2014), financial accountability (Godfrey, 2013; Aramide and Bashir, 2015), the efficiency of the management of funds (Otieno, 2013).

Research and Methodology

Data, Sampling and Questionnaire

The research was designed according to the relational screening model. Relational screening models are the research models aiming to determine the presence and/or level of change between two or more variables and to specify the relationships between the variables (Uredi, 2017). The universe of the research is comprised of the employees of IMM Fire Department's Anatolian Side Fire Service Department in 2020. The surveys were applied online in June 2020 to people determined by convenience sampling method. Primary data was employed in this study and was collected with a questionnaire form which was filled by the workers of IMM fire service units.

The questionnaire was in 3 parts. Part one consisted of the personal information of the participants like sex, age, marital status, educational status, duties, terms of office, disaster awareness, training for disasters and participation in disaster exercises. Part two of the questionnaire was designed to determine the perceptions of the participants about the effectiveness of ICS in the department. A scale consisting of 14 propositions in 5-point Likert type was used based on the five components of the COSO IC Framework. Part three was on "Crisis Management Skills Scale", developed by Aksu & Deveci (2009) and adapted by Özarslan (2020) on municipal employees, was used to determine the crisis management skills levels of the participants. The scale includes 30 propositions in 3 dimensions (Pre-crisis, During crisis and Post-crisis) and 5-point Likert scale type employed. The first 7 questions are about the pre-crisis management skills dimension, 8-14 crisis period management skills dimension and 15-30 post-crisis management skills.

Statements about the ICS and crisis management skills in the questionnaire applied in the research are presented in the table 2 below.

Table 2: Statements in questionnaires applied in the study*

1- <i>Crisis Management Skills Scale</i> Statements about employees' crisis management skills	2- <i>Scale on The Effectiveness of the internal control system</i> COSO- compliant statements about the effectiveness of ICS
<ul style="list-style-type: none"> • The institution can perceive the crisis signals coming from different sources before the crisis occurs • Crisis scenarios are created before the crisis occurs • Problems that may pose a danger to the institution are determined in advance • The institution does not follow the crises that occur in the environment • Any situation that may cause a crisis is carefully studied • The institution is not sensitive to signs of crisis • There are employees in the organization who are knowledgeable about the strategies to avoid the negative effects of the crisis • A written crisis management plan is prepared to protect against the crisis • A crisis communication plan is prepared within the framework of the crisis management plan • There is no emergency action plan to be implemented during the crisis period • The institution leads the crisis management team to receive the necessary training • The institution keeps all employees informed of the crisis management plan • Employees are informed about the crisis experienced • There are no trainings on crisis management that will cover all employees • Cooperation is provided between the employees of the institution in the crisis management process • Employees are enabled to participate in the decision-making process • Obstacles preventing efficient working in the crisis management process are removed • The goals and objectives of the institution are constantly reviewed • The institution makes a multi-faceted assesment of the crisis process • There is no situation analysis in the institution after the crisis • New targets are set in the institution after the crisis • The institution evaluates the crisis management realized and determines the deficiencies • The institution is carrying out a restructuring work after the crisis • The vision of the institution is being developed after the crisis • The institution sees its strengths and weaknesses after the crisis • Effective methods are being developed to combat the crisis • The crises experienced are turned into opportunities and made useful for the institution • It is not possible to train the crisis management team in accordance with new developments • New strategies and tactics are determined to deal with the possible crisis • Employees are given the opportunity to develop and use new skills 	<ul style="list-style-type: none"> • Adherence to ethical values and the principle of honesty has been achieved throughout the organization • Organization management is independent of execution and supervises the ICS and its activities • Emphasis is placed on competence, competence and specialization within the organization. • I think that the management philosophy and working style are balanced and appropriate for the ICS of the organization • The structure of the organization is in a structure that enables the flow of information related to the work we carry out both vertically and horizontally with other functions • Within the organization, the authorities and responsibilities in line with the targets, reporting relationships and channels have been clearly defined and distributed. • Human resources procedures within the organization are clearly defined and known to all employees. • The vision, mission, strategy and basic business objectives of the organization have been clearly and clearly defined by the management and corporately announced to all employees. • The organization performs assessments/analyzes to eliminate and manage all the risks that will prevent the achievement of all institutional goals and targets. • There are mechanisms for managing change within the organization, and it is evaluated how and in what way significant changes and changes in business processes will affect the organization throughout the organization. • While assessing the risks within the organization, the risks of misconduct / fraud / corruption are also considered. Employees know what to do when these risks occur. • The policies, targets and implementation procedures regarding control activities throughout the organization and in all business, processes are clearly established and effectively implemented. • Quality information is obtained and used by the authorities related to the activities of the organization, and the reports within this scope contain sufficient information. Necessary internal and external communication is provided • Continuous monitoring and assesments are made regarding the existence and functioning of IC elements throughout the organization and in business processes. Corrective and improving measures are taken.

*The table was formed by combining the statements of the Likert-based questionnaires applied by researchers

Data analysis

Percentage and frequency analyses were used to determine the descriptive characteristics of the employees participating in the study. Arithmetic mean and standard deviation statistics were used to determine the participants' perceptions of the effectiveness of the ICS and their crisis management skills. In the evaluation of the data obtained from the scales, 1.00-1.80 is very low, 1.81-2.60 is low, 2.61-3.40 is medium, 3.41-4.20 is high and 4.21 5 .00 is evaluated as very high level.

The relationship between the effectiveness of the ICS in the fire brigade and the perceptions of the participants on crisis management skills. Correlation analysis examined the effects of the functioning of the ICS on crisis management skills using multiple regression analysis.

T-Test, One-Way Anova Test and Scheffe analyzes were used to examine the differentiation of the perceptions of the ICS and the crisis management skill of the organization according to the descriptive characteristics of the participants. In the difference tests, since all the participants are male, the gender variable, the distribution of the majority according to their duties and the "Do you have any information about which institutions the fire brigade will work with in response to disasters / emergencies?" These questions

were not included in the analysis since all but 4 of the participants answered yes to the question. Analyses of the data was carried out using SPSS 22.0 for Windows program at 0.05 significant level.

Pre-Test

Table 3: Reliability test

Variables	Cronbach's Alpha
<i>Pre-Crisis Management Skills</i>	0.928
<i>During Crisis Management Skills</i>	0.933
<i>Post-Crisis Management Skills</i>	0.947
Total average	0.936

Source: Survey data by researchers.

Reliability estimates both consistency and stability of data utilizing using Cronbach's Alpha (Nantambelele, 2018). Cronbach's Alpha coefficient is the broadly utilized device in testing the reliability of data. Cronbach's Alpha is a record of reliability connected with the variety represented by the correct score of the constructs being referred to (Santos, 1999).

The coefficient of Cronbach's Alpha varies for 0 to 1, the closer to 1, the reliable it is (Sekaran & Bougie, 2016). While Nunnaly (1978) and Pallant (2010) are of the view that a 0.7 coefficient is recommended for a reliable scale analysis, 0.6 and above according to Seçer (2013) is accepted in the literature. The average Cronbach's Alpha ascertained was 0.968 meaning the data was highly reliable, stable and consistent. See table 3 for details of the Cronbach's Alpha of the variables.

Findings

RQ1: Finding the Relationships that exist between Internal Control's effectiveness and Crisis Management Skills.

Table 4: Correlation Analysis between Internal Control's effectiveness and Crisis Management Skills

Variables	Effectiveness of the Internal Control System
Pre-Crisis Management Skills	r 0.743
	p 0,000
During Crisis Management Skills	r 0.807
	p 0,000
Post-Crisis Management Skills	r 0.843
	p 0,000

Source: Survey data by researchers.

Table 4 displays the results of the correlation analysis done to ascertain the relationship that exist between ICS and Crisis Management Skills. It is seen that there are positive and significant relationships between ICS and pre-crisis management skills ($r = 0.743$), ICS & During Crisis Management Skills ($r = 0.807$), and ICS & Post Crisis Management skills ($r = 0.843$).

For RQs 2a, 2b and 2c, regression analysis was run as can be seen from related tables.

Table 5: The Effect of Internal Control System on Pre-Crisis Management Skills

The dependent variable	Independent variable	β	t	p	F	Model (p)	R^2
Pre-Crisis Management Skills	Constant	1,468	10.904	0,000	305,036	0,000	0.750
	Effectiveness of the Internal Control System	0,656	17,465	0,000			

Source: Survey data by researchers.

According to Table 5, regression analysis performed to determine the cause- effect relationship between the ICS and pre-crisis management skills was found to be significant ($F = 305,036$; $p = 0,000 < 0.05$). The total change in pre-crisis management skills level is explained by the effectiveness of the ICS by 55% ($R^2 = 0.750$). IC increases pre-crisis management skills ($\beta = 0.656$).

Table 6: The Effect of Internal Control System on Management Skills in Crisis Period

The dependent variable		Independent variable	β	t	p	F	Model (p)	R ²
During-Crisis Management Skills	Constant		1.101	9,327	0,000	464,638	0,000	0,751
	Effectiveness of the Internal Control System		0.711	21,555	0,000			

Source: Survey data by researchers

Regression analysis performed to determine the cause- effect relationship between the effectiveness of the ICS and crisis management skills was found to be significant ($F = 464,638$; $p = 0,000 < 0.05$). The total change in the level of management skills during the crisis period is explained by the effectiveness of the ICS at a rate of 65.1% ($R^2 = 0.751$). According to Table 6, The effectiveness of the ICS increases the level of management skills during the crisis period ($\beta = 0,711$).

Table 7: The Effect of the Efficiency of Internal Control System on Post-Crisis Management Skills

The dependent variable		Independent variable	β	t	p	F	Model (p)	R ²
Post-Crisis Management Skills	Constant		0.822	6,969	0,000	609,135	0,000	0,759
	Effectiveness of the Internal Control System		0.813	24,681	0,000			

Source: Survey data by researchers.

Regression analysis performed to determine the cause- effect relationship between the efficiency of the ICS and post-crisis management skills was found to be significant ($F = 609,135$; $p = 0,000 < 0.05$). The total change in the level of management skills after the crisis is explained by the effectiveness of the ICS at a rate of 70.9% ($R^2 = 0.759$). According to Table 7, The effectiveness of the ICS increases the level of management skills after the crisis ($\beta = 0.813$).

Findings Regarding the Differentiation of Participants' Perceptions Regarding the Effectiveness of the Internal Control System and Crisis Management Skill Levels According to their Descriptive Characteristics using T-Test and ANOVA.

Table 8: T-Test Differentiation Status of Participants' Internal Control System and Crisis Management Scores According to Their Marital Status

	Group	N	Averages	Std	t	sd	p
Internal Control System	The married	230	3,433	0.956	-0,800	249	0.424
	Single	21	3,606	0.879			
Pre-Crisis Management Skills	The married	231	3,715	0.835	-1,389	250	0,166
	Single	21	3,976	0.708			
Crisis Management Skills	The married	231	3,537	0.834	-0,964	250	0.336
	Single	21	3,719	0.757			
Post-Crisis Management Skills	The married	231	3,618	0.914	-0,999	250	0.319
	Single	21	3,824	0.756			

Source: Survey data by researchers

T-test was conducted to examine the differentiation of the participants' perceptions of the effectiveness of the ICS and crisis management skill levels according to their marital status as displayed in table 8. The effectiveness of the ICS, pre-crisis management

skills, during crisis management skills and post-crisis management skills scores do not differ significantly according to the marital status variable ($p > 0.05$).

Table 9: ANOVA Differentiation Status of Participants' Effectiveness of ICS and Crisis Management Skill Scores According to Their Age

	Group	N	Averages	Std	F	p
Effectiveness of the Internal Control System	26-35	52	3,316	1,085	1,333	0,266
	36-45	162	3,443	0.945		
	46 and Above	37	3,649	0.723		
Pre-Crisis Management Skills	26-35	52	3,663	0.817	1.003	0,368
	36-45	163	3,722	0.853		
	46 and Above	37	3,905	0.713		
Crisis Management Skills	26-35	52	3,404	0.864	1,892	0,153
	36-45	163	3,555	0.831		
	46 and Above	37	3,749	0.732		
Post-Crisis Management Skills	26-35	52	3,415	0.955	2,242	0,108
	36-45	163	3,670	0,904		
	46 and Above	37	3,792	0.780		

Source: Survey data by researchers

As can be seen from table 9, Effectiveness of the ICS before crisis management skills, during crisis management skills and post-crisis management skills and general crisis management scores are not significantly different according to age variable ($p > 0.05$).

Table 10: ANOVA Differentiation Status of Participants' Effectiveness of Internal Control System and Crisis Management Skill Scores According to their Educational Status

	Group	N	Averages	Std	F	p	Difference
Effectiveness of the Internal Control System	1-High School and Below	109	3,650	0.824	4,838	0.009	1 > 3
	2-Associate Degree	39	3,394	1,010			
	3-License and Above	103	3,253	1,012			
Pre-Crisis Management Skills	1-High School and Below	109	3,806	0.832	1,920	0,149	
	2-Associate Degree	40	3,859	0,649			
	3-License and Above	103	3,617	0.873			
Crisis Management Skills	1-High School and Below	109	3,715	0.788	4,076	0.018	1 > 3
	2-Associate Degree	40	3,513	0.765			
	3-License and Above	103	3,396	0.866			
Post-Crisis Management Skills	1-High School and Below	109	3,720	0.874	2,024	0,134	
	2-Associate Degree	40	3,755	0.725			
	3-License and Above	103	3,499	0.982			

Source: Survey data by researchers

ANOVA test was conducted to examine the differentiation in the efficiency of the ICS and crisis management skills according to the educational background of the participants. As can be seen in table 10, IC scores differ significantly according to the education level

of the employees ($F = 4,838$; $p = 0.009 < 0.05$). According to the post-hoc analysis made to determine the reason for the difference; education level of high school and six points of the IC (3.650 ± 0.824), educational status of the license and the ones above (3.253 ± 1.012) is higher.

The during crisis management skills scores differ significantly according to the educational status of the employees participating in the study ($F = 4,076$; $p = 0.018 < 0.05$). According to the post-hoc analysis made to determine the reason for the difference; education level of high school and crisis management skills in six of those points (3.715 ± 0.788), educational status of the license and the ones above (3.396 ± 0.866) is higher.

Pre-crisis management skills and post-crisis management skills scores of the employees participating in the study do not differ significantly according to the educational level variable ($p > 0.05$).

Table 11: ANOVA- The Effectiveness of the Internal Control System and Crisis Management Skill Scores of Participants Differentiation According to the Term of Duty

	Group	N	Cover	Std	F	p
Effectiveness of the Internal Control System	6-10 Years	17	3,342	1.169	1,657	0,161
	11-15 Years	155	3,360	1,019		
	16-20 Years	21	3,411	0.868		
	21 Years and More	37	3,727	0,652		
Pre-Crisis Management Skills	5 Years and Below	21	3,910	0.465	0.866	0.485
	6-10 Years	17	3,618	1,068		
	11-15 Years	156	3,688	0.866		
	16-20 Years	21	3,719	0.861		
	21 Years and More	37	3,911	0,656		
Crisis Management Skills	5 Years and Below	21	3,719	0.426	1,676	0,156
	6-10 Years	17	3,535	0.927		
	11-15 Years	156	3,460	0.880		
	16-20 Years	21	3,624	0.825		
	21 Years and More	37	3,814	0,672		
Post-Crisis Management Skills	5 Years and Below	21	3,657	0,502	1,363	0,247
	6-10 Years	17	3,488	0,999		
	11-15 Years	156	3,588	0.988		
	16-20 Years	21	3,543	0.939		
	21 Years and More	37	3,943	0.534		

Source: Survey data by researchers.

The results from Table 11 indicate that, the effectiveness of ICS, pre-crisis management skills, crisis management skills and post-crisis management skills scores do not differ significantly according to the term variable ($p > 0.05$).

Table 12: ANOVA Participants of the Internal Control System and Crisis Management Effectiveness of the Skill Points edited by the Scientific Program Participation Status

	Group	N	Averages	Std	F	p	Difference
Effectiveness of the Internal Control System	Yes	97	3,620	0.925	6,438	0.002	1> 3
	Sometimes	106	3,475	0.915			
	No	48	3,036	0.967			
Pre-Crisis Management Skills	Yes	98	3,809	0.868	2,116	0,123	
	Sometimes	106	3,768	0.756			
	No	48	3,520	0.870			
Crisis Management Skills	Yes	98	3,720	0.838	6,894	0.001	1> 3
	Sometimes	106	3,560	0.748			
	No	48	3,192	0.876			
Post-Crisis Management Skills	Yes	98	3,815	0.888	6,148	0.002	1> 3
	Sometimes	106	3,635	0.816			
	No	48	3,269	1,016			

The results in table 12 indicate that, IC scores differ significantly according to the variable of participation in scientific programs of the employees ($F = 6,438$; $p = 0.002 < 0.05$). According to the post-hoc analysis made to determine the reason for the difference; IC

scores of those who participated in organized scientific programs (3.036 ± 0.967) and sometimes (3.475 ± 0.915) were higher than those who did not (3.036 ± 0.967).

Pre-crisis management skills of the employees participating in the study do not differ significantly according to the variable of participation in scientific programs ($p > 0.05$).

Crisis period management skill scores differ significantly according to the variable of participation in scientific programs of the employees participating in the study ($F = 6,894$; $p = 0.001 < 0.05$). According to the post-hoc analysis made to determine the reason for the difference; Crisis period management skill scores (3.560 ± 0.748) of those participating in organized scientific programs (3.720 ± 0.838) and sometimes participating were higher than those who did not (3.192 ± 0.876).

Post-crisis management skills scores differ significantly according to the variable of participation in scientific programs of the employees participating in the study ($F = 6,148$; $p = 0.002 < 0.05$). According to the post-hoc analysis made to determine the reason for the difference; The post-crisis management skill scores of those participating (3.815 ± 0.888) and sometimes participating in the scientific programs organized (3.635 ± 0.816) were higher than those who did not (3.269 ± 1.016).

Table 13: T-Test Differentiation Status of Participants' Effectiveness of ICS and Crisis Management Skills Scores According to their Training in Disaster Psychology / Awareness / Management

	Group	N	Cover	Ss	t	sd	p
Effectiveness of the Internal Control System	Yes	150	3,571	0.945	2,542	249	0.012
	No	101	3,264	0.930			
Pre-Crisis Management Skills	Yes	151	3,770	0.890	0.768	250	0,443
	No	101	3,688	0.724			
Crisis Management Skills	Yes	151	3,637	0.869	1,998	250	0.047
	No	101	3,426	0.748			
Post-Crisis Management Skills	Yes	151	3,727	0.966	1,972	250	0.050
	No	101	3,499	0.783			

As can be seen in table 13, IC scores ($\bar{x} = 3,571$) of employees who received training on disaster psychology / awareness / management were higher than those who did not receive training ($x = 3,264$) ($t_{(249)} = 2,542$; $p = 0,012 < 0,05$).

Employees disaster psychology / awareness / management-related education of employees of crisis management skills scores ($X = 3.637$), education for those ($x = 3.426$) were higher ($t_{(250)} = 1.998$, $p = 0.047 < 0.05$).

Employees disaster psychology / awareness / management-related education of employees post-crisis management skills scores ($X = 3.727$), training to get those ($x = 3.499$) were higher ($t_{(250)} = 1.972$, $p = 0.050 < 0.05$).

Pre-crisis management skills and general crisis management scores of employees do not differ significantly according to the variable of educational status related to disaster psychology / awareness / management ($p > 0.05$).

Conclusions

The aim of this research is to examine the effects of ICS on crisis management skills in the event of disaster of the Istanbul Metropolitan Municipality (IMM) Fire Service Department. 251 people working under the Istanbul Anatolian Side Fire Service Department participated in the study.

First of all, the participants' perceptions of the effectiveness of the ICS in the event of disasters and their perceptions of the organization's crisis management skills were examined. The effectiveness of the ICS was examined on a one-dimensional scale prepared according to COSO components and evaluated over 5-point Likert scale. The average of participants' perceptions about the effectiveness of the ICS was 3,447. Hence, it was concluded that the ICS of the IMM fire service department is highly effective. The crisis management skills of the IMM fire service department in the event of a disaster were discussed in three dimensions: pre-crisis, during crisis and post-crisis. Again, according to the evaluation made out of 5-point Likert scale, the pre-crisis management skill of IMM fire service department in case of disaster has an average value of 3.737, 3.552 and 3,635 for pre-crisis, during crisis and after crisis respectively. From these values, it is concluded that IMM fire service department has a high level of crisis management skills in case of disaster.

In the study, the relationship between the effectiveness of the IMM's ICS and crisis management skills in the event of a disaster was examined by correlation analysis. As a result of the analysis, it was determined that there are highly positive and significant

relationships between the effectiveness of the ICS and management skills before, during and after the crisis. In other words, it can be said that the decrease or increase in the effectiveness of the ICS causes the crisis management skills to decrease or increase in the same direction.

In the study, the effects of the ICS on crisis management skills were examined using regression analysis. As a result of the analysis, it was determined that the effectiveness of the ICS positively and highly affected the pre-crisis, during crisis and post-crisis management skills, and the effectiveness of the ICS increased the crisis management skills of the institution.

In the study, whether there is a difference in the perceptions of the participants on the effectiveness of the ICS and crisis management skills according to the descriptive characteristics was examined. Among the descriptive variables considered in this regards include age, marital status, tenure of work, training received. It was determined that there was no difference in the perceptions of the participants regarding the effectiveness of the ICS and crisis management skills according to their marital status, age, tenure and participation in in-service training. In other words, the perceptions of the participants who are married or single, at different ages and with different tenures, and those who receive and do not receive in-service training, about the effectiveness of the ICS are similar.

Limitation and Recommendations

The following recommendations have been made in line with the results of the research: This research is limited to the perceptions of 251 employees of IMM Anatolian Side fire service department. More researches can be made conserving the European side IMM fire service department as well as other organizations; Despite ICS of IMM fire service department being effective and the crisis management skills at higher level, necessary practices within the institution should continue to be implemented in order to protect and improve this achievement; Disasters can happen impromptu, so organizations are advised to follow professional publications and encourage their employees to participate in scientific programs for a more effective ICS and crisis management skills.

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