Leveraging Management Systems for Sustainability integration: Enhancing Sustainability Reporting Practices in SMEs

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Jonas Brix

Supervisors:

Anja Marie Bundgaard
Alberto Morales

Fourth semester in Environmental Management and Sustainability Science
Rendsburdgade 14
9000 Aalborg
`http://www.tnb.aau.dk`

Abstract

The landscape of sustainability reporting is evolving, which has resulted in the implementation of the Corporate Sustainability Reporting Directive and the European Sustainability Reporting Standards. Even though small and medium-sized enterprises are not directly mandated to disclose on sustainability requirements, this has resulted in significant challenges and opportunities for small and medium-sized enterprises; they are facing an increasing pressure from stakeholder to disclose sustainability related information.

This master thesis investigated the potential for leveraging existing management system and the risk management within these system, as foundation for accommodating the ESRS and sustainability reporting in SMEs.

The findings from this study suggest the the principles from the ISO management system and the ISO Standard for Risk management, can support the operationalization of the ESRS and the DMA within mature management systems in organizations.

This thesis is contributing with a broader understanding, by exploring how SMEs can navigate the complexity of sustainability disclosure requirements, in how SME management system can support the ESRS.

Dansk resumé

Landskabet for bæredygtighedsrapportering er under forandring, hvilket har resulteret i implementeringen af Corporate Sustainability Reporting Directive (CSRD) og de Europæiske Bæredygtighedsrapporteringsstandarder (ESRS). Selvom små og mellemstore virksomheder (SMV'er) ikke er direkte forpligtet til at udarbejde bæredygtighedsrapporteringer, har dette skabt betydelige udfordringer og muligheder for SMV'er; de oplever et stigende pres fra interessenter om at offentliggøre bæredygtighedsrelateret informationer.

Dette speciale har undersøgt potentialet for at udnytte eksisterende ledelsessystemer og den risikostyring, der er indlejret i disse systemer, som fundament for at imødekomme kravene i ESRS og bæredygtighedsrapportering i SMV'er.

Undersøgelsens resultater indikerer, at principperne fra ISO's ledelsessystemer og ISO-standarden for risikostyring kan understøtte operationaliseringen af ESRS og dobbelt væsentlighedsvurdering (DMA) i modne ledelsessystemer i organisationer.

Dette speciale bidrager med en bredere forståelse ved at undersøge, hvordan SMV'er kan navigere i kompleksiteten af krav til bæredygtighedsrapportering, og hvordan SMV'ers ledelsessystemer kan understøtte implementeringen af ESRS.

Preface

This master thesis is the final written project for the Master of Science in Environmental Management and Sustainability Science at Aalborg University.

The motivation behind this project is from my experiences in the increasing demand and importance of sustainability reporting, with the implementation of the Corporate Sustainability Reporting Directive and the European Sustainability Reporting Standards. These frameworks are reshaping the requirement from regulation and the organizations stakeholder; establishing a new market for sustainability reporting in organizations. This are including small and medium-sized enterprises, to consider publishing their sustainability disclosure information on environmental, social and governance issues.

In this project I have explored how existing ISO-certified management system, especially quality management systems, can be leverage to support or integrate the ESRS framework. This study is conducted on both the theoretical perspectives and empirical data collected from the selected case organization.

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Abbreviations

Abbreviation	*Name*
AI	Artificial Intelligence
CSRD	Corporate Sustainability Reporting Directive
DMA	Double Materiality Assessment
EFRAG	European Financial Reporting Advisory Group
ESG	Environmental, Social and Governance
ESRS	European Sustainability Reporting Standard
EU	European Union
IMS	Integrated Management System
GRI	Global Reporting Initiative
HLS	High-level Structure
HS	Harmonized Structure
ISO	International Organization for Standardization
NFRD	Non-Financial Reporting Directive
PDCA	Plan-Do-Check-Act
QHSE	Quality, Health, Safety and Environment
SDG	Small and Medium-sized Enterprise

Contents

Evolution of Sustainability and Reporting Frameworks 1

1.1 The Development of Sustainability in the Industry

The population growth and technical development has resulted in increased environmental stress. Living standards have changed by both economic expansion and technical development, which have lead to an increased demand of e.g. raw materials and energy. This growing demand, while experiencing an increase in the global population, has altogether contributed to more pollution and depletion of global resources. (Environment and Development, 1987).

Industry have reflected this demand in greater consumption and use of natural resources, without any responsibility for their production or fully accountability for the environmental costs of these expenses (Environment and Development, 1987).

> "[...] raw materials, energy, chemicals, and synthetics and on the creation of pollution that is not adequately accounted for in figuring the costs of production processes." (Environment and Development, 1987)[p. 29]

Recognizing these challenges and that they are connected have increasingly been addressed from national governments and multilateral institutions, that the economic development and environmental protection are fundamentally linked and should not be separated (Environment and Development, 1987).

The development and establishment of the understanding of sustainability

In Elkington (1997) they address that the early development of corporate environmental reports and environmental annual reports, were inconsistent in delivering indicators and performance data, why as a result a complicating the comparison of organizations' environmental performance.

This trend of creation of value, which offers transparency and comparability is one of the main drivers for any issued governmental bodies and/or institutions that focus on environmental performance: e.g. Global Reporting Initiative, European Green Deal, ISO 14001 Certifications, UN Sustainable Development Goals, Corporate Sustainability Reporting Directive among others Johnson and Schaltegger, 2016; EFRAG, 2023; ISO, 2015a.

1.2 The Development of Sustainability Reporting Frameworks

The regulatory framework for organizations reporting on sustainability issues has seen a significant development over the past decade.

Country or region	2016	2022	Absolute Change	Relative Change
World	2,276	5,203	+2,927	+129%
Northern America (UN)	447	1,321	+874	+196%
Europe (UN)	727	1,427	+700	+96%
Asia (UN)	784	2,098	+1,314	+168%

Table 1.1. Overview of number of organizations publishing sustainability reporting that meet the minimum reporting requirements (United Nations Environment Programme and United Nations Conference on Trade and Development – processed by Our World in Data, 2025).

From Table 1.1 it can be deducted that there has been an increase in published sustainability reporting that meets the minimum reporting requirements. This indicates a transition from voluntary sustainability reporting practices to a more formal standardization of expectations to organizations worldwide.

The latest introduction to this landscape is the implementation of the Corporate Sustainability Reporting Directive (CSRD), which has shifted reporting on sustainability disclosure from a voluntary activity, to require organizations' in the European Union (EU) to report and comply with a set of standards.

Corporate Sustainability Reporting Directive

The Corporate Sustainability Reporting Directive (CSRD) was introduced as a supportive directive to enhance information disclosed by organizations related to their sustainability performance and accommodate comparability, reliability and transparency (European Parliament and Council, 2024).

Its efforts rely on transitioning into are more inclusive (and sustainable) economy that addresses the three stone pillars of sustainability: *Environmental*, *Social* and *Governance*, hence ESG-reporting.

The CSRD applies to organizations who meet either one of two requirements:

(a) Exceed at least two of the following criteria:

- more than 250 employees;
- net turnover of more than EUR 40 million; or
- total assets exceeding EUR 20 million (Parliament and European Union, 2022).

(b) Public listing (Micro-enterprises are exempt)

- Less than 10 employees;
- Annual turnover of EUR 2 million or less; or
- Balance sheet total of EUR 2 million or less (Union, 2003).

While the CSRD applies to organizations who meets either on of the two above mentioned requirements, the implementation of the CSRD, and when organization is required to

disclose on its sustainability issues, is distinguished between the size of the organization. The first organizations is expected to start reporting from 2025, with the last reporting in 2027 for the financial year 2026, the phases following the implementation of the CSRD is elaborated in Table 1.2.

Reporting Year	Required undertaking
2024	Large publicly listed organizations and state-owned stock organizations with more than 500 employees
2025	Other large organizations
2026	Publicly listed SME (Micro-enterprises are exempt)

Table 1.2. Overview of the implementation phases for organization to publish sustainability reporting (European Parliament and Council, 2024)

Following the implementation of the CSRD across the EU, they mandated to ensure the consistency and comparability of the the sustainability reporting, published by organisations, there had to be developed a standardized sustainability reporting framework.

The European Financial Reporting Advisory Group (EFRAG) hereby developed a comprehensive set of disclosure standards, following the requirements from the CSRD, the European Sustainability Reporting Standards (ESRS).

The ESRS was developed to serve as supportive guidance, for organizations to navigate what and how sustainability information from the CSRD should be measured and structured to ensure comparability across sectors.

1.3 The European Sustainability Reporting Standards

The ESRS are developed to support organizations in complying with the CSRD. The ESRS are a set of comprehensive disclosure requirements, which relies on delivering material data concerning organizations ESG data and guide organizations in identifying material impacts, risks and opportunities for their sustainability reporting.

The ESRS consists of ESRS 1 and ESRS 2, as the general disclosure requirements that is applicable to all sectors. Furthermore the ESRS are consisting of 12 topical standards across *Environmental*, *Social* and *Governance* issues, that all are contributing to understanding an organization's sustainability performance, as elaborated in Figure 1.1.

Figure 1.1. Overview of structure from the European Sustainability Reporting Standards (Envoria, 2024).

Cross-Cutting Standards

All organizations that are required to comply with the ESRS two cross-cutting standards; ESRS 1 and ESRS 2, regardless of their sector, size and activities. This is to create a standardized framework and reporting structure to accommodate comparability between organizations and sectors (European Parliament and Council, 2024).

ESRS 1: General Requirements, are scoping the principles for organizations overall reporting structure, covering; Double materiality, Value chain and reporting boundaries (European Parliament and Council, 2024)

ESRS 2: General Disclosures, are specifying the necessary information the organization must disclose information about, covering; governance, strategy, impacts, risk and opportunities (European Parliament and Council, 2024)

The implementation of these two cross-cutting standards establish the structure that accommodates standardization of the ESRS.

Double Materiality Assessment

The Double Materiality Assessment (DMA) is one of the foundational concepts introduced as a part of the CSRD. The purpose of the DMA is identify and assess the organization's impact, risks and opportunities related to *Environmental*, *Social* and *Governance* factors. The concept of the DMA is to operate with the two perspectives of materiality, contributing to a comprehensive analysis of an organization's sustainability contribution and challenges (European Commission, 2023);

> **Impact Materiality:** is the actual or potential impact an organization have on its environment and society.
>
> **Financial Materiality:** is the risk and opportunities related to the sustainability related issues influence on organizations financial performance.

By assessing both the *Impact Materiality* and *Financial Materiality* of an organization, ensures that the sustainability reporting is having a dual lens on outward impact and inward financial dependencies. This contributes to a more comprehensive and proactive disclosure framework which drives long-term value creation.

Impact Materiality

The perspective of impact materiality in an organization is focusing on addressing the effects, as an outcome from an organization's operations, on ESG factors (European Commission, 2023).

This is reflected in an organization by evaluating its activities, strategies and decision-making, related to topics such as *Climate Change*, *Human Rights* etc. (European Commission, 2023).

In the process of understanding the direct and indirect impact from the organizations operations, it is essential to involve relevant stakeholder to identify and assess actual and potential negative impacts; which is a part of the organization's sustainability reporting (European Commission, 2023). An impact is assessed by determining the following:

- The **severity** of the impact (scale, scope and irremediability)
- The **likelihood** of the impact occurring.

This approach ensures that all variables for a potential impact is taken, and evaluated to determine the potential impact on the organisation's environment and stakeholders (European Commission, 2023).

Financial Materiality

Where *Impact Materiality* focuses on how sustainability issues' impacts the organization's ESG factors, *Financial Materiality* focuses on if any sustainability issues is expected, or possible could have material financial effect on the organization. Financial Materiality emphasizes assessing an organizations dependency on resources; obtainability, pricing and quality, while also assess its ability to rely on business relationships that are needed for its operational processes (European Commission, 2023).

While the implementation of the CSRD and the development of the ESRS has resulted in a regulatory change, in how organizations are reporting on their sustainability performance, the establishment of a standardized framework is redefining the core concept of corporate accountability.

As mentioned earlier the CSRD is only mandatory for a specific target of organizations, yet its implications extend further these organizations. As a part of the CSRD, organizations are obligated to map their value chain and to some extend gather information concerning their sustainability performance; as a part of responsible production and accountability that covers upstream and downstream activities.

This implications may indirectly involve small and medium sized enterprises (SME) in the scope of the ESRS, increasing the demand for available sustainability information in SMEs. As it is described in Appendix A, organizations are already experiencing these requirements to the sustainability information; demanding the delivery of information on Environmental and Social issues.

This phenomenon can be defined as the trickle-down effect, which explain how requirements are trickling down the value chain. In this scenario, it indicates the creation of a new market for the expectations on SME to delivery transparency and implementing awareness of sustainability issues following the emerging development of sustainability norms; the change in norm can be explained by Table 1.1, identified an increase in amount of sustainability reporting published since 2016.

Trickle Down effect

For many SMEs, this could potentially lead to significant internal changes, why challenges, to some extent implement the disclosure requirements from the ESRS. This is because they are increasingly affected and experiencing pressure from the value chain and stakeholder, potentially resulting in a increase in available sustainability information (European Policy Studies (CEPS) and Ltd., 2022).

These expectations may be difficult to manage with less or limited resources and the complexity of the ESRS structure, creating barriers for its implementation into SMEs organizational structure (European Policy Studies (CEPS) and Ltd., 2022).

With the ESRS still being under development, the practical implementation of the ESRS framework can be considered a challenge for scoped organizations, as well as the SMEs. The development of the ESRS are resulting in a lack of standardization in best practice for data collection, stakeholder engagement, performance evaluation etc., whereas a there is a need to develop a more reliable process, for implementing these methods for implementation (European Policy Studies (CEPS) and Ltd., 2022).

While there a challenges connected with the implementation of sustainability practices and reporting in SME, there is a potential opportunity for SMEs to utilize their existing practices for this (European Policy Studies (CEPS) and Ltd., 2022).

There are several framework that already accommodates a partial alignment with the ESRS; the Global Reporting Initiative, the Eco-management and Audit Scheme, the Sustainability Accounting Standards Board and the International Organization for Standardization. These frameworks are, as well as the ESRS, contributing to enhance the efficiency of organizations and its processes by implementing principles as transparency, stakeholder engagement and responsibility, and performance evaluation (IFC, 2024).

As it is identified in (European Policy Studies (CEPS) and Ltd., 2022), there is a significant cost of complying with the ESRS disclosure requirements, while the maturity and preparedness of the individual SME can vary the cost; depending on their size, position and complexity of it operations. To limit the burden at can potentially have significant value to SMEs, to navigate and streamline the framework of the ESRS and the already existing framework identified above, to leverage the information as a result of the implementation of said frameworks.

The Internation Organization for Standardization (ISO) is one of the oldest voluntary framework, providing standard in various fields to enhance operational efficiency. With over one million distributed certifications since 2018, it can have significant value to explore how the existing ISO-standard management system, can be leveraged to accommodate the ESRS framework (International Organization for Standardization, 2025a).

Furthermore it can from Table 1.3 be deducted, that there has been a significant decrease in amount of certifications distributed from ISO since 2022. Together with the information from Table 1.1, that these has been an increase in published sustainability reporting, again, states that there has been a change in the professional sustainability related norms and values.

ISO Standard	2018	2019	2020	2021	2022	2023
9001:2015	878.664	880.007	916.842	1.077.884	1.265.216	837.978
14001:2015	307.059	312.111	348.473	420.433	528.903	300.410
45001:2018	11.952	38.518	190.481	294.420	397.339	185.166
27001:2013	31.910	36.337	44.499	58.687	71.549	47.291
Total	**1.229.585**	**1.266.973**	**1.500.295**	**1.851.424**	**2.263.007**	**1.370.845**
Absolute change	-	*37.388*	*233.322*	*351.129*	*411.583*	*-892.162*
Relative change	-	*3,04%*	*18,42%*	*23,40%*	*22,23%*	*-39,42%*

Table 1.3. Overview of selected ISO standards and the amount of each certifications in organizations from 2018 to 2023. Including the absolute and relative change year to year (International Organization for Standardization, 2025b).

To mitigate the complexity of gathering and delivering information related to the ESRS, it is relevant to investigate how a framework like the ISO Standards, can be leveraged to effectively implement and enhance sustainability reporting practices.

1.4 The International Organization for Standardization

There are many different non-governmental organizations that develops e.g. frameworks to ensure quality, safety, and efficiency while focusing on the sustainable development of organizations. The International Organization for Standardization (ISO), is one of these, as an independent non-governmental organization, it has since 1947 developed and published standards that helps the interoperability of products, services and systems (International Organization for Standardization, 2025a).

The purpose of ISO is to create a standardized framework from their standards that contribute to ensures that organizational products and services can be used and accepted globally (International Organization for Standardization, 2025a).

ISO currently covers a wide range of industries and sector, while also contributing with general frameworks for e.g. quality management and environmental management. Some of the most representative certifications published from ISO are the *ISO 9001 - Quality Management*, *ISO 14001 - Environmental Management*, *ISO/IEC 27001 - Information Security* and *ISO 45001 - Occupational Health and Safety* (International Organization for Standardization, 2025a).

In 2012, ISO introduced the High-level structure (HLS), to guide the development and update of their standards, accommodating a uniform structure with the purpose of making it easier and more efficient for organizations to work with and implement multiple standards at once, contributing to the development of Integrated Management Systems (IMS). The HLS was in 2021 revised and updated into the Harmonized Structure (HS) (ISO, 2021).

The ISO HS is a standardized, uniform framework, which is developed to be consistent between the ISO standards and applicable to all. The foundation from the HS is contributing with uniform structure, term and definitions used in the ISO standards are uniform across all of their management system (ISO, 2021), and includes the following ten key clauses:

The Harmonized Structure:

1. *Scope:*
2. *Normative References:*
3. *Terms and Definitions:*
4. *Context of the Organization:*
5. *Leadership:*
6. *Planning:*
7. *Support:*
8. *Operation:*
9. *Performance Evaluation:*
10. *Improvement:*

(International Organization for Standardization and International Electrotechnical Commission, 2024)

The development of HS approach support development, alignment and streamline of existing practices to new practices; supporting efficiency, scaleability and integration (ISO, 2021).

This helps organization in limiting the complexity of developing into an IMS, while accommodating resource efficiency in the transition (ISO, 2021).

The ISO Standards are furthermore supported by various concepts, that contributes to the understanding and implementation of a management system and its requirements (ISO, 2015b).

Development of ISO-certified organizations

The ISO Standards has from 2018 to 2022 had a significant increase, in the amount of certifications assigned to organisations which chose to be certified in the different certifications distributed by the International Organization for Standardization as elaborated from Table 1.3.

In 2023, which is the most recent year with data available, the four ISO Standards, which are elaborated in Table 1.3, experienced a significant decrease in the amount certifications distributed to organisations. The amount of certifications distributed by ISO was around approximately 900.000 (39 pct.) from 2022 to 2023.

This decline in amount of certifications in 2023 may indicate that the market for ISO certifications have changed. It could be a result of external factors such as the implementation of the CSRD, which have changed the focus from organizations being certified, to publishing sustainability reporting. An increased focus and/or demand for sustainability reporting may make it less attractive for organizations to achieve certifications, while instead use resources on implementation and development of sustainability reporting.

As elaborated in the above mentioned chapter, there is an increase in awareness of sustainability challenges, and with the implementation of the CSRD, organization are set the experience a catalytical shift in how organization are and shall approach sustainability reporting.

Despite the implementation of the CSRD, the framework is still facing significant challenges in ensuring that the practices for reporting on sustainability is standardized and consistent across industries and organizations. From European Policy Studies (CEPS) and Ltd. (2022) and the knowledge gained in Appendix A, SMEs are already experiencing trickle down disclosure requirements from the ESRS, while not fully being able to meet and deliver this elaborate sustainability information.

While frameworks like ISO provides a foundation for improving organizational performance, the complexity of sustainability reporting is yet to become a challenge for SMEs. Furthermore the amount of distributed ISO certifications decreased by approximately 39 pct. indicating that there has been a change in institutional norms concerning certifications; this change might be caused by the implementation of the CSRD.

Without any conclusive evidence, that identifies the factors resulting in a shift towards more sustainability reporting and if it is affecting the market for ISO certifications, it can still be identified as a trend. This trend may cause a problem, in organizations neglecting or inefficiently utilizing their existing practices from their management system, that may be beneficial and potentially support (if aligned) with sustainability reporting practices.

Organization's, who has a management system to support their business, has the opportunity to leverage its structured approach and its processes to streamline and develop sustainability reporting, while limit / reduce the burden it may elsewhere be for the organization.

Therefore it will have significant value, for organizations who are directly or indirectly affected by the CSRD, to investigate the possibilities to integrate sustainability reporting within their existing management systems.

State-of-the-art: Integrating Sustainability Reporting into ISO Management Systems

2

As it is expected, with the implementation of the new regulatory requirements from the CSRD, the expectations from stakeholders towards sustainability is changing towards demanding an increase for SMEs to disclose on *environmental*, *social* and *governance* (ESG) information.

Given that a lot of SMEs already have ISO-certified management system such as Quality or Environmental Management System, it can be beneficial to investigate the existing state of knowlegde in leveraging these systems, to support ESRS sustainability reporting. Therefore, the objective of this state-of-the-art investigate the existing knowledge in integrating the framework from ESRS with sustainability reporting in compliance with the ISO Standards and ISO Management System. It will examine the challenges and opportunities related to the integration that may occur in organization as a result of implementation.

Opportunities of aligning management systems with sustainability reporting practices

The literature identifies several opportunities for integrating sustainability reporting with organization's management systems. One of these is improving the strategic alignment of the organization. While this is already existing in the ISO Standards and EMAS, it will enhance the performance of the organization by adapting it to the ESRS. In Gond et al. (2012), it is elaborated how the alignment of standards such as the ESRS, through management systems offers control and ensures coherences with the set goals and objectives. This is supported by Hristov and Searcy (2025) and Farkas and Matolay (2024), who has identified efficiency in operationalize the strategic alignment with the use of supportive-tools.

Furthermore by improving strategic alignment, it can also benefit regulatory compliance of e.g. CSRD, which can be complied through documentation, control, and performance evaluation processes. This is supported in Farkas and Matolay (2024) and Hristov and Searcy (2025), who argues that the organizational structure of ISO management systems, provides a foundation for the development of governance and disclosure requirements.

By harmonizing the processes and output (in metrics or indicators) across different topics e.g. quality, environmental or social, can improve the efficiency of the management system and support future decision-making processes. Integration enhances greater knowledge of the organization; enhancing greater decision-making and management of resources, why it can improve the performance of an organization (Masuin, Latief, and Yuri Zagloel, 2019; Nigri and Baldo, 2018).

With the incorporation of sustainability reporting practices into the value of the organization and its management system, it is possible to enhance accountability and stakeholder trust. Nigri and Baldo (2018) and Gond et al. (2012) emphasizes the potential of creating value in internal culture, by translating the results of practices and day-to-day operations into external reporting. It can both motivate the employees, through visible result and accountability for positive results.

This can be supported by the implementation of tools e.g. digital-solutions, key performance indicators to enhance the visibility of the organizational performance. While Witjes, Cramer, and Vermeulen (2018) and Zharfpeykan and Akroyd (2022) are supporting this, with research in how evidence-based tools can improve organizational decision-making, they are also emphasized the importance of commitment from top management and the quality of the available data in the management system.

Summary over opportunities identified through literature review

Opportunity	**Source(s)**
Improved strategic alignment	(Gond et al., 2012) (Hristov and Searcy, 2025) (Farkas and Matolay, 2024)
Enhanced organizational performance	(Masuin, Latief, and Yuri Zagloel, 2019) (Nigri and Baldo, 2018)
CSRD and regulatory compliance	(Farkas and Matolay, 2024) (Hristov and Searcy, 2025)
Integration of values into measurement systems	(Nigri and Baldo, 2018) (Gond et al., 2012)
Decision-making support through tools	(Witjes, Cramer, and Vermeulen, 2018) (Zharfpeykan and Akroyd, 2022)
Management system synergies (e.g., ISO)	(Masuin, Latief, and Yuri Zagloel, 2019) (Farkas and Matolay, 2024)

Table 2.1. Overview of identified opportunities extracted from sources in the systematic literature review. Own illustration.

Overall the framework related to ISO management systems (e.g. HS and PDCA-cycle), has the fundamental structure for implementation of sustainability reporting. The structure is consistent with aspect of planning, implementation, monitoring, performance evaluation and continuous improvement, accommodating the implementation of the disclosure requirements of sustainability frameworks such as the ESRS. It is elaborated

in Masuin, Latief, and Yuri Zagloel (2019) and Farkas and Matolay (2024), how leveraging the existing structure of management system can lower the cost and complexity of implementing sustainability reporting. This is due to the fact that organization with an existing management system already has invested in standardized processes for enhancing operational efficiency and its documentation.

Risks of aligning management systems with sustainability reporting practices

While the literature has identified opportunities for integrating sustainability reporting with organization's management systems, potential risks are also connected with this integration.

A significant factor, that may hinder the integration, is if the internal processes that are related to the performance of the management system, are not mature enough to meet the requirements of sustainability reporting. Furthermore this can also include lack in knowledge an/or internal expertize that are responsible for the integration. Without the adequate training, understanding and planning of changes or lack in experiences is identified in Masuin, Latief, and Yuri Zagloel (2019) and Zharfpeykan and Akroyd (2022) as potential risks that may have high impact on the efficiency on the implementation.

This can also be related to a general issue in SMEs, with limited resources. Organization who are not providing sufficient resources to integrate sustainability reporting in their management systems, may hinder the outcome of the integration; whether if it is because of limited or the availability of resources provided. This is supported by Nigri and Baldo (2018) and Zharfpeykan and Akroyd (2022), who argues that whether organization are motivated to pursue and implement initiatives e.g. integrate sustainability reporting with their management system, they can potentially be restricted or limited by prioritizing or pressure from the operations and its development. As a result implementation of new initiatives may be stalled or postponed.

Because of this, it may become a risk for companies to meet the minimum requirements e.g. becoming certified and its compliance, instead of implementing and fostering innovation and long-term value, which is one of the main drivers for the implementation of sustainability initiatives. This is also supported by Farkas and Matolay (2024) and Hristov and Searcy (2025), who elaborates on this issue. Instead of prioritizing the focus and purpose of a proactive culture, adaptability and organizational learning, organization's who focus primarily on compliance over value, risks it becoming a resource-burden for compliance without significant value-creation.

In Witjes, Cramer, and Vermeulen (2018) and Zharfpeykan and Akroyd (2022) it is identified that the use of multiple reporting tools, overlapping requirements and complex data systems may be a risk for organization, especially SMEs. This can result in double or parallel management effort, that reduces the efficiency of implementation of system to support reporting.

If sustainability requirements and/or metrics are not integrated into the strategic decision making of an organization, it can occur as being siloed within the organization, focus on compliance rather than function and continuous improvement. The results from Gond et

al. (2012) and Nigri and Baldo (2018), elaborates on the issues with lack of integration of sustainability into the organization strategy, can lead to it becoming a symbolic initiative or tokenism, rather than achieving the value that is associated with the supporting structure of sustainability reporting. To prevent this, it is important to link sustainability initiatives to the organizations performance and align it with internal systems.

Risks	**Source(s)**
System complexity	(Witjes, Cramer, and Vermeulen, 2018) (Zharfpeykan and Akroyd, 2022)
Strategic misalignment	(Gond et al., 2012) (Nigri and Baldo, 2018)
Resource constraints	(Nigri and Baldo, 2018) (Zharfpeykan and Akroyd, 2022)
Compliance over innovation	(Farkas and Matolay, 2024) (Hristov and Searcy, 2025)
Lack of knowledge or system maturity	(Masuin, Latief, and Yuri Zagloel, 2019) (Zharfpeykan and Akroyd, 2022)

Table 2.2. Overview of identified risks extracted from sources in the systematic literature review. Own illustration.

While there are various opportunities related to integrating sustainability reporting in management system, it would be beneficial in planning for reducing the identified risk in 2.2.

Overall the framework from the ISO management systems; HS and PDCA cycle has the structure to accommodate and implement sustainability reporting practices. The structure of ISO management system and HS are consistent with the aspect of sustainability reporting such as the ESRS. It is also elaborated in Masuin, Latief, and Yuri Zagloel (2019) and Farkas and Matolay (2024), that by leveraging the existing structure of ISO management system and its processes can lower both the cost and the complexity of implementing sustainability reporting. This is because of the already existing standardized processes within the organization and its documentation structure.

Gaps in the Literature and context of small and medium sized enterprises

Overall the conducted literature review has identified the ISO Management Systems as a solid foundation providing the necessary structure for accommodating and implementing sustainability reporting practices. Yet the integration of such practices, requires careful planning and attention to the individual organization's adaptability, current strategies and available resources to ensure a successful implementation

This chapter has highlighted both the potential risks and opportunities that can occur when integrating sustainability reporting into existing ISO management systems. Furthermore, it has also identified gaps in lack of available tools and methods, and guidance for usage,

there shall support said integration. Therefore, is is deemed necessary to investigate how the principles and structures of the ISO framework and ESRS framework can support, and potentially facilitate the integration of sustainability reporting in small and medium sized enterprises management systems to meet the increase of stakeholder requirements to sustainability disclosure.

Investigating the Role of ISO Management Systems in supporting ESRS

3

The state of sustainability regulations are evolving and the demand to organization in reporting on environmental, social and governance issues are increasing. With the development of the European Sustainability Reporting Standards (ESRS), introduced by EFRAG under the Corporate Sustainability Reporting Directive (CSRD), there has been established a standardized framework for organizations reporting on sustainability issues within the EU.

While it is not a requirement for SME to comply with the CSRD, it presents the challenge of changing dynamics in the market of sustainability reporting and available sustainability information. Furthermore, the implementation of such requirements can enhance the strategic decision-making in the SME, though subject to limitations such as resource constraints and lack of internal expertise and maturity.

As many SMEs already have existing ISO management systems to enhance their operational efficiency that share a systematic and Harmonized Structure, which emphasizes risk-based thinking and plan, do, check, act cycle, it is relevant to investigate if SMEs existing management system can be leveraged to support the integration of the ESRS and sustainability reporting in SMEs.

As a result of the above-mentioned challenges, this research will explore the possibilities, and to which degree ISO management systems can be adapted or extended to meet the sustainability disclosure requirements and expectations from the ESRS framework, the research question of this project is formulated as follows:

How can existing ISO management systems support the implementation of the framework of the European Sustainability Reporting Standards in small and medium-sized enterprises?

To investigate the research question, the following sub-questions have been formulated.

1. *How are the structural and conceptual framework of the ISO Standards overlapping with the European Sustainability Reporting Standards?*

2. *How do small and medium-sized enterprises implement risk management and materiality assessment in their quality management system, and to what extent are these practices compatible with the ESRS requirements?*

3. *What factors affect small and medium-sized enterprises ability to integrate the Double Materiality Assessment into their existing Quality Management System?*

Research Design and Methodological Framework to a Single Case

4

This chapter outlines the methodological approach used in this thesis. It describes th research strategies and philosophy, while reasoning and rationalize the literature review, document analysis and interviews, to ensure transparency and reliability.

4.1 Social Constructivism as the Epistemological Foundation of the Study

Social constructivism is the theoretical perspective in which this master thesis is grounded and takes belief that the construction of reality and knowledge is not inherent nor objectives, but is instead developed through the social processes and interactions which are within and evolving organizations (Berger and Luckmann, 1966).

As an epistemological theory, it defines that meanings, interpretations and understandings, which are developed in and of the world, are a continuously processes, which lies (and are negotiated) deeply embedded with social structures. This emphasizes the importance of how language, culture, norms etc. are shaping perception and knowledge (Berger and Luckmann, 1966).

Furthermore it is elaborated by Berger and Luckmann (1966), that reality is a social construction, which is developed through interactions and experiences. This implies that the societal norms, and what is considered "real" or "true", is decided within society, through collective development of norms and values.

In the development of this master thesis, there has been the perspective of social constructivism as the lens, explaining that phenomenon in the world is socially constructed through experiences and interactions. This theory focus on the synergy between actors, social constructions and processes, whereas it in this thesis, is acknowledging the integration of sustainability reporting practices in management systems as not only technical matters. It is furthermore elaborated as processes which are created from organizational discourse, interactions with stakeholders and institutional pressure.

By adopting this perspective, it includes and enhances the understanding of sustainability initiatives such as ESG frameworks to a more nuanced level. By incorporating such sustainability initiatives, it is not only a tools for reporting, but also to embed its values and stakeholder expectations within the organization.

Furthermore, social constructivism are also contributing with a critical examination and perspective in how concepts such as sustainability reporting are operationalized in the organizations and its existing structure and culture.

This has resulted in the use of qualitative methods, to investigate how SMEs are interpreting and adapting to sustainability reporting standards.

Social constructivism is contributing with a valuable theoretical framework for the development and understanding of this master thesis. It enables a reflective and critical perspective in how interactions shape organizational structure and essentially integrating sustainability reporting with management systems.

4.2 Research Design

The research design which was applied for the development of this master thesis, is illustrated in Figure 4.1 and outlines the strategies and different analytical dynamics that is used to ensure the validity and reliability on answering the research question (Yin, 2014).

The research question has been utilized to form the research design, and development of the sub-questions which contributes to further elaborate on the investigation and frame the focus of the analysis.

The developed sub-questions are not answered separately; the outcome of the initial sub-questions has been used to answer the second and third sub-questions, showing dependencies towards each other.

The development of this master thesis is following an abductive research approach. This is to offer a flexible and iterative investigation of the research in how ISO management systems in SME can accommodate and adapt to sustainability reporting requirements in compliance with the CSRD (Stewart, 2025).

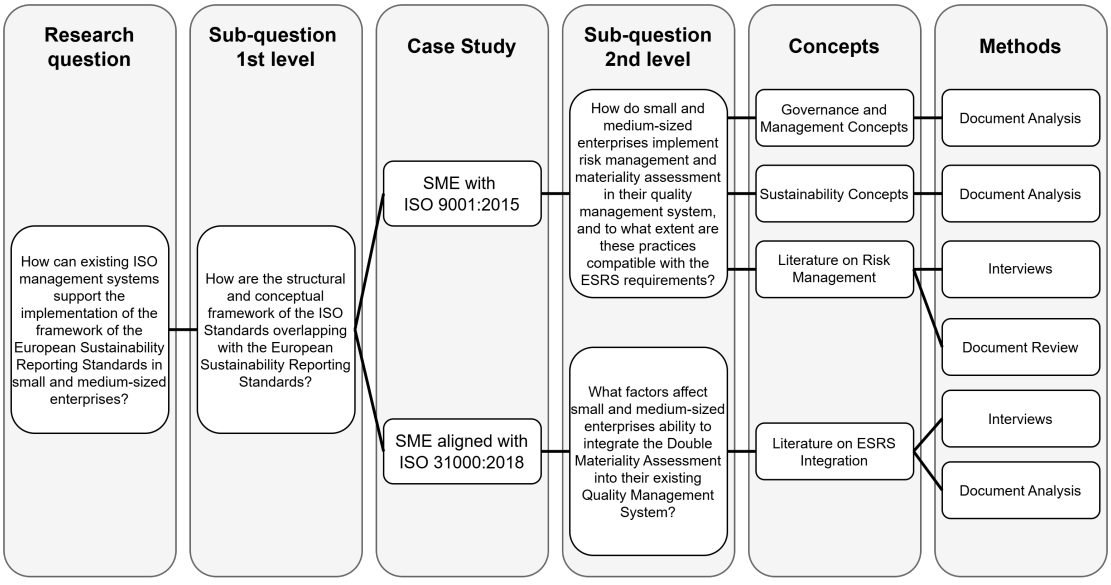

Figure 4.1. Overview of Research Design illustrating the analytical framework. Own illustration.

Related to the abductive research approach, there was conducted a systematic literature review to the research question to identify the problem, as illustrated in the Research Design, Figure 4.1, and to fully uncover the current state of the research and gaps in the existing literature (Stewart, 2025)

This was followed by the development of the conceptual framework for this master thesis, which integrated the principles and frameworks from the ISO standards, and the framework from ESRS for sustainability reporting; answering the second sub-question.

To investigate the potential for SMEs to utilize their ISO management system and adapt it to the ESRS framework, the empirical investigation included a singular case study of an SME. The existing practices in the SME was investigated, and then it was determined what the potential for implementing and/or adapting their practice to reflect the change in stakeholder requirements complying with the ESRS. This qualitative approach accommodated the exploratory nature of the investigation, examining how the conceptual framework and practical knowledge are developing (Jupp, 2006) and can contribute the implementation of SME to accommodate sustainability reporting; answering the third sub-question.

Systematic Literature Review

The ESRS are as elaborated in Chapter 1, covering the three aspect of sustainability E - *Environmental*, S -*Social* and G - *Governance*, which can contribute to the development of an ESG Reporting or Sustainability Reporting.

Integrated management systems and ISO frameworks are focusing on the different aspect of e.g. requirements and impacts in an organization, which are unifying the organizational work, streamlining their processes to enhance efficiency.

Therefore it is relevant to investigate the state of knowledge in how the these two bodies' frameworks intertwine and collaborate towards further enhancing an organization's understanding of sustainability reporting and its processes.

To investigate and evaluate the current state of knowledge on the integration of the ISO frameworks with sustainability reporting compliance with the ESRS, there has been conducted a *Systematic Literature Review*.

The systematic literature review was conducted to identify and review literature from different field simultaneously: ISO framework, Sustainability reporting and their integration. This is beneficial in mitigating the risk of overlooking literature that can be critical for the research, and reduce the amount of input from fragmented sources that can affect the results of the review and/or the result of this master thesis (Snyder, 2019).

The initial step of the literature review was selecting the relevant databases, being *Scopus* and *AUB Primo*. There has been selected two databases to accommodate a more comprehensive and broad search scope. Furthermore, since the ESRS was first published in 2023, the field of research may also be limited, so using two databases will also ensure a more comprehensive collection of literature, while maintaining the integrity of the literature (Snyder, 2019).

Search String

The second step of the literature review was the development of the search string. The search string is created by the use of keywords and/or phrases that are relevant for the research, and the use of boolean operators such as *AND* or *OR* (Snyder, 2019).

The search string for the specific investigation of the chosen field of research was focused on identifying literature that was 1) concerning *sustainability reporting* in organizations or other relevant themes that may guide the search into the field of the topic, 2) involving the understanding of management systems and the processes from these systems to enhance sustainability reporting and practices.

This resulted in the development of the following search string elaborated in Table 4.1, the flow and output of the applied Search String is elaborated in Figure 4.2.

Phase	**Search Term**	**Explanation for Keywords, Phrases**
Phase 1:Initial Search	Sustainability Reporting	Captures research on sustainability reporting.
	Non-financial reporting	Alternative terminology, expands the search to cover all relevant sources.
	ESRS	Key framework in the project; captures research specific to ESRS.
	European Sustainability Reporting Standard	The full phrase; includes studies on the ESRS.
Phase 2:"AND"	Management system	Focuses on integrating sustainability reporting with management frameworks.
	ISO	Refers to the International Organization for Standardization.
	International Organization of Standardization	The full phrase; includes studies on the ISO.
Phase 3:"AND"	Integrated Management System	Narrows the focus on the ISO framework.
	Integration	Narrows the search to the concept of integration.
	Compatibility	Narrows the search to compatibility of the frameworks.

Table 4.1. Overview of included *Keywords* and *Phrases* in the literature review, with explanation for the selection. Own illustration.

Before applying the search string in the selected databases, it is essential to determine the criteria for inclusion or exclusion of literature; that lies the foundation for both the Search string and screening process. Developing and applying criteria for the systematic literature review can be beneficial in minimizing bias and ensuring the quality of the literature (Snyder, 2019), the criteria for the conducted literature review is as follows:

Inclusion Criteria

Language: The studies included in the literature review are limited to *English*, *Danish* or *German*. To reduce the amount of resources on translation and interpretation.

Publication: All studies which have been included have to had been been published after the year of 2000. This is because of EMAS being developed in 1993, and accommodate the development of the research field.

Exclusion Criteria

Irrelevance: Studies that are not focusing on, or contributing to the understanding of the integration of management systems with sustainability reporting.

Duplication: Using both AUB Primo and Scopus may lead to identification of the same literature, why there was screened for potential duplications with both the use of *Refworks*, and a manual follow-up.

The determined *Literature criteria* resulted in the following results from the *Search String*, which is elaborated in Figure 4.2.

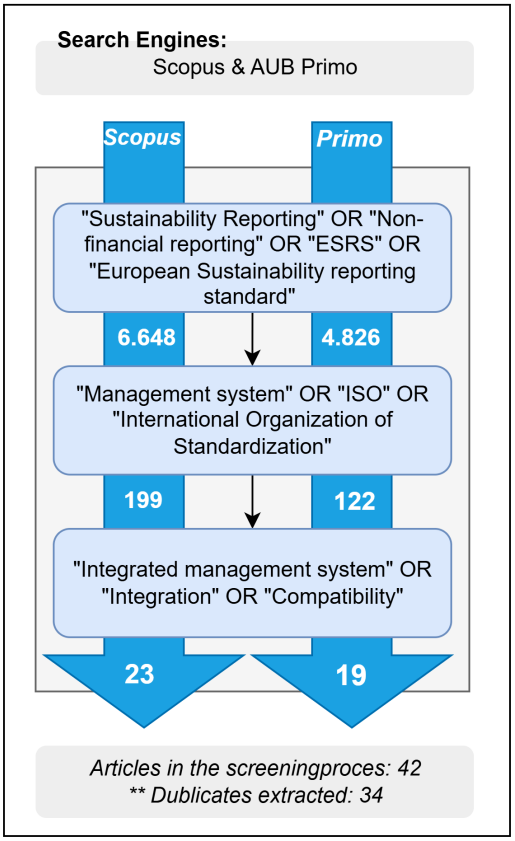

Figure 4.2. Overview of the applied search string and its different stages from the conducted systematic literature review. Own illustration.

From the developed search string there was identified 42 sources across the two databases: AUB Primo and Scopus. Of the total of 42 sources, 8 of them were duplications, resulting in a new total of 34 sources.

Screening process

To enhance the efficiency of the screening process of the initial identified articles, it was conducted through three screening phases 1) relevancy of the title, 2) examine and assess the abstract and keywords of the literature, and 3) skim of the literature, initial assessment of the used data and methods. The screening criteria is elaborated in Figure 4.3.

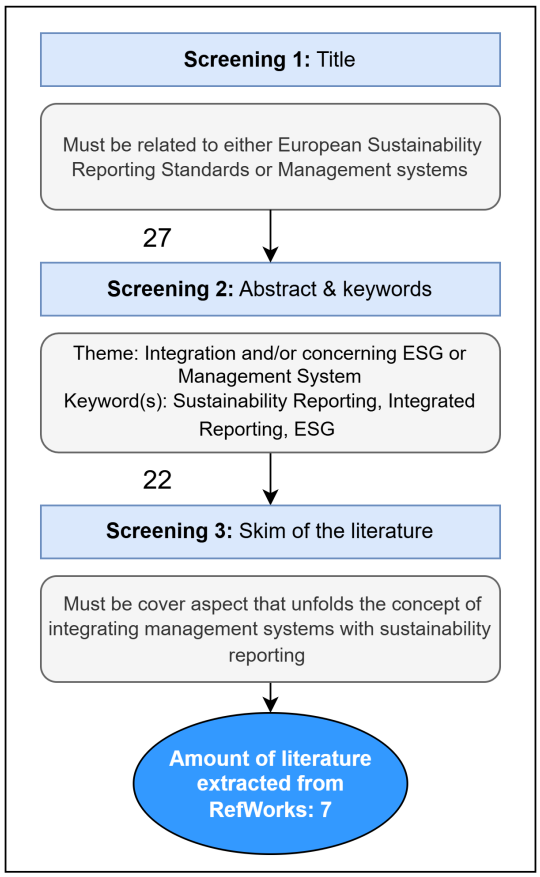

Figure 4.3. Overview of the screening process and use of inclusion/exclusion criteria in its different stages from the conducted systematic literature review. Own illustration.

In Figure 4.2 and Figure 4.3 it is illustrated how, and in what stages of the systematic literature review, the criteria have been used to define both the search string, and screening processes of identified literature.

Overview of relevant articles

The literature, that are identified as the results of the conducted systematic literature review, is covered in Table 4.2. Furthermore, Table 4.2 is including a description of the individual research study, the applied methods and the results of its analysis.

No.	Source	Research	Methods	Results
1	(Masuin, Latief, and Yuri Zagloel, 2019)	Knowledge management in integrated management systems for construction sector performance	Case study	Knowledge management enhances integration of management systems, boosting organizational performance.
2	(Hristov and Searcy, 2025)	Framework for implementing CSRD via Balanced Scorecard and governance integration	Theoretical model development; Literature synthesis	Balanced Scorecard can operationalize CSRD compliance; governance alignment is critical for integration.
3	(Nigri and Baldo, 2018)	Integration of sustainability reporting and performance systems in Benefit Corporations (SMEs)	Multiple case study	High alignment of values and integrated tools drive effective sustainability performance measurement.
4	(Gond et al., 2012)	Theorizing strategy and sustainability integration via management control systems	Theoretical conceptual framework	Sustainability can be embedded using control systems that align with strategy.
5	(Farkas and Matolay, 2024)	Strategic use of management systems to implement CSRD requirements	Literature review	ISO-based systems can serve as foundational architecture for CSRD-aligned sustainability reporting.
6	(Zharfpeykan and Akroyd, 2022)	Drivers for integrating sustainability indicators into performance systems	Survey; Regression analysis	Top management support, data availability, and regulatory pressure drive integration success.
7	(Witjes, Cramer, and Vermeulen, 2018)	Role of tools in supporting sustainability integration	Multiple case study	Sustainability integration benefits from decision-making tools, but the complexity is a barrier.

Table 4.2. Overview of articles identified in the conducted literature review. Source: Own illustration.

4.3 Methodology and approach to data collection

This master thesis seeks to identify the potential for integrating the framework of the ESRS into the ISO Management System of the case company. Therefore that has been used several qualitative studies, to investigate the state of the existing practices within the organization. The data used in the qualitative studies was received from the case company, containing information on the management system and its processes; enhancing the understanding of the organization and its performance.

Document Analysis of the Case Company's Management System

To achieve a better understanding of 1) the case company which have been used to get a better understanding of the existing practices of management systems, to investigate the possibilities of utilizing these to enhance organizational alignment with the framework of the ESRS, 2) the legislative requirements and other relevant industry standards, that enhances the understanding of requirements and demands to the case company from stakeholders, there has been conducted a document analysis. The relevant documents which has been included in the study involved internal documentation of the case company's management system and its processes, legislative documentation and management system standards.

Document analysis is one of the primary methods to examine and investigate qualitative singular case study, and contributes with the framework for this analysis. Document analysis is defined in Armstrong (2021), as a systematic approach and procedure for review and assess the documents included in the study, which may include both printed version or electronic files, that may contain relevant information for the research question.

This approach have had significant value in exploring the structure and its formalization in the case company, and how they implement and communicate new initiatives internally within the organization, but also externally to stakeholders (Armstrong, 2021).

The documents which has chosen was considered by three factors:

1. Alignment with frameworks relevant for the research question;
2. Evaluation of the integrity of the case company's management system; or
3. Contribution to method triangulation of research.

The relevant documents to the development of this master thesis included, yet was not limited to, the documents listed in Table 4.3.

Type of Document	Document level(s)
Quality Management System	Strategies, Policies and Procedures
Risk Register	Instruction and Tool/template
Risk Management	Procedure, Instruction and Tool/template
Risk Assessment(s)	Instruction and Tool/template
Management Team Review	Instruction, Tool/template

Table 4.3. Overview of list of documents retrieved from case company for document analysis. Own production.

The case company, which are being analysed, is subject to the ISO standard; ISO 9001, and from Appendix B in the future ISO 27001 and ISO 14001, they are following the Harmonized Structure and risk-based thinking which are frameworks consistent in the implementation of ISO Standards (ISO, 2021).

These frameworks are emphasizing the implementation of risk management, stakeholder engagement and continuous improvement, and are with the compliance of the ISO Standards, developed as documented information within the organization; being auditable. The conducted document analysis, in this context, allowed a detailed analysis and assessment of how the processes comply and/or accommodate these topics within the organizations and its operations.

Furthermore, this also contributed to understand and assess the integrity of the case company's management system, and the possibilities for the existing organizational structure to implement the frameworks of the ESRS, to enhance their sustainability efforts and future sustainability reporting.

In this context, document analysis enables the identification of either consistencies or gaps, in how the organizational structure align with the ESRS framework, identifying consistencies in risk management and materiality assessments, and gaps in strategic alignment with compromises the organizational readiness in aligning with ESRS requirements.

Lastly, by analysing and comparing different documents and documentation, it can and has identified consistencies in the included documents, offering triangulation. While there are significant consistencies in the documents, risk-based thinking and the (Double) materiality assessment and similar approach to plan, do, check, act there are yet a lack in guidance to integrate the frameworks of the ESRS and ISO.

Overall, by conducting a document analysis, it has provided this master thesis with a replicable method for evaluating how a company's effort translate into the framework of the ESRS, given meeting the requirements of having fully implemented the framework of ISO Standards; Harmonized Structre and risk-based thinking.

Interviews

Additional to the Document Analysis of the case company, there was conducted several interviews to gain further insight, and have the opportunity to enhance the understanding of the organization with elaborations of the structure. The purpose of the interviews was to get a comprehensive understanding of the organizational processes, the main challenges the organization are facing, and the potential for future internal development. By interviewing a respondent from the case company, it enhancing the subjective understanding from an organizational perspective on specific situations (Hecker and Kalpokas, 2025). The criteria for the selection of respondent were that the person should have influence and contribute with expertise in organizational processes and structure, whereas the QHSE Manager of the case company was identified.

The conducted interviews was done by a semi-structured approach, contributing with greater balance between flexibility with follow-up questions, and structure to navigate the purpose and scope of the interviews (Hecker and Kalpokas, 2025). The combination of semi-structured interviews and document analysis, provided with a comprehensive understanding of the organization.

Beforehand of each of the two interviews, there were developed an interview guide to structure and navigate the interviews. The Interview guides can be seen in Appendix A and B.

The formulation of the questions are important. With proper formulation of the questions, it can encourage conversations, to limit the steering and search for a specific answer from the questions. The Interview Guides were distributed to the interviewee before the interview, to allow preparations, enhancing the knowledge gained from the answers.

To each of the questions, there is developed a thematization related to the questions, which following has been approved by the interviewee. The thematization is elaborated in Appendix A and B, where they are connected below each question.

An overview of the Interviews and a following description can be seen in Table 4.4

Respondent	**Date / Location**	**Description**
QHSE Manager	01-04-2025 Visitation	The purpose of the interview was to understand the organizational context and its quality management system.
QHSE Manager	12-05-2025 Visitation	This interview focused on the organization's risk management processes and their implementation. It also covered the governance structure, communication flows, and potential barriers to effective integration.

Table 4.4. Overview of conducted interviews, including date, location, and focus. Source: Own production.

From the conducted interview, it is important to consider limitations, they may occur through bias of the interviewee. This can result in a misleading view on the organization, why this is and should be limited with validation of the points from the Document Analysis.

4.4 Artificial Intelligence

Artificial Intelligence (AI) is as powerful a tool as it is controversial in the use of research. The capabilities of AI is broad, yet the utilization of it in academic work must be limited and structured.

The ethicality of using AI is a debate, of what is "right" or "wrong", and its results should be critically assessed.

The methodological use of AI should not be underestimated, and can be a powerful tool in analysis and unfolding potential scenarios, research and solutions. It opens up new possibilities for exploring the field of research, and with the right approach and careful usage, can enhance efficiency and quantify the in-depth investigations of studies, if it is used responsible and ethically.

Ethical approach to usage of Artificial Intelligence

In this study, there was taken use of ChatGPT as an Artificial Intelligence Model, for several research areas. AI was used for initial idea generation and brainstorming of potential problems, contributing to identifying patterns in existing literature that helped in identifying the directions of this master thesis.

Furthermore, it was taken into considerations, how AI was used e.g. the documentation for its contributions, while being aware of potential risks: bias and inaccuracies, that may happen with the usage of AI-generated insights. The research conducted in this master thesis is still maintain accountability for the primary sources of information, emphasizing outputs from AI as supplementary assistance and information.

Data validation and verification of postulates

Despite the use of AI, it needs to be emphasized that the process of organizing, managing and rationalizing data is manually validated; every piece of information generated, or suggested by the AI, was check or validated by other external sources, ensuring the credibility of the academic relevancy.

To validate information generated by AI, it was systematic confirmed by cross-refereeing it against credible sources, to validate its accuracy and consistency. By systematic validation of AI information, it is possible to mitigate potential risks, preserving the reliability and integrity of the outcome of this master thesis.

AI has in this master thesis served as a tool and complimentary assistant. It is conducted by enhancing the human input whereas increasing the efficiency of the research process.

However, its usability and validation is carefully examined and assessed with a critical process of verification. AI can when structured and ethically used, have significant value, when aligned with principles of academic research.

Conceptualizing the Double Materiality into ISO Management Systems

5

This chapter explores how existing ISO Management Systems can be leverage as foundation for integration the ESRS. It focuses on the PDCA cycle and Risk-based thinking embedded within the HS and how the formalization of the ISO 31000:2018 Risk Management can link these structures to sustainability reporting requirements from the ESRS.

5.1 Foundational Concepts of the ISO management system

To investigate if it is possible to utilize the ISO management system and their embedded frameworks, to accommodate the requirements of the ESRS, it has significant value in understanding how the two frameworks align and work individual.

The ISO management system are working with the standardized *Harmonized Structure*, to align their different management systems. Furthermore, all of the ISO management system are working with the concepts of *Risk-based thinking* and *PDCA cycle*, to support continuous improvements within the organization and its operations, and to embed a culture of proactive strategic decision-making.

The Harmonized Structure of ISO management systems

The HS is the foundational infrastructure for the development of all ISO management system, and it elaborated in Chapter1. The purpose of the HS is to enhance the structural efficiency of the organization and to facilitate the integration of multiple ISO management systems in a single management system (ISO, 2021; International Organization for Standardization and International Electrotechnical Commission, 2024).

The HS has embedded both the PDCA cycle and risk-based thinking within its framework, which is elaborated in Table 5.1

Risk-based Thinking in ISO management systems

The different ISO standards are based on different concepts for understanding and implementing the management system. One of these is the concept of *Risk-based thinking*.

While risk-based thinking is not included in all ISO standard, the concept of it is still applicable to all. This is because it is a general concept of structured and proactively

manage risk, identifying, assessing and addressing risk and opportunities within the organization, including affected stakeholders.

Risk-based thinking should be implemented as a consistent part of an organization, contributing to the delivery of quality data and information, while fostering a culture of continuous improvement within the organization.

The concept is implemented to give a holistic approach and perspective of the organization and its environment. With a proactive approach, that requires to identify and address potential risks and opportunities for the organization, it ensures efficiency and continuous improvement.

Risk-based thinking is seen as risk management, which should be aligned with both the organization's strategic development and goals, and organizational processes. This can be beneficial for organization in foresee risks and opportunities, which may mitigate risks and also seize opportunities.

The purpose of risk-based thinking is to improve decision-making by implementing it as an integrated part of the planning and organizational processes, while offering proactive solutions that benefits in informed and strategic decisions. Furthermore by being in a state of risk-awareness, is also accommodating and hopefully enhancing the flexibility and adaptability of the organization and its employees.

For SME with e.g. ISO 9001, ISO 14001, ISO 27001, as the selected case company, should already have existing risk-based practices and processes embedded within the organization to address supplier evaluation, nonconformities and environmental compliance (ISO, 2015b; ISO, 2015a).

Plan-Do-Check-Act Cycle in ISO management systems

Another concept that can help organization with understanding and implementation of the management system, its processes and decision-making is, the *Plan-Do-Check-Act cycle*.

Again, the PDCA-cycle is not included in all of the ISO standards, but the concept is also applicable to all, because it is a way of understanding implementation processes for continuos improvement in an organization (Langley et al., 2009; ISO, 2015b).

The PDCA-cycle offers a structured, integrated process for problem-solving and optimization for strategic decision-making (Langley et al., 2009; ISO, 2015b).

In Figure 5.1 it is illustrated, how the concept of the different phases from the PDCA-cycle is applied to the clauses from the DS/EN ISO 9001:2015, why also addressing how the PDCA-cycle is reflected related to the harmonized approach from ISO (ISO, 2015b; International Organization for Standardization and International Electrotechnical Commission, 2024).

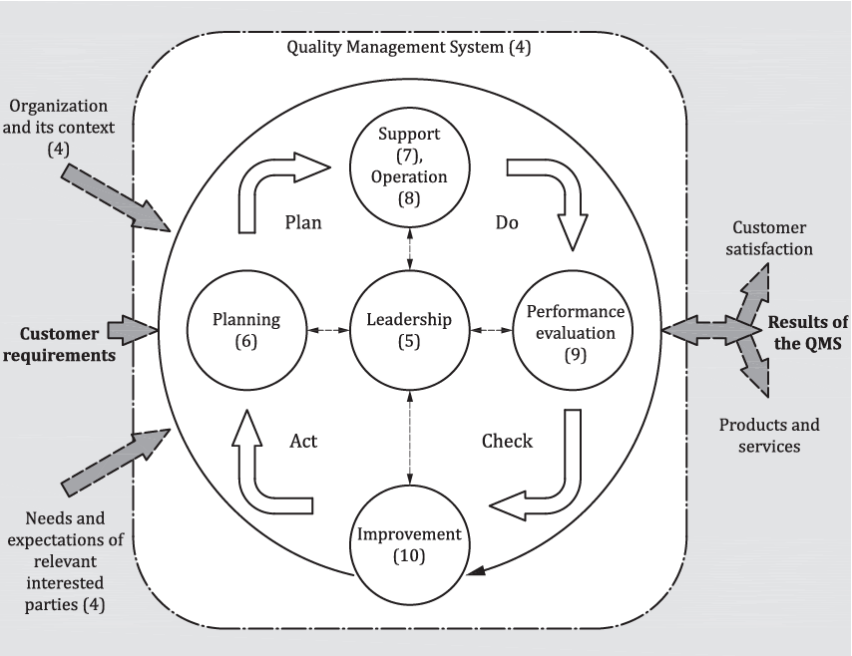

Figure 5.1. Illustration of the concept of PDCA related to the clause from DS/EN ISO 9001:2015 (ISO, 2015b)

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Plan

The initial phase of the PDCA-cycle is to define the objectives for at set situation, and the identification of the required processes that will be significant in achieving the objectives (Langley et al., 2009; ISO, 2015b).

The planning phase is furthermore also beneficial when aligned with the risk-based thinking; it can be beneficial in understanding the situation's risks and opportunities (Langley et al., 2009; ISO, 2015b).

When understanding the situation, it will be a more fulfilled planning phase, acknowledging the risks by planning for accommodate the challenges, and how to capitalize from the identified opportunities (Langley et al., 2009; ISO, 2015b).

Key steps:

1. Define objectives and establish goals;
2. Identify risks and opportunities;
3. Establish needed resources and the timeline of the project; and
4. Determining measurable (e.g. metrics, KPI's), to evaluate success-parameters (Langley et al., 2009; ISO, 2015b).

Do

The second phase of the PDCA-cycle is to implement the project at a smaller scale in the organization, to evaluate and enhance its effectiveness and minimize risks at full-implementation (Langley et al., 2009; ISO, 2015b).

Pitfalls of Implementation:

1. Employee resilience;
2. Lack of resources; and
3. Lack of technological development / implementation (Langley et al., 2009; ISO, 2015b).

Check

The third phase of the PDCA-cycle is post-implementation at small scale, where the organization shall evaluate the outcomes based on the prerequisites from the planning (objectives and goals), in the first phase (Langley et al., 2009; ISO, 2015b).

It conducted by making an overall assessment of the effectivity of the plan, and if the objectives and goals are achievable. The insights gained from the assessment should be used to determine if its needed with adjustments to the plan, to alter an successful implementation (Langley et al., 2009; ISO, 2015b).

Act

The fourth, and last, phase of the PDCA-cycle is using the knowledge gained from the third phase, to improve the implementation and its processes further. This can involve corrective or preventive actions, that are needed to implement the plan at full scale in the organization (Langley et al., 2009; ISO, 2015b).

If the plan can not be implemented at full scale, the PDCA-cycle restarts. The goal is to implement the PDCA-cycle, and the improvements identified from the cycle, into the culture of the organization and its operations to sustain progress and continuous improvement (Langley et al., 2009; ISO, 2015b).

Summary of interactions between ISO concepts

As it is elaborated in Table 5.1, the HS of the ISO Standards, is more than a template for organization to follow when developing their management system, or integrating multiple management systems. It also functions as a deliberate structure for embedding the concepts of the PDCA cycle and risk-based thinking within the management system and its processes.

As it can be deducted from Table 5.1, these two concepts are embedded into the different clauses of the HS, contributing with the underlying structure of ISO management systems to support aspects of the two concepts; strategic alignment, consistency and continuous improvement.

	Harmonized Structure	PDCA Phases	Risk-Based Thinking
4.	Context of the Organization	Plan	Understand organizational environment and identification of external and internal risks
5.	Leadership	Plan	Governance and risk ownership
6.	Planning	Plan	Risk and opportunity identification and treatment
7.	Support	Do	Allocation of resources to manage risk and support risk treatment
8.	Operation	Do	Implementation of internal processes and/or controls to mitigate risks
9.	Performance Evaluation	Check	Monitoring, measurement, analysis and evaluation of risk treatment
10.	Improvement	Act	Risk-based improvements and corrective actions

Table 5.1. Overview of internal dynamics of the ISO concepts embedded within the organization. Own illustration.

From Table 5.1, it is revealed that there are direct overlaps between the standardized HS framework of ISO and the concepts of PDCA-cycle and risk-based thinking. The aspect of each concepts is embedded (and functioning) within the ten clauses of the HS. This ensures that organization implementing a ISO management system are adopting structure and systematic approaches to their planning and future decision-making.

Furthermore, it ensure that the process for identifying, assessing, evaluating and corrective actions are implemented as a consistent aspect of the organizational planning. This, can also are also creating the foundation for aligning the organizational risk management with the DMA from the ESRS.

However, the HS (and the PDCA-cycle and risk-based thinking) does not itself provide the framework or processes for managing risks. This is determined by the organization, since there are no requirements (from ISO) in how it should be performed.

For organization working with risk management, ISO has published 31000:2018 Risk management, which is a standardized framework for managing risk in organization; details and description in the risk management processes. For the benefits of understanding how ISO management system can accommodate the DMA, the ISO 31000:2018, and its standardization of risk management processes, can elaborate and further investigate the possibilities of ISO management system accommodating the DMA.

5.2 Synergies between ISO management systems and ISO Risk Management

To structure the risk management in organization's, ISO has developed a systematic approach for managing potential risks across the entire value chain of the organizations; ISO 31000:2018. The structure of the ISO Risk Management Process is illustrated in Figure 5.2.

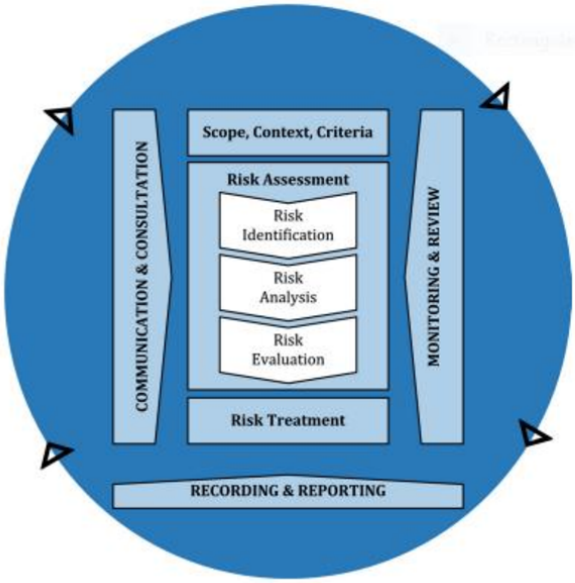

Figure 5.2. Risk Management Process structure for continuous improvement (*ISO 31000:2018 Risk management — Guidelines* 2018)

Scope of Risk Management and context of the organization

The initial step of implementing risk management in an organization, is to determine the scope, context and criteria determining the fundamental process for managing risks within the organization. All activities needs to have an objective, be relevant and aligned with the organization (*ISO 31000:2018 Risk management — Guidelines* 2018).

The scope of the risk management process can be limited to specific aspect of the organization's business, or cover the entire organization; which is to be determined before its development (*ISO 31000:2018 Risk management — Guidelines* 2018).

Furthermore it is also needed to elaborate on the context of the organization, which elements of internal and external factors could potential affect the organization; be a/at risk (*ISO 31000:2018 Risk management — Guidelines* 2018).

At last, the criteria for which risks are being evaluated and treated need to be determined to streamline the risk management process to ensure its consistency and purpose (*ISO 31000:2018 Risk management — Guidelines* 2018). Criteria can include:

- Risk appetite;
- Tolerance level;
- Measurements;

- Prioritizing;
- Scoring; and
- Categorization.

Risk Assessment

The analytical framework of the risk management process is consistent of; *Risk Identification*, *Risk Analysis* and *Risk Evaluation*, and are conducted it that order, expect if new information or changes affects the context. The purpose and relevant techniques for each step of the risk assessment process is elaborated in Table 5.2.

Assessment Step	ISO 31000 - Purpose	ISO 31010 - Techniques
Risk Identification	To identify scope of how risks could arise. Identifying risk sources, events, and consequences.	Brainstorming Checklists Structured interviews SWIFT (Structured What-If Technique) Fault Tree Analysis (FTA)
Risk Analysis	Nature and magnitude of risk. Likelihood/probability and impact, effectiveness of existing controls.	Risk Matrix (qualitative or semi-quantitative) Failure Modes and Effects Analysis (FMEA) Bowtie Analysis Monte Carlo Simulation Event Tree Analysis (ETA)
Risk Evaluation	Compare risk with predefined risk criteria, prioritize risk, and decide on treatment plan.	Risk ranking and prioritization Multi-Criteria Decision Analysis (MCDA) Cost–Benefit Analysis Consequence/probability matrix

Table 5.2. Overview of Risk Assessment and Techniques from ISO 31010:2019 (*ISO 31000:2018 Risk management — Guidelines* 2018; *ISO 31010:2019 Risk management — Risk assessment techniques* 2019)

Risk Treatment

The Risk Treatment of a risk, must be determined and prioritized based on the risk assessment. This is a crucial part of the risk management process, identified and implement the necessary to address the risk.

The purpose of risk treatment can vary, and is depending on different aspect of the organization and the risk. ISO 31001:2018 has defined several possible solution for risk treatment (*ISO 31000:2018 Risk management — Guidelines* 2018).

- Avoding the risk.
- Reducing the risk.
- Transfering the risk; or
- Accepting the risk.

Supportive processes

To effectively implement risk management into the organization, it requires ongoing internal and external communication to stakeholders. This is to ensure transparency of the process and align the strategic development of the organization with stakeholder expectations (*ISO 31000:2018 Risk management — Guidelines* 2018).

This is furthermore also accommodating that risk management is not a static process, why is necessary with continuos communication, internal prioritize may change organizational

activities, external conditions may affect the organization's activities. Therefore it is necessary to implement activities that regularly monitor and review potential risks, to proactively handle changes of risks (*ISO 31000:2018 Risk management — Guidelines* 2018).

To ensure that the entire process of risk management is conducted accordingly to the set requirements of the organization, and to support transparency and accountability of the organizations risk management process, it is necessary to document the included processes and their outcomes. This is to both accommodate potential auditing of the organization, but also to develop reporting if deemed relevant to the organization (*ISO 31000:2018 Risk management — Guidelines* 2018).

The implementation of the process for ISO 31000:2018 Risk Management for continuous improvement, contribute with a systematic, yet flexible foundation for managing the entire process of a risk. With the additional supportive processes; communication, monitoring and documentation, it accommodates a continuos cycle of improvements, rather than a one-time activity (*ISO 31000:2018 Risk management — Guidelines* 2018).

Summary of Risk-based thinking and Risk Management

The three frameworks are developed to enhance organization's adaptability and flexibility to simplify the navigation in the complex and dynamic environments surrounding the organization. The three framework contributes with the following:

PDCA-cycle: is accommodating continuos improvement and control of operational environment.

Risk-based thinking: is accommodating a embedded culture of anticipating risks and seeking opportunities in ISO management systems.

Risk Management: is contributing with structure and systematic approach for risk management in an organization.

While these three framework is from different aspect of the ISO standards; Quality Management Systems, Harmonized Structure and Risk management, they are complementary.

When they are combined, it contributes with a standardized model for proactive planning and continuous improvement, including risk management and evidence based decision making. The following Table 5.3 elaborates on the unified view between these three approaches:

	Phase	PDCA	Risk-Based Thinking	ISO 31000:2018
1.	Context of Organization	Plan	Understand the organization and its context	Establish the scope, context, and criteria
2.	Risk Identification	Plan	Identify risks and opportunities	Risk Identification
3.	Risk Analysis	Plan	Determine risks' likelihood, impact, and prioritization	Risk Analysis and Risk Evaluation
4.	Preventive or Corrective Actions	Plan	Plan actions to address risks and opportunities	Risk Treatment Planning
5.	Implementation	Do	Implement planned actions and controls	Risk Treatment Implementation
6.	Monitor & Evaluation	Check	Evaluate performance and effectiveness of controls	Monitoring and Review
7.	Continuous Improvement	Act	Use lessons learned to refine the system	Continuous improvement through review and update
8.	Communication and Documentation	All	Ensure transparency and knowledge sharing	Communication & Consultation and Recording & Reporting

Table 5.3. Overview of risk-based thinking aligned with the structure of the risk management process

By utilizing the overlaps between the *PDCA-cycle*, *Risk-based thinking* and *ISO 31000:2018 Risk Management*, organizations can improve their proactive approach to Risk Management and its planning.

It can enhance the strategic decision-making, and contribute to navigation and streamline of SME efforts and therefore their efficiency. Its will support the organization with aspect of long-term value creation, organization resilience. With the alignment to the core principles of the ISO management system, its implementation can maintain the processes of their management system without compromising its integrity.

Overall, by aligning and identified the overlaps between the central approaches and structures of the ISO Standards, contributes with a standardized framework within the ISO standards, to improve organizational risk management and its implementation into the organizational structure.

5.3 Operationalizing the DMA Process Within ISO-Based Management Systems

As it is elaborated in Chapter 1, the ESRS offers a structured and standardized framework for sustainability disclosures, where the DMA is a central concept. The DMA requires organization to assess both the impact of their activities, and sustainability risks and opportunities on the organization. This ensures transparency in communication of both external and internal aspect of the organizations performance and risk in sustainability reporting (European Commission, 2023).

As well as the ISO 31000:2018 Risk Management, the DMA relies upon a systematic and continuous approach for assessing impact, risks and opportunities, through initial scoping and context of the organization, materiality analysis, and standardized disclosure (European Commission, 2023), which are illustrated in Figure 5.3

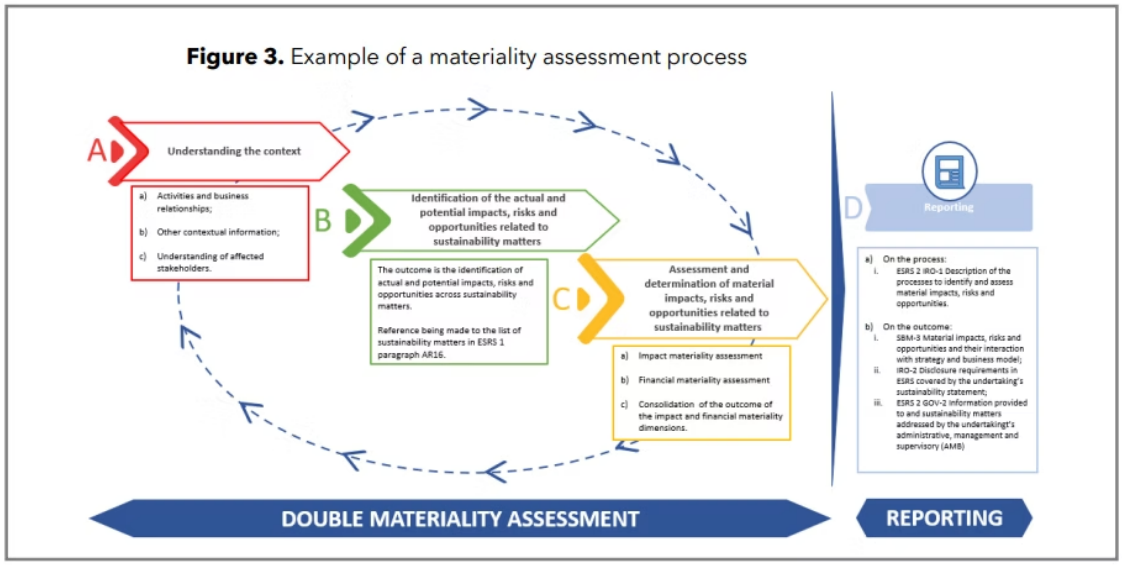

Figure 5.3. Example of a Materiality Assessment Process (EFRAG, 2024)

ESRS 1 - General requirements

The initial step for applying the ESRS and performing the DMA, is to define the scope of the ESRS and the context of the organization; identifying relevant environments related to the organization, and how, and if, the value chain is affected on the topical disclosure requirements impact materiality and/or financial materiality, as elaborated in Chapter 1.

The scope of the reporting and the context of the organization are including:

- Business model;
- Value chain;
- Stakeholders;
- Regulation; and
- Sustainability topics (European Commission, 2023).

This initial phase of establishing the context of the organization are similar to Clause 4 of the HS - Context of the Organization, and the ISO 31000:2018. Therefore, there existing

documentation for this point from ISO management systems can be used as foundation for the methodological approach for applying the DMA. It ensures that the sustainability reporting of the organization is considering the specific environments of the organization.

Double Materiality Assessment

The analytical framework of the DMA process is consistent of; *Topic Identification*, *Impact Assessment*, *Financial Assessment* and *Topic Evaluation*, and are conducted in that order, except if new information or changes affects the context. The purpose and relevant techniques/tools for each step of the DMA process is elaborated in Figure 5.4.

Assessment Step	Double Materiality Assessment – Purpose	ESRS – Techniques
Topic Identification	Identify actual and potential sustainability impacts, risks, and opportunities across the value chain. Topical ESRS	Stakeholder mapping Value chain analysis Sector benchmarking (e.g. ESRS sectoral standards) Sustainability topic lists (e.g., GRI, SASB, OECD)
Impact Assessment	Determine the severity, scope, and irremediability of actual or potential impacts, and their likelihood.	Impact rating matrix Stakeholder interviews and surveys Human rights due diligence Environmental impact assessments
Financial Assessment	Assess the likelihood and magnitude of financial effects stemming from sustainability risks and opportunities.	Scenario analysis Cash flow forecasting under ESG risk conditions Regulatory risk mapping
Topic Evaluation	Determine which topics are material under either impact or financial materiality. Finalize list of reportable topics under ESRS.	9x9 Materiality matrix Documentation and traceability checklists

Table 5.4. Overview of Double Materiality Assessment and Techniques from the ESRS (European Commission, 2023). Own illustration.

Topic Treatment and Reporting

When a topic is determined as material, the organization must follow the topical ESRS standard, to determine the necessary reporting requirements for the material topics. These standards are including a structured guidance, including qualitative and quantitative disclosure requirements to communicate the findings from the materiality assessment.

The topical standards of the ESRS has dual-purpose they 1) contribute, while not limited, with predefined risks, which the organizations must consider in their assessment of relevant impact, risks and opportunities (European Commission, 2023), 2) determine the specific disclosure requirements for material topics such as policies, governance, targets and KPIs (European Commission, 2023).

Furthermore, if a topic is deemed non-material, qualitative and quantitative disclosure requirements can be used to continuously monitor the status of the risk; detect if the materiality of a topic changes over time due to external factors. This is also supporting the dynamic nature of the DMA process, and are aligning with the risk-based thinking and continuos improvement from the ISO standards.

Supportive processes

To support the reporting of the organizations, following the results from the DMA, the organization requires supportive processes to maintain and ensure transparency and legitimacy of the DMA; including engagement of stakeholders, and control of documented information.

Furthermore the DMA is a dynamic process, where the materiality of a topic and its conditions should be monitored because it may change; regulations, market or professional norms. Therefore it should be implemented as a continuos process for monitoring, reviewing and annually publishing sustainability reporting to accommodate the organizational transparency.

Therefore it has significant value for the organization, to implement processes that are essential to continuously document the used methods, criteria, external inputs and outcome of material topics. This is to support and accommodate internal accountability, to ensure external trust to the organization's decision-making and strategic development.

By implementing the DMA as a continuous process, it ensures that the sustainability disclosure requirements and its materiality remain reliable and relevant, while enhancing the organization's ability to proactively manage risks.

The ESRS framework and the concept of the DMA can enhance a organization accountability to sustainability risks and opportunities from the topical standards. With the implementation of, and by embedding, these approaches to sustainability into the organization, it enhances the organization's proactive decision-making and long-term value in strategic and operational development.

ISO 31000:2018 and ISO management systems are aswell as the DMA a continuos process, understanding the dynamic of external influence on the organization; it can change the materiality of a topic.

5.4 Development of Conceptual Framework for Sustainability Reporting in SMEs

As the development of sustainability reporting has increased, and implemented as a regulatory requirement within the EU for a scope of organizations under the CSRD, organization a required to disclose on sustainability information. Even though it may not be a requirement for SME it can have internal and external value with its implementation; proactive and continuos development, and transparency and accountability.

The ESRS has developed the DMA, which shall contribute with at structured approach for reporting on sustainability issues that are relevant to the organizations, but also its value chain.

While it may have some benefits for SME to implemented the DMA into their management system, the organization may already have existing practices in motion that accommodate the performance of the DMA; the *Risk-based thinking* and *PDCA-cycle*, and/or *ISO 31000:2018 Risk Management*.

These frameworks from ISO provides a auditable management system for managing risks through the value chain, and is utilized the enhance proactive decision-making in the organization. As it is elaborated in this chapter, there are potential overlaps which offers integration of the ESRS and DMA into the processes of ISO management systems existing structure concerning risk management. By aligning the two frameworks, it offers a unified model for embedding sustainability reporting into the organizations management system and utilizing its existing processes to enhance organizational performance. While Both ISO Management System and the ESRS does not share the risk management cycle by name, they are both using the ideas from the concept from risk management as foundation for both of their structure and approach to continuous improvement and follow the cycle illustrated in Figure 5.4.

Figure 5.4. Overview of 5 steps risk management lifecycle (AlertMedia, 2023)

Defining the concept of Reporting Integrated Management Systems

Both the of the framework are oriented risk management and reporting, as a solution to deal with external uncertainties and impacts. ISO frameworks, systematically scopes risk management and the context of the organization, identification and assessment of risk, evaluation and prioritization, implementation of corrective or preventive actions, and continuously monitoring and reviewing the risks.

As well as the ISO frameworks, the ESRS requires a similar process of establishing the scope of sustainability and the context and boundaries of the organizations, identifying and assessing the topical ESRS standards, evaluating and prioritizing the risks by materiality, implementing the corrective or preventive actions, disclosure of the organizational performance to accommodate continuos improvement as illustrated in Figure 5.4. The conceptualization of the integration of the ESRS with ISO Risk management is elaborated in Table 5.5.

Phase	**Risk Management**	**Double Materiality Assessment**	**ESRS Reporting Requirements**
Context and Scope (Plan)	Establish internal/external environment, identify stakeholders, and define risk criteria.	Define sustainability context, set value chain boundaries, and gather stakeholder expectations.	ESRS §1–3: "Objective"
Risk/Topic Identification (Plan)	Identify risks across business activities and functions.	Identify actual and potential sustainability impacts, risks, and opportunities.	ESRS 1 §25–36: "Identification of impacts, risks, and opportunities"
Risk/Impact Analysis (Plan)	Assess likelihood, consequences, and control effectiveness.	Assess impact materiality (scale, scope, irremediability) and financial materiality (effect, time horizon, probability).	ESRS 1 §43–51: "Double Materiality Assessment"
Risk/Topic Evaluation (Plan)	Compare risks against criteria and prioritize them.	Determine materiality from both perspectives.	ESRS 1 §42: "Materiality determination"
Risk/Topic Treatment (Do)	Develop and implement risk treatment strategies.	Set targets, KPIs, action plans, and policies for material topics.	ESRS 2 and topical standards (E1–S4, G1)
Monitoring and Review (Check & Act)	Monitor control effectiveness, reassess risks, and review progress.	Reassess materiality regularly and update related disclosures.	ESRS 1 §63–65: "Monitoring and review of material topics"
Communication & Consultation (All Phases)	Engage stakeholders continuously and document the risk process.	Ensure active stakeholder engagement and transparent documentation.	ESRS 1 §12–13, §58–61: "Stakeholder engagement and documentation"

Table 5.5. Integration of ISO risk management, Double Materiality Assessment, and ESRS reporting requirements (*ISO 31000:2018 Risk management — Guidelines* 2018; European Commission, 2023). Own illustration.

As it is elaborated in Table 5.5, it is possible to integrate the DMA and ESRS requirements, into the ISO Risk Management framework. This integration enables organizations to utilize their existing risk management practices to accommodate sustainability related risk and opportunities and hereby sustainability reporting. While this integration streamlines SME management systems with organizations who are required to comply with the CSRD, it can also enhance their sustainability effort within the organization; embedding sustainability issues into the strategic development and risk management of the organization fostering long-term value creation.

Case Study Analysis: Implementation of Quality Management System and its processes

6

This chapter presents the selected case study that functions as the empirical foundation of this thesis. It analyses and explores how the SME applies the principles and structure of its quality management system and its processes.

The organization selected for this single case study is classified as a small and medium-sized enterprise (SME). The study investigates the organization's ability to utilize the structure and processes of its quality management system (QMS) to address the requirements of sustainability frameworks and to respond to evolving stakeholder expectations.

The company operates within the electronic manufacturing services (EMS) industry, providing a range of tasks for its clients, including assembly, logistics, and after-market services. The organization's operations are limited to supporting client demands and do not include the design of the technology itself. This constraint limits flexibility in both supplier selection and manufacturing processes.

This organization was chosen due to its proactive approach to developing new initiatives. Moreover, the maturity and structure of its QMS offer valuable insights into how ISO-based organizational frameworks can serve as a foundation for integrating sustainability frameworks such as the European Sustainability Reporting Standards (ESRS), and the potential for applying similar integrations in other SMEs.

The company began formalizing its QMS to standardize processes, improve quality, enhance customer satisfaction, and ensure consistent value creation with minimal nonconformities. The QMS follows the HS of ISO 9001:2015 and incorporates risk-based thinking and PDCA cycle.

The organization currently has 38 employees, each contributing to the organization's value creation and customer service. The organizational structure is illustrated in Figure 6.1.

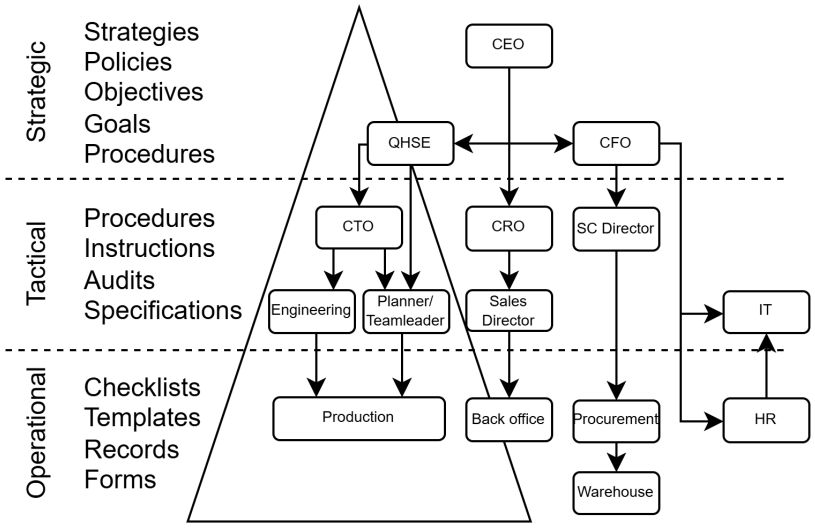

Figure 6.1. Overview of organizational structure and documentation structure of the quality management system. Own illustration.

Documented information

The organization produces documented information across three hierarchical levels: strategic, tactical, and operational. These documents comply with the requirements of ISO 9001:2015.

- At the **strategic level**, top management is responsible for developing policies and frameworks that establish the organization's strategic direction and long-term success. This includes documents such as policies, vision and mission statements, and organizational goals and objectives. These elements guide the development of new documentation and initiatives.

- At the **tactical level**, due to the company's size, top management is also responsible for translating organizational procedures into descriptive instructions. These instructions define processes and allocate responsibilities across departments to ensure consistent execution.

- At the **operational level**, employees use schemes, templates, tools, and technical documentation to ensure consistency in process execution and product/service quality. These tools also facilitate feedback and support internal reporting for continuous improvement.

This structure and control of documented information enables the organization to ensure the operational efficiency and monitoring of its alignment with the strategic development of the organization.

Organizational Management

From the implementation and continuation of the applicability of the quality management system and its processes, the employees in the organization are accountable to each other, this is reflected with both top-down management and bottom-up engagement.

As a part of the ISO 9001:2015, the organization shall determine the responsibility for the organization and the quality management system. Strategic decision is made in the Management Team of the company and are consisting of the CEO, QHSE Manager, CFO, CTO, CRO, Supply-chain director, the organizational roles who are in the Management Team are illustrated in Figure 6.1. This is to provide the strategic alignment and determine the responsible for the coordination and accountability needed for coordinated, organization-wide change.

This is implemented in the organization, such the head of departments are responsible for the development of the necessary procedure to ensure the applicability of the quality management system.

Furthermore, the organization has also implemented bottom-up engagement of its employees, enabling them to develop new tools, schemes and instructions which potentially can enhance the efficiency of the quality management system.

This approach is a fundamental part of the organizational culture, since this approach allows employees to use their practical knowledge to identify improvement or potential risks that may not be identified at the managerial level.

By combining the use of top-down management and bottom-up engagement, it improves the resilience and adaptability of the management system.

Analysis of the organizational adaptability

As it is mentioned, the organization is currently ISO 9001:2015 certified, in their quality management system. Furthermore they are currently in the process of implementing the ISO 27001:2022 certified for Information Security, integrating their management system to a more comprehensive system B.

This indicates that the organization strategies, towards their management system, is to develop the necessary infrastructure of their management system to enhance their adaptability; potentially be utilized to sustainability reporting in the future, deducted from Appendix B.

The QHSE Manager of the organization emphasized in Appendix A, that the ISO 9001:2015 is what is used to shape their internal processes, and is essential to maintain the quality of their operations, which their customers desires and demands.

This are suggesting that their quality management system is embedded deeply within their organizational structure and culture, using it to continuously improve their operational efficiency. Furthermore, it is also stated in Appendix A, that their quality management system provides a solid foundation for any kind of process oriented implementation, e.g. sustainability efforts, customer satisfaction, monitoring and performance evaluation.

This is critical; aligning with the foundational aspect of the ESRS framework in the similar governance structure and accountability processes within the organization.

While the organization possess some of the dimension which are crucial in the implementation of the ESRS, the organization are currently lacking in developing the necessary infrastructure to accommodate the environmental issues of the ESRS. But, as

it is also mentioned in Appendix A, the implementation of the ISO 14001:2015, is in the pipeline of the organization. The implementation of the ISO 14001:2015 for environmental management, can enhance and accommodate the environmental issues from the ESRS E1 - E5, elaborating on the organization's environmental responsibilities. .

With the current structure of the organization following the ISO Harmonized Structure, it indicates that the organization is thinking systematically and in cross-functional coordination of their system, which are essential for effective sustainability reporting as elaborated in Chapter 2

Furthermore, with their ISO certification, they are also working with the PDCA-cycle, which is used for new initiatives and general planning. Indicating continuous improvement, and decision-making based on evidence, knowledge and ongoing experiences. This is also a significant part of the ESRS and DMA, which requires the ongoing (periodic) review and assessment of the material topics.

Overall, the findings from Appendix A and B, additional to the conducted document analysis, which is elaborated in Chapter 4, shows a greater maturity of the organization and its quality management system. The organization has the structural tools and culture that accommodates the implementation of formalized sustainability reporting practices.

Risk Management in SMEs 7

This chapter examines how the selected case organization have implemented risk management within the organization. It unfolds each step of their risk management process, from the scope and context of the organization, risk assessment and mitigation strategies.

As it is elaborated in Chapter 6, risk management is a central aspect in both the development of ISO management systems, but also the requirements under the ESRS. For SMEs, it is essential to embed risk management within the organization, not only to manage its risks, but also to continuously improve operational efficiency and maintain its trust with its stakeholders.

With the tendencies showing increasing expectations in sustainability related disclosure requirement, from stakeholders, as elaborated in Appendix A, this could result in the integration of the DMA within the existing risk management and its processes in SME, to adopt the organization to its stakeholders expectations towards sustainability. As a response to these tendencies, i could be beneficial for SMEs to integrate the DMA within their existing risk management processes to reinforce their organizational responsiveness to stakeholder concerns (EFRAG, 2023; European Commission, 2023).

Therefore, to evaluate the current state of the SME risk management and the opportunities for integrating the DMA within their existing system, it is essential to explore the current risk management practices in the SME.

7.1 Development of Procedure for Risk Management

Following the development of documented information in the case company, as elaborated in Chapter 7, the organization has developed a *Procedure for Risk Management*, to structure is risk management processes.

The foundation of is procedure for risk management are following the ISO 31000:2018, which outlines the following;

- Scope, context and criteria of the risk management and the organization and its stakeholders;
- Risk Identification;
- Risk Analysis;
- Risk Evaluation; and
- Risk Treatment.

These phases align with the PDCA-cycle and risk-based thinking, elaborated in Chapter 6, and are embedded within the organization's quality management system. Furthermore it

is elaborated in Chapter 6, that this models offer a greater scalability, that is beneficial for SME when integrating the DMA and sustainability risk considerations into the organization.

Embedding Risk Management in the Organizational Structure

While the risk management is not a isolated function; it is supported by secondary activities such as Management Team Review and integrated into the governance structure of the organization, it is important to establish the scope of the organisation's risk management.

Furthermore, as the organization are accommodating bottom-up development, it is also embedded as a part of the culture, that employees can identify potential risk, whereas these are assessed at the Management Team Review, to determine if it..

The *Risk Register* which was implemented as a part of the planning process for the implementation of the risk management is also a part of the meetings in the Management Team Reviews, where the risks a continuously monitored, nevertheless of where each risk may be in the process.

Risk Register

By establishing a Risk Register, it enables the organization to structure, document, track and manage the identified risk. It is a dynamic document, the work as a part of continuos improvement supporting future decision-making processes. The purpose of the risk register is to provide a comprehensive overview of all potential effect on the organization, but also to monitor the already implemented treatment plans.

Risk Identification

In the organization risks are identified as a part of process for continuos improvement as a part of the quality management system. Furthermore, risks may also be identified by e.g. its stakeholders.

With the identification of a risk, the Management Team will assess it at the next Review Meeting, determining its potential Impact and its probability.

Risk Assessment Model

To enable to organization to quantify, and furthermore prioritize, risks there is implemented a risk assessment model as a part of the risk management tool. The risk assessment model is identifying and combining the risk score of the *Impact* and *Probability* of an identified risk. It is done by multiplying the two of the scores together, equalling in total risk score.

$$\text{Risk Score} = \text{Impact} \times \text{Probability}$$

Impact

When the organization are conducting its materiality assessment of a specific risk, the impact of that risk refers to the potential severity of the consequences, if it happens. This could affect the company's operations, structure, strategic development, economy, environment or stakeholders (European Commission, 2023).

In this context, impacts are determined by low, medium or high, resulting in the following numerical values of one to three:

Scale 1: Refers to **Low Impact**, and is associated with minor incidents to the organization that are either reversible, little to no financial loss, no harm to stakeholders or the organization's reputation.

Scale 2: Refers to **Medium Impact**, and is associated with moderate incidents to the organization that are still reversible but requires some kind of effort, has a moderate financial loss e.g. due to operational downtime, or harm to the organization's reputation.

Scale 3: Refers to **High Impact**, and is associated with serious incidents to the organization that are either non-reversible or requires maximum effort to reverse, has a significant financial loss e.g. due to operational shutdown, or long-term damage to the organization's reputation.

Probability

When the organization are conducting its materiality assessment of a specific risk, the probability or likelihood of that risk refers to the potential of the consequential event occurring within a time frame determined by the organization. The time frame can be different when assessing e.g. environmental or social issues.

In this context, probability are determined by low, medium or high, resulting in the following numerical values of one to three:

Scale 1: Refers to **Low Probability** of an event occurring. It may have occurred in the organization history, which already has resulted in preventive or corrective actions, or it only happens under circumstances.

Scale 2: Refers to **Medium Probability** of an event occurring. It may happen occasionally from the current conditions in the organization and have an identified trigger within the organization.

Scale 3: Refers to **High Probability** of an event occurring. It may happen on a regular basis in the current conditions in the organization and is already identified as a vulnerability to the organization's operations.

Risk Score Model

Scoring each of the factors influencing the risk score, allows for comparison of different risk in a visual representation of a 3x3 Risk Matrix. The Risk Matrix the same concept of Low, Moderate or High score of a risk to determine prioritization of a risk:

Score 1 - 2: Refers to **Low Score**. Any risks categorized within this score-range is a low-priority risk to the organization. The resources allocated to these risks should be limited to monitoring over time, to determine any potential changes in the Risk Score.

Score 2 - 4: Refers to **Moderate Score**. Any risk categorized within this score-range is a moderate-priority risk to the organization. The resources allocated to these

risks may cause for mitigation strategies or the implementation of measurables to monitor and review regularly.

Score 5 <: Refers to **High Score**. Any risk categorized within this score-range is a high-priority risk to the organization and requires immediate attention. The resources allocated to these risks should cause for development of mitigation strategies and requires close monitoring.

The development of a risk score model, and utilization of a Risk Matrix, simplifies and supports strategic decision-making in the organization. It contributes in prioritizing the attention of the organization, and need for implementation of mitigation strategies. A visual presentation of the Risk Matrix can be seen in Figure 7.1.

Impact → / Probability ↓	1	2	3
1	Low: 1	Low: 2	Moderate: 3
2	Low: 2	Moderate: 4	High: 6
3	Moderate: 3	High: 6	High: 9

Figure 7.1. Overview of 3x3 Risk Matrix, including the potential outcome of the Risk Assessment Model. Own illustration (EdrawMax, 2025)

While it may be a resource heavy implementation at first, it offers the possibility of monitoring identified risks over time, enhancing proactive risk management in the organization.

Risk Mitigation Strategies

To standardized the process for assessing risk in the organization, they have adapted risk mitigation strategies. This is implemented to enhance the efficiency of processing and/or treating risks that may require an action plan. The risk mitigation strategies which are used in the organisations are the following,

- Risk avoidance
- Risk reduction
- Risk transfer
- Risk Acceptance

- Risk Monitoring

Risk avoidance: is eliminating the identified risk completely by taking action or implementing initiatives that removes the probability of a risk occurring in the organization. While it is limiting the opportunities, it contributes with critical decision-making, when the consequences of an opportunities is determined to have a significant impact on the organization's operations.

Risk reduction: is referring to the need for implementation of initiatives (preventive or corrective actions) the reduce either the impact or the probability of a risk occurring. It is beneficial when organization's seeks opportunities, by applying measures that enhances the organization resilience, while reducing potential losses.

Risk transfer: is outsourcing the responsibilities and/or burden of the identified risk to a third-party, which is consequence management of the risk. Since this mitigation strategy is not eliminating or reducing the risk, it is useful in situations where there has been identified high impact of the risk on the organization, but it can be beneficial in outsourcing the management of it to external expertise.

Risk acceptance: is acknowledging a potential risk, and decides to proceed with no further planning of preventive actions. This is because of the cost of the related mitigation is outweighing the potential impact or that the potential risk is at a acceptable tolerance level of the organization's *risk appetite*. This approach is beneficial in situations where there has been identified either low-probability or low-impact of the risk.

Risk monitoring: is referring to the registering of risk in the Risk Register, to continuously monitoring the identified risks. This approach is beneficial to continuously assess risks, to determine if any external factors have influences its risk score.

Aligning Risk Assessment to Mitigation Strategies

The alignment of the Risk Assessment Model with the organizational Mitigation Strategies provides the foundation for effective risk management, the Figure illustrating the alignment is illustrated in Figure 7.2.

Every risk are as a minimum recorded in the Risk Register, which is monitored by the Management Team. Furthermore, Risk that are assessed to have a *Moderate* or *High* risk score, can either be avoided or transferred; determined by the management team review as the treatment plan alternatively to reduction.

Low Risk Score: These risk are accepted. For risks with a score of 2, the Management Team can choose to monitor these closer, if it is determined that the conditions for the initial risk score may change.

Moderate Risk Score: These risk are reduced. It is determined if either the Impact or Probability of the risk can be reduced, this can either be by avoidance or transfer of the risk to a third-party. The treatment plan is developed and set for implementation including the necessary activities.

High Risk Score: These risk are reduced. The Management Team identifies the necessary treatment plan, and implement it with immediate effect.

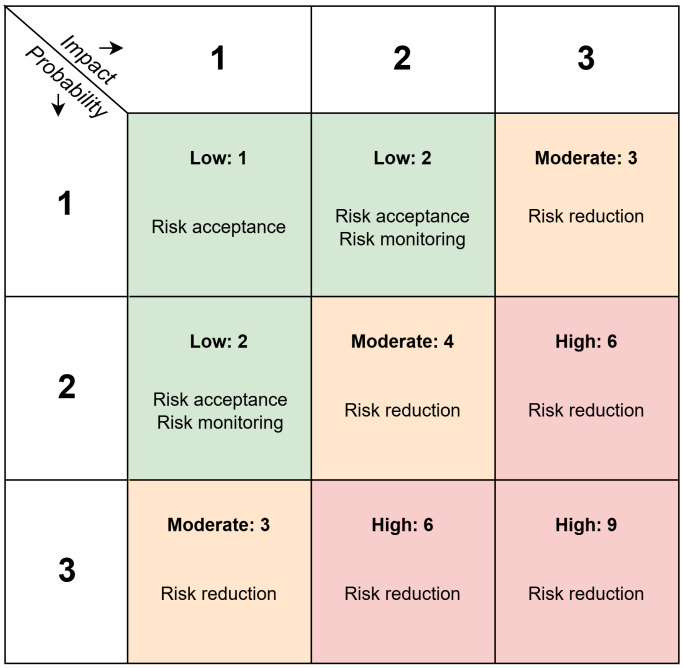

Figure 7.2. Overview of 3x3 Risk Matrix, including potential outcome of the Risk Assessment Model aligned with Risk Mitigation Strategies. Own illustration

Aligning the Risk Assessment Model with Risk Mitigation Strategies enhances the efficiency of the decision-making process and consequentially implementing the treatment plan for the identified risk. Furthermore it also improve the structure and consistency in the risk treatment in the organization and the transparency of the decision-making. This Mitigation Plans for an identified risk is to be determined by the Management Team, and could focus on mitigating the Impact or Probability of a risk by corrective or preventive actions.

Summary of Risk Management

This Procedure for Risk Management has established and defined the systematic approach for the strategic development of risk management within the organization.

Central to this approach is the methodological approach for managing risks which align with the conceptual framework elaborated in Chapter 6. Currently the tools is only implemented into the strategic levels of the organization, as elaborated in Appendix B, it still has the possibility for every employee across the organization to identify a potential risk, when implemented.

All identified risks are assessed by the development of a standardized model, which evaluates the risks from *Impact* and *Likelihood*. This offers the possibility of visualize and prioritize the risk with a risk matrix. This can furthermore also facilitate and enhance the organization communication and with transparency, which also can be utilized for the development of a sustainability reporting. Each identified risk and its relative risk score, is connected to a predefined mitigation strategy, as illustrated in Figure 7.2.

By structurally implementing the risk management processes with the ISO 31000:2018, the organization ensures that risk management is a continuous process and is embedded

within the organization.

By implementing and embedding risk management into the organization's management system and its processes and the culture of the organization, it can improve the organization ability to proactively manage risk and accommodate long-term value.

Potential for integrating Double Materiality Assessment into SMEs

8

This chapter are presenting the specific empirical insights gathered from the conducted interviews and document analysis, while validating the conceptual framework developed as a part of this thesis in aligning ISO management systems with the ESRS.

The integration of the DMA into ISO management systems of SMEs is a complex task, yet a critical step of the ESRS. As it is elaborated in Chapter 1, the DMA is consistent of *Impact Materiality* and *Financial Materiality*, requiring organization to analyse their identified risks in both how the sustainability issues from the ESRS are affecting the organization, but also how the organization are affecting society and its relative environments.

While the SMEs are not required to perform the DMA, since they are not in the scope of the CSRD, there are significant benefits connected with the implementation of the DMA; enhanced strategic decision-making and development, improved communication and transparency of operations, improving stakeholders relationships as elaborated in Chapter 6.

Therefore, it is beneficial to determine the possibilities for SMEs, in this context who are ISO 9001:2015 certified, to accommodate the DMA by the findings from the State-of-the-art in Chapter 2, and the empirical data gathered from the Case Company, based on a conducted Document Analysis and interviews elaborated in Appendix A and B.

8.1 The Double Materiality Assessment in SME context

The concept of the DMA, challenges the current mindset of SME; engagement of internal and external stakeholders. While SMEs who are certified with ISO 9001, already has processes for monitoring the organization's performance as emphasized by Masuin, Latief, and Yuri Zagloel (2019) and Nigri and Baldo (2018), the SMEs are yet to have operationalized ways, to monitor the societal impacts or financial dependencies that are related to sustainability issues.

From Appendix A, it confirms that the case company already has processes in place for engaging with stakeholders, to meet their expectations, to ESG-related issues. Yet, the company is lacking in the implementation of processes to manage these requirements, and implement the necessary organizational controls to deliver ESG-related information.

8.2 Operationalizing the Double Materiality Assessment in SME

In both Chapter 2 and 6, opportunities for leveraging SMEs existing ISO management system for sustainability reporting and DMA, is through the existing structures of the PDCA-cycle, and risk-based thinking, because of their formalization with the ISO 31000:2018 risk management also highlighted by Farkas and Matolay (2024).

This potential is further reinforced by Appendix B and the Document analysis, which demonstrates the case company's ability to structure and implement the necessary processes, such as risk management and its supportive processes, internal audits and performance evaluation.

Such practises, which evolves around risks management, offers the possibilites of implementing the perspectives of the DMA. The organization can expand their exisiting processes to include the criteria of the DMA, linking the ESG issues to stakeholder concerns and requirements, and business dependencies.

Furthermore, since the organization has embedded the PDCA-cycle, into the organizational structure, it enables the possibilities of adapting their existing processes to the DMA processes, which are in compliance with the ESRS and continuous improvement.

8.3 Challenges for operationalizing the DMA in SME

Despite the potential for structural alignment which is elaborated in Chapter 6, both the State-of-the-Art, Chapter 2 and the empirical data for Appendix A and B, has identified challenges in translating the relation between the DMA and practices within the SME.

Resource constraints: It is elaborated the required resources (time and expertise) are limited within SMEs. This is confirmed by the interviewed QHSE Manager, which elaborated the it is difficult to allocate the qualified personnel to develop and implement the necessary processes; identification of stakeholders and organizational environments, and data collection processes, without compromising the core operations for the organization's businesses.

Lack in Expertise: Furthermore, it is also highlighted by Zharfpeykan and Akroyd (2022), that a lack of internal expertise may affect the organization ability to distinguish between the two perspectives of materiality from the DMA. This was furthermore also confirmed by the QHSE Manager; while the organization are showing commitment to enhancing the qualified personnels knowledge concerning the ESRS.

Adoption of Tools: As it is identified in Appendix B and the Document Analysis, the organization has existing processes, templates or tools, that support risk management. These are not integrated with the DMA, while there are a significant amount of similarities, enabling the organization potential for integrating the DMA within the organization's risk management processes.

These findings from both the State-of-the-art and the empirical data, suggest that the foundation, for organization's who has a quality management system support the realization of integration the DMA into their management system.

8.4 Strategic opportunities for the SMEs

Despite the above-mentioned challenges, by integrating the DMA into the organization's risk management practices has several opportunities connected to it, as supported by the state-of-the-art elaborated in Chapter 2.

Stakeholder trust: In Appendix A it is determined, that the case company are experiencing an increasing in disclosure of ESG-related information from its stakeholders. With the implementation of the DMA and its supportive process, it would enhance the organization's credibility and transparency enhancing their competitive advantage in the market.

Adaptability and flexibility: Currently, SMEs are not in the scope of the CSRD. Yet it is expected that the requirements from the ESRS (to some extend) is experienced as a trickle-down effect, making it more likely that SME indirectly are expected to publish sustainability reporting through pressure from their stakeholders as elaborated in Appendix A.

The integration of the DMA process into the organization management system will accommodate the processes necessary for developing sustainability reporting.

Decision-making: With the implementation of materiality assessment and related strategies, it is identified in Gond et al. (2012) and Hristov and Searcy (2025), that i can enhance the SMEs decision-making and promote long-term value creation by prioritizing topical ESRSs.

Allocation of resources: Furthermore, by prioritizing the topical ESRSs, it can also contribute to a greater allocation of resources within the organization, allocation resources towards higher risk scores; determining the urgency of the risk.

Adopting Double Materiality Assessment in context of SME

Currently the case company are determining and analysing the identified risk, based on their impact and the probability of it happening, resulting in a score. This is setting the foundation for risk management in organization, while it can be beneficial and enhance the awareness of potential risks for the organization and its stakeholders, by implementation of the principles from the DMA.

As mentioned in Chapter 1, the DMA suggest that a risk is assessed both inside-out (Impact materiality) and outside-in (Financial materiality), why it could be beneficial for organizations to adapt to this principles.

This could be done i several ways, and are a part of different management system while for SMEs, the availability of accessible software to support this implementation may be limited because of resource constraints.

Nevertheless the platform the organization are using to manage their risks in, it can be adapted to fit this purpose. The case company are currently using *Microsoft Excel* to their risk management and are not separating their risks by Financial or Impact.

It is suggested that when the organization are assessing each identified risk, they can integrate an additional row, for that risk, in which the organization are determining the magnitude and probability of the risk for both *Financial materiality* and *Impact*

materiality. This would result in two scoring, from 1 to 9, assessing each of the risk by the existing classification system, why also following the existing Mitigation strategies in the organization.

This support the creation of a 9x9 Double Materiality Matric, which are illustrated in Figure 8.1. This matrix help visualize and prioritize risks by their financial and impact materiality.

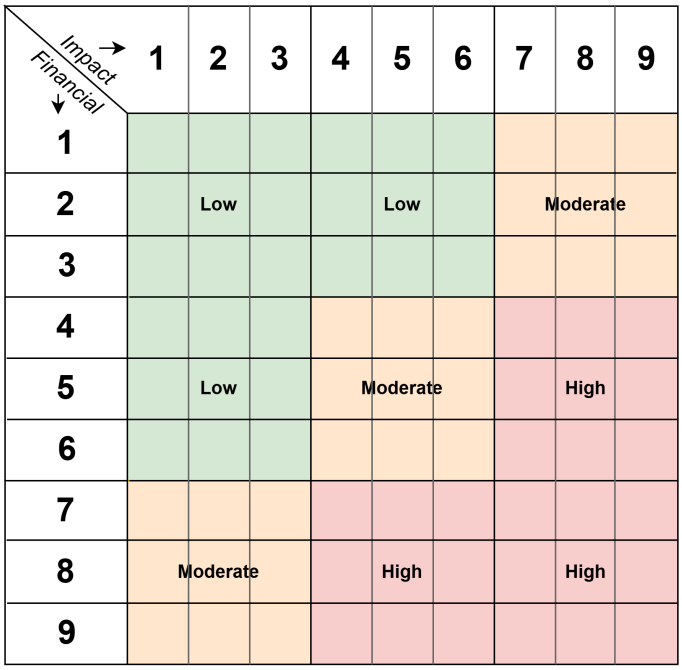

Figure 8.1. Overview of 9x9 Double Materiality Matrix, adapted to the Risk Score Model following Risk Mitigation Strategies. Own illustration.

This demonstrates, that SME can practically implement the principles of the DMA into their existing risk management processes. When integrated, this will also align with the existing structure of the ISO management system and its processes, even though it could result in the development of new or adaptation of existing documentation to support the implementation of the dual perspective of the DMA to maintain the integrity of the management system. This enables and establishes the foundation for SME to embed sustainability reporting in the organization, why they are yet to consider the topical standards in the risk management.

Summary of potential for integration Double Materiality Assessment

This chapter has explored the opportunities and challenges that may occur when integrating the DMA into the existing processes of the ISO management system. The analysis has identified that the ISO management system already has the existing structure and processes e.g. risk management, PDCA cycles, as core mechanism that can be leveraged to integrate the concepts of the DMA.

There are strategic benefits connected with integrating the ESRS and the Double Materiality Assessment into the existing risk management practices in SMEs management system. Yet the DMA is both a conceptual and practical challenge for SMEs. From this

study it is demonstrated that it is possible to align existing quality management systems, supported by the concepts of ISO and the standardized risk management framework with the DMA.

The identified gaps, which is elaborated in this chapter, has been connected with a recommendation to accommodate this integration, which allows organization to foster a holistic and proactive management system. Ultimately, by addressing these gaps, it can support long-term value creation, enhance the organizational transparency, and enhance the organizations adaptability and flexibility in navigating and supporting the implementation of future regulatory compliance.

For the implementation of the DMA in SMEs to contribute to a meaningful and scalable tool, with mitigated risk for the implementation, there is a need for future development focusing on simplified tools, that is tailored and auditable in the context of SMEs.

This can potentially lead to, and ensure that SMEs can participate more consistently in the sustainable transition without facing significant limitation e.g. administrative burden of integrating ESRS with the ISO management systems.

Reflections 9

This chapter are presenting critical reflections for the processes of the research, identifying potential limitations with the included methodologies, the influence from the selected case. While this study was focused in contributing to a better understanding of how ISO management system and risk management can be integrated with the ESRS, limitations a connected with the findings from the research.

9.1 Methodological Reflections

This study is performed with the use of a qualitative single case study as the chosen methodology. The choice of a single case study offered active engagement in the development of the Procedure of Risk Management in accordance with both the existing quality management system of the organization and the ISO 31000:2018. This choice has resulted in a greater exploratory research, understanding the deeper dynamics of integrating a structure risk management tool, that was developed to account for sustainability related issues. As it is elaborated in Yin (2014), conducting a case study can have significant value when investigating "how" and "why" questions, related to understanding practices and phenomenons. In the context of this case study, it enabled a greater examination of how risk management is performed, and utilized to decision-making in SMEs. Furthermore, it contributed with a greater understanding of how practices may align with the disclosure requirements from sustainability frameworks such as the ESRS.

The single case study, was conducted with close collaboration with the selected organization, providing the necessary information concerning internal documentation and follow-up with participation in semi-structured interviews to achieve a greater understanding of the organization. This opportunity, and experiences retrieved from the collaboration, could have been difficult to achieve through quantitive studies, which is not associated with a comprehensive understanding of the dynamics and relations between the people. processes and systems that are more common in SMEs.

However, the use of a single case study is also limited in several points. While it provides a context specific analysis and experiences, it is important to understand the context of the case to generalize the results from a study (Flyvbjerg, 2006). In this context, the results from this study, show the possibilities for leveraging ISO management systems with the ESRS; with SME who are ISO 9001:2015 certified, and have structured the risk management from ISO 31000:2018.

Therefore, it could be beneficial for future research to conduct a multiple case study, to investigate and address these possibilities for other similar cases, but also for cases who has other ISO certifications.

As this study is of qualitative nature, and involves interpretive document analysis, it important to be aware of potential bias. While this study pursued method triangulation, subjectivity is still a potential risk.

Another issues could be the absence of quantitative methodologies, the assess the effectivity of the risk management tool. The study has not described the assessment and multiplication of *Impact* and *Probability*, why there is not quantitative empirical data the assess the model. By incorporating quantitive aspects of risk management, such as performance metrics, data-series or surveys from stakeholder, could have strengthened this study. The combination of both quantitative and qualitative methodologies could have been valuable in assessing the effectiveness of the risk management tool.

9.2 Reflections on Case Selection

The selected case was guided by both practical considerations of accessibility, responsiveness but also its relevancy of the research. To understanding the potential for leveraging ISO management system to integrate ESRS in the organization, it was significant to select an SME who already had demonstrated maturity in management system and its processes. This made the selected organization a great contender for exploring the interrelation between ISO management system and sustainability disclosure requirements from the ESRS.

While the organization offered significant value and foundation for analysis, it also has potential biases connected to it.

Initially, it could be argued that the maturity of the SME is inconsistent with the majority of other SMEs. As it is elaborated in Chapter 2, a limitation for integration of ESRS in SME ISO management system, is lack in maturity of their systems. Therefore the case may be less relevant to other companies' in the industry, because of its maturity.

Another issue with the case organization, while being beneficial in e.g. available data, the collaboration may have influenced the description of the organization, the quality management system and its processes. It can lead to selective disclosures from the document analysis, interview or other methodologies which may have been used.

Overall, while the selected case for this study was relevant to the context of the investigation, it should be noted, that the SME is mature in its development and should not be associated with the state of a typical SME. The insights and results from this study should be utilized to similar organizations or investigated in the context of an alternative organization.

9.3 Opportunities for future research

The purpose and objective of this study was to examine how the DMA, as a requirement from the ESRS 1 - General Requirements, could be integrated into ISO management system and risk management in SME context (EFRAG, 2023).

The concept of the DMA introduces the dual perspective of materiality assessment. However, since the selected case organization does not have produced a sustainability reporting according with the ESRS or performed a DMA, the research was limited to

evaluating the organization readiness to align the risk management processes with the DMA. While this study has identified valuable insights it the structural and conceptual compatibility between the ISO 31000:2018 and the DMA, the findings are lacking in empirical perspectives.

With sustainability reporting developing under the ESRS and more organizations publishing sustainability reporting to improve their transparency, there is a significant opportunity in future research a the practical implementation and integration of the DMA with ISO management systems.

With the development of more sustainability reporting, future research and studies on experiences from the process in developing a sustainability reporting, can explore the obstacles organization may face when integrating the DMA or similar risk management processes.

A significant limitation, is the scope and time-horizon of this study. The possibility of tracking the organization over multiple cycles of their monitoring of their risk register, risk assessment, mitigation planning and future sustainability reporting, would have provided with a greater insight in the dynamics of adapting and integrating risk management practices. It would also have allowed for exploring changes in stakeholder priorities and requirements, the changing state of the CSRD.

This study contributes to understand how SME can align their risk management with sustainability reporting according to the ESRS. Yet, it is significant to acknowledge the limitations in lack of full ESRS implementation, resulting in some conclusion being anticipatory rather than evidence-based.

Nevertheless, these reflections points towards a more valuable direction for the future research of this field. A comparative study of multiple cases, supported with quantitative methodologies would enhance the empirical foundation for aligning ISO management system with the ESRS. By doing this, future research can contribute to the development a new practices or scalable model for risk management and the integration of sustainability framework in SMEs.

Conclusion 10

This master thesis identified the potential for SMEs to utilize their existing ISO management system to disclose on the ESRS requirements. This resulted in investigating how the frameworks that both ISO and the ESRS are build upon are complimentary, and the overlaps from the ESRS can be integrated and support the risk management and decision-making processes in ISO management systems in SMEs, to answer the following research question:

How can existing ISO management systems support the implementation of the framework of the European Sustainability Reporting Standards in small and medium-sized enterprises?

Initially it was identified that there is an alignment between the concepts and their individual structure within the ISO Standards; Harmonized Structure, PDCA-cycle, Risk-based thinking and Risk Management, and the ESRS framework; Topical ESRS and DMA, whereas these overlaps is an opportunity for SME to leverage and utilize their existing management system and its processes as support for implementing sustainability reporting.

Furthermore it was identified that the approach to risk management in ISO standards are related to the ISO 31000:2018 Risk Management Standard, which has clear structural similarities compared to the performance of the DMA. This can potentially reduce the amount of resources needed for performing the DMA, but also accommodate the integration between the organizations performance and publishing sustainability reporting.

The investigate the possibilities for SME to integrate sustainability reporting, by performing the DMA, there was conducted a singular case study. This study revealed that the SME in question, has the ability to implement minor changes to their current Risk Management to support the performance of the DMA. Though they should still be aware of barriers such as resource constraints, lack of supportive mechanism and gaps in necessary data collection methods.

Even though this study has identified key similarities in the two frameworks, this master thesis is limited in contributing with guidance that maps the practical implementation of the ESRS requirements to the ISO management system clauses. Therefore it is suggested that future investigation in this field is seeking to answering or developing auditable templates and tools, that contributes to aligning the procedures, which may be developed with ISO management system, to sustainability disclosure.

While the implementation of the CSRD is currently changing the regulatory field, in which organizations are operating, it also presents opportunities for all organizations, even for

organization out of the scope of the CSRD. By integrating and embedded the concepts of the DMA into the organization, it can enhance their proactive decision-making and strategic sustainability performance, and ultimately lead to increased transparency by implementing the necessary processes and publishing annual sustainability reporting.

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Appendix A

Organizational Context and Management System

This interview had the objective to obtain greater insight into the structure of the organization, and the implementation and operationalization of the organizations quality management system. Furthermore to understand their current state, in aligning their operations with sustainability reporting practices.

Interviewee: QHSE Manager
Intervieweer: Jonas Brix
Date: 01-04-2025
Location: Microsoft Teams
Minutes of interview: 39 minutes and 20 seconds

Interview Guide:

Overview of organization

1. Can you briefly describe the ISO management system your organization is currently using?
    a) We are currently IS0 9001 certified in Quality Management System, which essential to the quality of our operations. This is to consistently deliver a high quality of products and services, while accommodating operational efficiency. Furthermore we are currently working on the implementation of ISO 27001 for Information Security Management system, while having the implementation of ISO 14001 for Environmental Management System in the pipeline.
2. Is your management system currently able to support sustainability efforts in your organization?
    a) Our Quality Management System are currently providing a solid foundation for implementation of sustainability efforts, aspects of governance and social issues. Yet it is not fully able to cover the aspects of environmental issues, why the implementation of ISO 14001 is in the pipeline.
3. How well-integrated is the principles of the ISO High-Level Structure and the Plan-Do-Check-Act cycle in your organization?
    a) The High-Level-Structure of the ISO is a fundamental part of our Quality Management System and its processes, it is working as the foundation for the development and control of documented information in our organization.
    b) The principles of plan, do, check, and act are the regularly used in our existing practices ensuring the quality of our products and services, and to determine

the ongoing fit of our Quality Management System and its processes to our business.

Familiarity with ESRS requirements

1. How familiar are you with the European Sustainability Reporting Standards (ESRS)?
    a) We are aware of the ESRS, while not being required to follow the standards, we acknowledge the potential impact it can have in changes of the requirements of our stakeholders.
    b) We are currently monitoring the state of the development of the ESRS, and how it affects the market of our customer to ensure we can meet and deliver to the demands of our customers.
2. Have the organization been involved in any efforts to integrate these standards into the processes of the management system and its processes?
    a) Employees in the organizations have participated in several workshops and presentations related to the ESRS. Furthermore we are also working on changing our organizational structure and processes, to enhance our adaptability and flexibility to changes and new requirements from stakeholders.
    b) We are working on a more holistic and Integrated Management Systems, that enables us the implement new processes quicker into our value chain and adapt quicker to changes.

Customer demand and expectations

1. Have customers demanded any sustainability information from your organization, and have there been a change in the demand (if any)?
    a) Yes, there has been an increase in the demand of sustainability information from our stakeholders. This has specifically been related to the social issues from ESG reporting, and ISO 14001 certification.
2. Have the customer demands or expectations influenced your organization's perspective to sustainability reporting?
    a) Yes. The increasing demand for ESG information from our customers, have made us aware of our ability to deliver information on our sustainability efforts. Therefore it is also planned, that we wish to increase the transparency in the results of our business. This is to compliment our development with a proactive approach to how we can implement reporting practices into our management system.
3. What barriers do you face when trying to meet customer sustainability demands, and how do these barriers impact the organizations ability to meet their requirements?
    a) A significant barrier for us, is that we have not (yet) implemented the necessary processes and data collection methods which shall support the delivery of sustainability information.
    b) Another issue is to allocate the needed resources (time and expertise), that shall support the development of such system.

4. Are there any specific challenges you face when trying to align these systems with the ESRS to meet customer expectations?
    a) There are different challenges for us. One is to understand how the ESRS are affecting the Industry (our customers), and how it changes their requirements for their value chain, which we are a part of. This together with the complexity of the ESRS, is making it difficult for us to navigate the field, especially when you want to maintain resource efficiency of our organization.

Addressing potential solutions

1. What do you see as the key benefits of aligning your ISO management system with the ESRS framework, related to meeting customer sustainability demands?
    a) The are several benefits. We can meet our customers requirements better. Furthermore it enhances our credibility in our market, and potentially our organizations marketing.
    b) Another is that it could streamline reporting practices with our existing organizational structure and its processes to evolve our understanding of our customers demand, while maintain our operational efficiency.
2. What factors do you think would make it easier for your organization to integrate sustainability reporting under the ESRS into your existing ISO management system, considering the pressure from customers?
    a) Currently, we see a lack in organizational guidance in how to align the ESRS with ISO management systems for SMEs as us. It would be beneficial with the development of a framework that addresses this alignment, which will make it easier for SMEs to navigate and implement reporting practices to reduce its complexity.

Appendix B

Risk Management and structure of Governance

This interview was focused in understanding the organization's risk management, and the maturity of their quality management system, its processes and governance structures. It was also to identify the potential internal opportunities or limitation for integrating the DMA.

Interviewee: QHSE Manager
Intervieweer: Jonas Brix
Date: 12-05-2025
Location: Microsoft Teams
Minutes of interview: 48 minutes and 37 seconds

Interview Guide:

Background of Risk Management

1. What was your role in the the development of Risk Management?
    a) I have the responsibility for the implementation of the new approach to risk management into the organization and the quality management system. My role has been involve in mapping the existing processes, while also facilitate the development of the integration with Risk management in the ISO 27001:2022
    b) The integration with ISO 27001:2022, is developed in collaboration with the IT responsible, who are crucial in developed and accommodating the needed coordination of Risk management related to Information Security.
2. What made the organization formalize the process of Risk Management?
    a) Risk Management has always been a part of our operations. But with the focus on the implementation of the ISO 27001:2022, we have decided to formalize the risk management process, so it is also possible to interact with other aspect of risk management which is anticipated as a part of the integration with 27001:2022. Furthermore it is also to improve our strategic decision-making.
    b) Our goal is to have a formalized tool which can process risks across functions and departments in the organization, which hopefully will be beneficial and have significant value in identify risk tendencies, enhancing our proactive approach to mitigate risks.

Planning process

1. Who was involved in defining the scope and responsibilities of the Risk Management?
    a) Currently management has exclusively been involved, together with IT, so we align our business strategies with Risk Management.
    b) We anticipate that when we are implementing risk management down into our operations, we will involve other employees to understand how it effectively can be implemented and enhance our performance.
2. How did you anticipate and plan the implementation?
    a) Since we are developing an integrated management system, we started with aligning the two ISO certifications. From there, we made a gap analysis, to leverage as much as possible from our existing practices, procedures etc. to risk management in the integrated management system.
    b) The we wanted to pilot the project at the strategic level, to assess the fit for our management system and the functionality of the tool.

Experiences from Implementation

1. What tools or methods are you using in the organization to identify and address risks?
    a) We are using the risk matrix, determining the probability x impact of a risk, to determine the need for corrective or preventive actions.
2. What kind of procedures or process flows supports risk management in your organization?
    a) Currently we have implemented risk management as a part of our Management Team Review, Nonconformity, Suppler evaluation and as a part of our project process.
3. Examples of successful utilization of risk management in your organization?
    a) Since a big part of our business is delivering high-quality products and services, we are assessing the supplier ability to deliver consistently and the quality of the delivered produce.
    b) This is implemented as a continuous process in our organization. If any nonconformities can be lead to our suppliers, we are review the performance of our suppliers to determine our ongoing businesses.
4. What challenges did you face and what would you have done differently, if starting over?
    a) Initially, we complicated the risk management template for general use. The requirements for risk management in ISO 27001 are more comprehensive than the requirements for risk reporting in projects. The goal is to simplify the model to adapt it to our needs.

Future development and improvements

1. Are there currently any plans to further improve your risk management practices in the organization?
    a) Yes, we are planning on implementing the tool for risk management into the entire organization and the day-to-day operations, which hopefully can help us identify potential risks as early as possible.