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The Role of Management Accounting in Risk Management*

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ABSTRACT

The new technologies, digitalization and industry 4.0 have effected many fields. Management accounting and risk management are the two fields that were affected by these changes. To keep pace with the changing business environment and advancements in technology interdisciplinary, holistic and integrated working has been a necessity. Within this scope, the aim of this study is to examine how management accounting can possibly play a role in risk management. The relationship between these two management area were examined considering the latest developments in management accounting and risk management. It was considered that effective management accounting can play a key role in risk management and complement the risk management process. Management accountant's new competencies especially strategic management, reporting and control, business acumen and operations and leadership are closely associated with risk management.

Key Words: *Management Accounting, Risk, Risk Management, COSO, ISO*

Jel Classification:*M40, M41, G32*

Risk Yönetiminde Yönetim Muhasebesinin Rolü

ÖZET

Yeni teknolojiler, dijitalleşme ve endüstri 4.0 birçok alanı etkilemektedir. Yönetim muhasebesi ve risk yönetimi bu değişikliklerden etkilenen iki alandır. Değişen iş ortamına ve teknolojideki ilerlemelere ayak uydurmak, disiplinlerarası, bütüncül ve bütünleşik çalışma gerektirmiştir. Bu kapsamda bu çalışmanın amacı, yönetim muhasebesinin risk yönetiminde nasıl bir rol oynayabileceğini incelemektir. Bu iki yönetim alanı arasındaki ilişki yönetim muhasebesi ve risk yönetimindeki son gelişmeler dikkate alınarak incelenmiştir. Etkin yönetim muhasebesinin risk yönetiminde kilit bir rol oynayabileceği ve risk yönetimi sürecini tamamlayabileceği değerlendirilmektedir. Yönetim muhasebecisinin yeni yetkinlikleri, özellikle stratejik yönetim, raporlama ve kontrol, iş zekası ve operasyonlar ve liderlik risk yönetimi ile yakından ilişkilidir.

Anahtar Kelimeler: *Yönetim Muhasebesi, Risk, Risk Yönetimi, COSO, ISO*

Jel Sınıflandırması:*M40, M41, G32*

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1. INTRODUCTION

New technological developments and globalization have refocused interest on risk. Definition of the risk and types of risks have been changed and diversified. Organizational practices have been organized around risk and risk management in today's competition world. To manage risk, many organizations have published risk management frameworks. The Committee of Sponsoring Organizations of the Treadway Commission (COSO)and The Institute of Risk Management (IRM)is the most known organizations.

Another field that has been affectedby the developments is management accounting. Management accounting's main aim is to provide useful information for management in decision making. With the latest updated competencies of management accountant by Institute of Management Accountants (IMA) the role of management accounting has been strengthened in an organization especially in risk management. Management accountants, whose professional training included the analysis of information and systems, performance and strategic management, can have a significant role to play indeveloping and implementing risk management and internal control systems within their organisations (CIMA, 2002).Both management accounting and risk management are expected to complement each other and aid enterprise decision making (Rasid et al, 2014:129).

The relationship between management accounting and risk management has studied by several authors by different dimensions. Rasid et al. (2014) andUyar, (2018) examined the linkages between management accounting systems, enterprise risk management and organizational performance. Ballou et al. (2006) and Beasley et al. examined the integration of balanced scorecard and enterprise risk management. Culasso et al. (2016) investigated the management accountants role in risk management and the evolving roles of management accountants. Lawrence and Ba (2008) tried to find out the management accountants role in risk management.

The core requirements for IMA's Certified Management Accountant examination and updated risk management frameworks by COSO and IRM will form the basis of this study. The main contribution of this study is to consider the latest developments in risk management frameworks and management accounting competencies.The aim of this study is to examine how management accounting can possibly play a role in risk management.

The remaining of the study is organized as follows.Section two is a brief description of the risk and risk management. Management accounting's changing role is discussed in section three. In section four relationship between management accounting and risk management were examined. Section five disputes the conclusions and future research issues.

2. RISK AND RISK MANAGEMENT

The changing business environment has affected the definition of risk. Some definitions of the risk in the literature are as follows:

- Uncertain future events that could influence the achievement of strategic, operational and financial objectives (Collier and Berry, 2002:274)

- Possibility of danger, loss, injury or other consequences (Collier et al., 2006).

- Risk is the “effect of uncertainty on objectives” and an effect is a positive or negative deviation from what is expected (ISO 31000).

As seen from definitions, risk includes both threat and opportunity for organizations. If the risk effect organization;

- ina positive manner;the risk is commented as an opportunity,

- ina negative manner;the risk is commented as a threat.

Organizations must have an increased state awareness of the necessity for holistic risk management because of the below-specified factors:

- Globalization,
- Digitalization,
- Accounting and reporting deficiencies,
- Complex financial instruments,
- Complex manufacturing processes,
- Industry 4.0,
- Artificial intelligence.

In today’s competitive and global world, holistic and integrated risk management has become necessary. In the literature new methodology for risk management is called enterprise risk management. Instead of managing risk in many individual silos, Enterprise Risk Management (ERM) takes an integrated and holistic perspective on risks facing an organization (IMA, 2014:4). There are two widely referenced frameworks about risk management as illustrated in Figure 1.

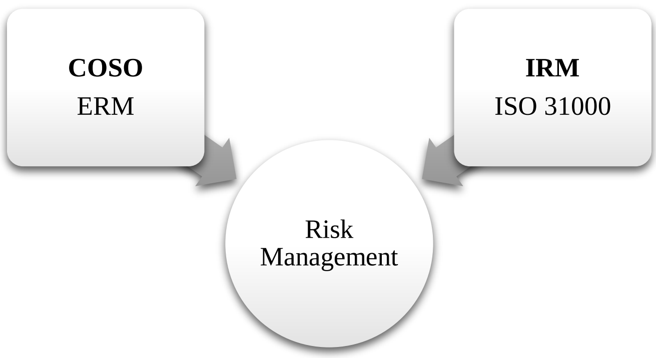


Figure 1. Risk Management Frameworks

COSO is the US-based committee. COSO published Enterprise Risk Management-Integrated Framework in 2004. Risk management is defined by COSO as follows (COSO, 2004):

‘‘Enterprise Risk Management is a process, effected by an entity’s board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risks to be within its risk appetite, to provide reasonable assurance regarding the achievement of the entity’s objectives”.

In 2017, this framework was revised and COSO published a new framework named Enterprise Risk Management-Integrating with Strategy and Performance.

Source: COSO, 2017

Figure 2. Coso Updated ERM Framework

The updated framework is a set of principles organized into five interrelated components (COSO, 2017:6):

- ***Governance and Culture:*** Governance sets the organization’s tone, reinforcing the importance of and establishing oversight responsibilities forenterprise risk management. Culture pertains to ethical values, desired behaviors, and understanding of risk in the entity.

- ***Strategy and Objective-Setting:*** Enterprise risk management, strategy and objective-setting work together in the strategicplanning process. Risk appetite is established and aligned with strategy; business objectives put the strategy into practice while serving as a basis for identifying, assessing and responding to risk.

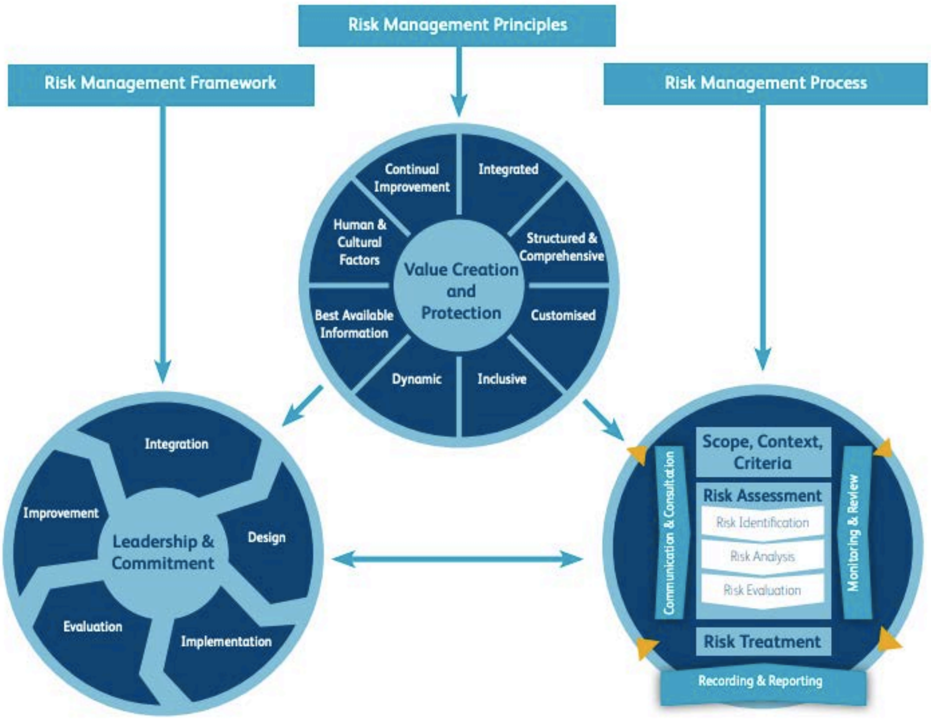
- ***Performance:*** Risks that may impact the achievement of strategy and business objectives need to be identified and assessed. Risks are prioritized by severity in the context of risk appetite. The organization then selects risk responses and takes a portfolio view of the amount of risk it has assumed. The results of this process are reported to key risk stakeholders.

- ***Review and Revision:*** By reviewing entity performance, an organization can consider how well the enterprise risk management components are functioning over time and in light of substantial changes and what revisions are needed.

▪ ***Information, Communication, and Reporting:*** Enterprise risk management requires a continual process of obtaining and sharing necessary information from both internal and external sources, which flows up, down, and across the organization.

IRM is the UK based committee and published ISO 31000 in 2009. This standard was updated in 2018. IRM defined risk management as follows (ISO, 2009):

"The process by which organisations methodically address the risks attaching to their activities with the goal of achieving sustained benefit within each activity and across the portfolio of all activities."



Source:www.theirm.org

Figure 3. ISO 31000 Risk Management Framework

The ISO 31000 Risk Management Framework has three interrelated processes. These are risk management framework, risk management principles and risk management process.When these frameworks and the definition of risk management are examined, it can be seen that risk management frameworks have common basic components. These components are:

- Setting strategy and objectives,
- Identifying risks,
- Assessing risks,

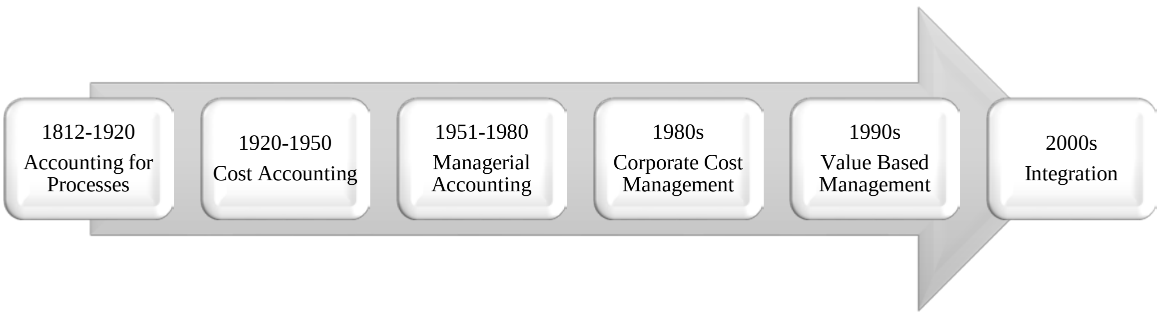
- Controlling risks,
- Monitoring risks,
- Reporting risks.

An important point of these risk management frameworks is a holistic and integrated approach. Risk management should be accepted and implemented by all workers. In this manner, it is considered that management accounting can support risk management process in an organization.

3. CHANGING ROLE OF THE MANAGEMENT ACCOUNTING

Management accounting is the process of defining, measuring, collecting, analyzing, presenting, interpreting and communicating information in order to help management in line with the objectives of organizations (Marşap et al., 2012:11).The management accounting function is to provide useful information to upper management as a subfield of accounting.

In the 1980s management accounting was criticised for becoming too internally focused on operational issues and was providing little help to managers making strategic decisions (CIMA, 2015:2).The 21st century has seen the emergence of the information age and the resulting economy driven by knowledge as a source of competitive advantage (Marchant, 2013:1). Due to the developments, management accounting has been evolved. The evolution of management accounting is summarized in Figure 4.



Source: Köse and Ağdeniz, 2018:522.

Figure 4. Management Accounting Evolution

Management accounting role has been changed the same reasons that reshaped the risk management. With industry 4.0, manufacturing processes have been changed. Today management accounting has played an important role in organization processes. Information provided by management accounting is used in strategic decisions. So, to solve the complex situations, integration of methods and integration of management accounting to other departments or integration of management accounting tools in an organsation is vital.

International Management Accountants (IMA) revised IMA Management Accounting Competency Framework in 2018 to enriched the management accounting functions and to adapt changes in the business. The new framework includes six skills as illustrated in Figure 5.

Source: IMA, 2018

Figure 5. IMA Management Accounting Competency Framework

These competencies are defined as (IMA, 2018):

- ***Strategic management:***The competencies required to envision the future, lead the strategic and tactical planning process, guide decisions, manage risk, and monitor performance.

- ***Reporting and control:***The competencies required to measure and report an organization's performance in compliance with relevant standards and regulations.

- ***Technology and analytics:***The competencies required to manage technology and analyze data to enhance organizational success.

- ***Business acumen and operations:***The competencies required to contribute as a cross-functional business partner to transform company-wide operations.

- ***Leadership:***The competencies required to collaborate with others and inspire teams to achieve organizational goals.

- ***Proffesional ethics and values:***The competencies required to demonstrate the professional values, ethical behavior, and legal compliance essential to a sustainable business model.

As seen with the new competencies, management accounting will have a more strategic position in an organization. In this context, the relationship between the management accounting and risk management will be discussed in the following section.

4. MANAGEMENT ACCOUNTING AND RISK MANAGEMENT

Risk and risk management have been one of the issues studied in management accounting for years. According to management accounting;

- Risk is defined as the possibility of danger, loss, injury or other adverse consequences (Collier and Berry, 2002:274).

- Risk management was regarded as having cost control implications over 50 years ago (Gallagher, 1956).

International organizations such as IMA, were published reference guidelines about risk management and management accounting. As stated by Bento et al. (2018), with their specialized experience and training in how to measure, report and analyze the financial and nonfinancial impact of decisions management accountants are in a unique position to play a leadership role in establishing ERM systems. Risk management and related controls form natural parts of the management accountants' core competences, enabling management accountants to adequately fulfill their roles (McNally and Tophoff, 2015).Management accounting professional can be useful in ERM implementation includebelow items (IMA,2014):

- Serve as a champion for ERM, supporting the change from risk management in silos to ERM;

- Help to resolve the conflict between supporters of ERM and traditional risk management approaches;

- Educate others in the organization of the ERM process;

- Provide expertise to operational management on the organization's ERM framework and process;

- Assist executive and operational management in analyzing and quantifying the organization's risk appetite and risk tolerances for individual units;

- Assist in implementing ERM within the finance function;

- Provide information to operational management to assist in risk identification;

- Perform benchmarking studies for use in risk identification;

- Gather best practice information on ERM;

- Assist in quantifying impact and likelihood of individual risk on risk maps;

- Assist in identifying and estimating costs and benefits of various risk mitigation alternatives, and coach management in responding to risks;

- Design reports to monitor risks and develop financial and nonfinancial metrics to evaluate the effectiveness of risk mitigation actions;

- Advise management on integrating ERM with the balanced scorecard and budgeting process;

- Participate in the development of business continuity(crisis management) plans;

- Advise on risk disclosures in the annual report;

- Serve as a champion for strong corporate governance incorporating ERM.

A relationship between management accounting and risk management can be summarized as illustrated in Figure 6.

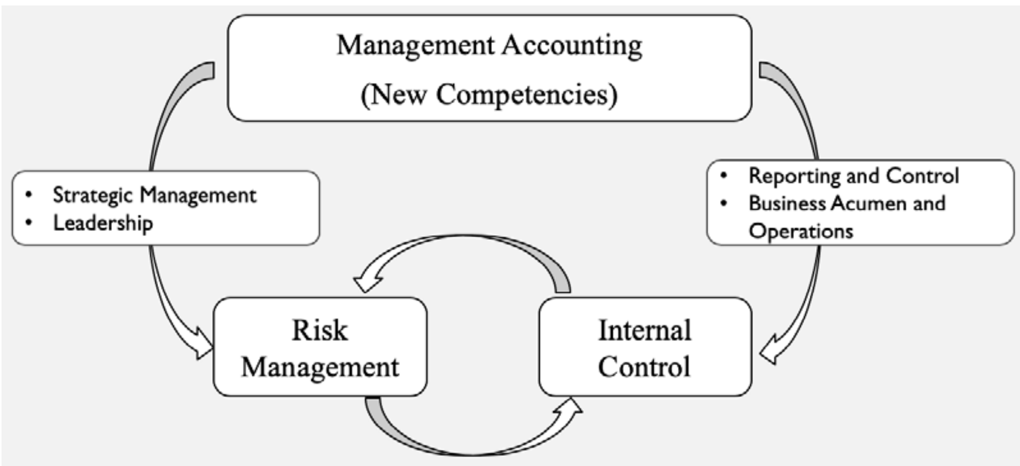


Figure 6. Management Accounting, Risk Management and Internal Control

Management accountant's new competencies closely supported enterprise risk management. ERM related management accountant competencies are given in Table 1.

Table 1. Management Accountant's Competencies Related to ERM

Management Accountant's Competencies	ERM Related Sub-competencies
Strategic Management	Enterprise risk management
Leadership	Communication skills
	Motivating and inspiring others
	Collaboration, teamwork and relationship management
	Change management
	Conflict management
	Negotiation
Reporting and Control	Internal Control
	Tax compliance and planning
Business Acumen and Operations	Industry-specific knowledge
	Quality management and continuous improvement

The relation between the management accountant's role and ISO 31000 Risk Management components are given in Table 2.

Table 2. Management Accountant's Roleand ISO 31000 Risk Management Component

Management Accountants Competencies	ISO 31000 ERM
Strategic Management	Risk management process
Reporting and Control	Risk management process
Business Acumen and Operations	Risk management process
	Risk management principles
Leadership	Risk management framework

Without the involvement of management accountants in risk management activities, risk management is often only a costly compliance exercise (Culasso, 2012:365). The relationship between management accounting ERM and ISO 31000 will be examined in the following sections.

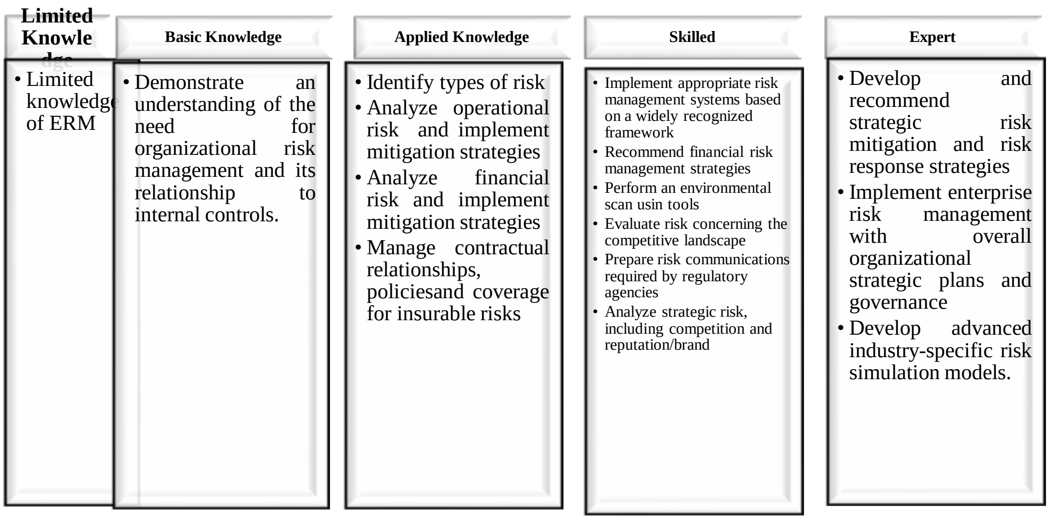
4.1. Strategic Management Competency and Risk Management

As a result of changing role management accounting role, management accounting has evolved into strategic management accounting. CIMA (2015) defined strategic management accounting as a form of management accounting in which emphasis is placed on information which relates to factors external to the entity, as well as non-financial information and internally generated information. Within this scope,strategic management sub-competencies of management accountants are listed in IMA's management accountant's role as follows:

- Strategic and tactical planning,
- Decision analysis,

- Strategic cost management,
- Capital investment decisions,
- Enterprise risk management,
- Budgeting and forecasting,
- Corporate finance,
- Performance management.

As seen above, enterprise risk management is one of the skills that management accountant meet the competency. According to this skill, management accountant should identify, asses and minimize risks. The ERM skill of the management accountants is illustrated in Figure 7.



Source: IMA, 2018:9

Figure 7. ERM and Management Accountant Skills

With this competency management,an accountant can take a role in the strategy and objective setting component of COSO and risk management process of IRM.Tools such as the theory of constraints and strategic management accounting can be used effectively.

4.2. Reporting and Control Competency and Risk Management

Management accounting can support the reporting system and internal control in an organization. Information provided by management accounting is necessary for financial reporting and tools such as budgeting, target costing, standard costing can be used in an internal control system. Reporting and control sub-competencies that are specified by IMA as follows:

- Internal control,
- Financial recordkeeping,
- Cost accounting,
- Financial statement preparation,
- Financial statement analysis,
- Tax compliance and planning,
- Integrated reporting.

Risk management and internal control are the two interrelated areas in an organization. It can be said that without internal control, risk management process will be unsuccessful. Internal control is defined by COSO as follows(2013):

“Internal control is a process, effected by an entity’s board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting, and compliance.”

Internal control has 5 interrelated components:

- Control environment,
- Risk assesment,
- Control activities,
- Information and communication,
- Monitoring.

Management accountant can implement procedures and processes that ensure data security, protect an organizations’s assets and meet legal and reporting requirements (IMA, 2018). The internal control skill of the management accountants is illustrated in Figure 8.

Limited Knowledge	Basic Knowledge	Applied Knowledge	Skilled	Expert
• Limited knowledge of internal control processes	• Demonstrate an understand- ing of the purpose of internal controls for use in financial reporting, compliance, and operations • Identify basic internal controls (e.g., segregation of duties, physical controls, audit trails, limits of authorization)	• Verify accuracy of general ledger and subledgers through various accounting procedures and controls • Implement and/or test system of internal controls under management direction • Ensure compliance with applicable policies and procedures, including those mandated by the Sarbanes-Oxley Act of 2002	• Perform internal control risk assessment using frameworks such as COSO (Committee of Sponsoring Organizations of the Treadway Commission) • Design an effective internal control system, including technology controls, that is responsive to the specific risks of the organization • Develop processes to monitor the effectiveness of risk management and internal controls processes, and remediate as necessary	• Design and implement internal controls in complex environments (e.g., public, global, multientities, complicated corporate structures) • Integrate internal controls with enterprise risk management system • Provide assurance to manage- ment and other stakeholders regarding internal controls (e.g., Sarbanes-Oxley Act compliance)

Source: IMA, 2018

Figure 8. Internal Control and Management Accountants Skills

Changes in tax laws are one of the risks for organizations. A management accountant should evaluate the risk of changes in this area and recommend strategies. So, tax compliance and planning is another competency that supported risk management.

4.3. Business Acumen&Operations and Risk Management

Management accountants have deep insight into the organizational process and industry. This competency is named by IMA as business acumen and operations. This competency has 4sub-competencies as follows:

- Industry-specific knowledge,
- Operational knowledge,
- Quality management and continuous improvement,
- Project management.

As having industry-specific knowledge, management accountant understands and master dynamics and drivers of business success in a specific industry (IMA, 2018). With the deep knowledge of the industry, management accountant can supply risk management in risk identification and evaluation.

Limited Knowledge	Basic Knowledge	Applied Knowledge	Skilled	Expert
• Limited knowledge of the industry in which the company operates.	• Demonstrate an understanding of the industry based on limited work experience or exposure to reports in the business media.	• Evaluate the value chain and identify risks related to specific vendors and customers.	• Prepare the discussion of risk for external reporting.	• Evalute an organizations's strategic risk.

Source: IMA, 2018

Figure 9. Industry Specific Knowledge and Risk Management

Continuous improvement and quality management are one of the core competencies of a management accountant. Total quality management, quality costs are as a quality management tools and six sigma, lean manufacturing, the theory of constraints are as a continuous improvement tool can be used in risk management and evaluating risk management process.

With the business acumen and operations competency, management accountant can assist in performance, review and revision and strategy and objective components of COSO ERM and ISO 31000.

4.4. Leadership Competency and Risk Management

Management accountants communication skills within the organization will be used in the risk management process effectively. Management accountant as a leadershipcompetency can serve below-stated skills:

- Communication skills,
- Motivating and inspiring other,
- Collaboration, teamwork and relationship management,
- Change management,
- Conflict management,
- Negotiation,
- Talent management,

To embrace the risk management by all organizations is the key function of a successful enterprise risk management. Management accountant's leadership competency can support the implementation of risk management and assist the governance and culture component of COSO and leadership and commitment component of ISO 31000.

5. CONCLUSION

Digital transformation has affected many areas. Risk management and management accounting are the two areas that affected from this disruptive transformation. To adapt the new business environment these areas were updated. A common characteristic of changes in these updates is holistic and integrated working. Within this scope the aim of this study to examine the management accounting role in enterprise risk management. The new updates by IMA, COSO and ISO 31000 were considered.

Management accounting provides information that reducesthe uncertainty of management with management accounting tools such as the theory of constraints, lean manufacturing, balanced scorecard etc. With the new competencies defined by IMA, management accounting role is strengthened in an organization. Especially in the risk management, process management accounting can serve several services. These competencies that willassist in enterprise risk management are as follows:

- Strategic management,
- Reporting and control,
- Business acumen and operations,
- Leadership.

Enterprise risk management is one of the competencies that counted under strategic management. Management accountant can identify and asses the risks within an organization. Risk assessment is one of the components of internal control. With reporting and control, competency management accountant can design and implement internal control and integrate them into ERP.Management accountant can analyze the industry deeply. With this knowledge management, an accountant can assist in the identification of risks that can be resulted from suppliers, customers etc. With leadership, competency management accountant can take an active role in risk management. The main difficulty in a successful risk management implementation is the resistance of workers. Management accountants can play a key role to solve these problems in risk management.

It is considered that this study has created awareness about the management accounting role in an organization. Management accountants have deep insight into the organization and industry. When this management function is used by management many processes such as risk management will be more effectively and efficiently.

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