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Subcontracting Risk Management:
The case of the Portuguese Moulds and Plastics industry

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Master (MSc) in Business Administration

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September 2024

BUSINESS
SCHOOL

Department of Marketing, Operations and General Management

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Acknowledgements

Este trabalho faz concluir, de momento, o meu percurso académico. Sem a ajuda, apoio e olhar atento das pessoas que menciono a seguir, o meu percurso seria mais moroso, mais díficil. Sinto-me profundamente grata a todos os que me acompanharam neste ano introspetivo, por isso considero imperativo deixar um agradecimento a cada uma das vossas contribuições. Em primeiro lugar, e de um modo geral, gostaria de agradecer a todas as pessoas que contribuiram, direta ou indiretamente, para a continuação dos meus estudos e, especificamente, na realização deste trabalho. Se não vos mencionar, perdoem-me o lapso (e a falta de espaço) mas sintam-se incluídos!

Agradeço à Professora Florinda, que desde o primeiro dia de trabalho confiou na minha autonomia e responsabilidade na realização de tarefas e me concedeu espaço para participar e expor ideias, demonstrando sempre astúcia aliada à sua tolerância e flexibilidade, características que considero fundamentais na arte de ensinar. Agradeço também à Professora Fátima pela oportunidade e ensinamentos prestados no decorrer deste trabalho. A sua orientação e rigor foram fundamentais para a conclusão bem sucedida desta investigação. O meu muito obrigada a ambas pela disponibilidade, orientação e apoio.

Gostaria ainda de agradecer particularmente ao Dr. Rui Tocha, Director Geral do Centimfe pelo seu contributo, ao Eng. Rui Soares e à Dra. Dúlcinia Santos pelo seu auxílio diligente na angariação de contactos para a realização e prossecução das entrevistas da minha dissertação.

Destaco o contributo valiosíssimo, considerando-o inestímavel, da doutoranda e pesquisadora Leani Lauermann Koch que desde o primeiro momento se disponibilizou a ajudar, e a quem devo o mérito da minha formação para analisar os dados e utilizar as ferramentas do software de análise de dados qualitativa Atlas.ti. A troca de ideias, a consideração, a entreajuda, a disponibilidade, a disciplina e humildade da Leani são qualidades que admiro e levo comigo daqui em diante.

Agradeço à minha família, em particular: à minha Mãe, cujo olhar atento nunca falhou e cujas palavras firmes deram, carinhosamente, colo e alento, nos dias mais exigentes; ao meu Padrinho, o segundo pai que a vida me deu e que, não só agora, mas durante a minha vida toda me aconselhou e cujo o apoio foi, é e será sempre fundamental; aos meus Avós, que nunca deixaram de me perguntar o estado dos estudos, orgulhosos. A vós devo, não só a pessoa que sou e todos os valores sobre os quais me rejo, como o sucesso na conclusão desta etapa de vida.

Por último, todavia não menos importante, agradeço ao Duarte, que me ajudou, apoiou e ouviu as minhas frustrações, ajudando a relativizá-las, me encorajou sempre em dias de hesitação, nunca me deixando duvidar das minhas capacidades e que, sempre com a gentileza que lhe é característica, me acalmou nos dias intempestivos e cujo suporte foi imprescindível.

A Todos, com as suas linhas guias e significado ímpar na minha trajetória pessoal, tendo o rigor e a disciplina que preconizam diariamente, bem como a paciência e a determinação, alicerçaram muito do meu empenho e afinco em estudar.

Agradeço-vos, do fundo do coração, e partilho convosco a concretização desta conquista.

Resumo

Este estudo exploratório centra-se nas implicações da Gestão do Risco da Subcontratação na indústria portuguesa de Moldes e Plásticos. Esta indústria, de grande importância no panorama nacional, enfrenta desafios na implementação da Gestão do Risco Empresarial (GRE) devido à competitividade entre as Pequenas e Médias Empresas (PME) e as grandes empresas, à insuficiência de relatórios de gestão do risco e às pressões da globalização.

A pesquisa identifica os principais riscos, tais como geopolíticos, económicos, operacionais e legais, suportados pelas PME no contexto de subcontratação em que se encontram, as suas estratégias de mitigação e aborda as pressões substanciais exercidas pelas grandes empresas e os desafios resultantes encontrados pelas PME no contexto dos processos de subcontratação. A investigação salienta o papel fundamental da ERM na atenuação dos riscos e na melhoria do desempenho organizacional, nomeadamente no que diz respeito à conformidade regulamentar, à garantia da qualidade, às interações de poder, à negociação, à gestão do capital intelectual e à gestão do conhecimento.

As principais conclusões apontam para o facto de a GRE sofrer de uma implementação inadequada nos relatórios de gestão de riscos a nível nacional, o que é retratado pela falta de literatura, e sublinham a necessidade de uma estratégia de gestão de riscos abrangente e integrada no sector.

Palavras-chave: Gestão do Risco Empresarial, Subcontratação, Indústria de Moldes e Plásticos, Mitigação do Risco, Ética Empresarial, Interações de Poder.

Sistema de Classificação JEL: M11 Gestão empresarial da produção; D81, Critérios para a tomada de decisões com risco e incerteza, L62 Automóveis, outro material de transporte, peças e equipamentos conexos.

Abstract

This exploratory study focuses on the implications of Subcontracting Risk Management within the Portuguese Moulds and Plastics industry. The industry, one with great importance in the national panorama, faces challenges in implementing Enterprise Risk Management (ERM) because of the competitiveness between Small and Medium-sized Enterprises (SMEs) and larger corporations, insufficient risk management reporting, and pressures from globalisation.

The research identifies the key risks such as geopolitical, economic, operational, and legal endured by SMEs in the subcontracting context they are in, their mitigation strategies, and addresses the substantial pressures exerted by large enterprises and the resulting challenges encountered by SMEs in the context of subcontracting processes. The research emphasises the critical role of ERM in mitigating risks and enhancing organisational performance, namely regarding Regulatory Compliance, Quality Assurance, Power interactions, Negotiation, Intellectual Capital Management, and Knowledge Management.

The main findings point out that ERM suffers from inadequate implementation at national-level risk management reporting, thus portrayed by the lack of literature and underscores the necessity for a comprehensive and integrated risk management strategy in the industry.

Keywords: Enterprise Risk Management, Subcontracting, Moulds and Plastics Industry, Risk Mitigation, Business Ethics, Power Interactions.

JEL Classification System: M11 Production Management; D81, Criteria for Decision-Making under Risk and Uncertainty, L62 Automobiles, Other Transportation Equipment, Related Parts and Equipment.

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List of abbreviations and acronyms

Atlas.ti software	Qualitative data analysis software
CAQDAS	Computer-Assisted Qualitative Data Analysis Software
COVID-19	an infectious disease caused by the coronavirus pandemic
EIB	European Investment Bank
ERM	Enterprise Risk Management
FMEA	Failure Mode and Effect Analysis
IATF	International Automotive Task Force
NDA	Non-Disclosure Agreement
OEM	Original Equipment Manufacturer
SME	Small and Medium Enterprises

Chapter 1 – Introduction

1.1. Contextualisation of the problem under research

In today's globalised world, large businesses affect billions of people's lives, often in subtle and difficult ways to detect. Global organisations have an impact that goes far beyond the economy, therefore being an inevitable force in the fields of politics, economy, environment, and culture. Larger firms' production and manufacturing choices and decisions have big implications on the environment both nationally and internationally (Roach, 2007).

Readings from the literature show the larger companies in a sector are growing more dominant than their smaller competitors. Businesses use their political clout to influence public policy, secure subsidies and lower their tax obligations (Roach, 2007). The policies of corporations on pay, benefits, and working conditions have an impact on millions of people's quality of life. Thus, it is often that companies enter strategic partnerships with implied joint growth of the parties involved, however, Small and Medium Enterprises (SMEs) are often overwhelmed by larger companies. It, then, denotes risks and such risks should be taken, based on the literature, through risk management strategies (Roach, 2007).

Enterprise risk management (ERM) is argued internationally to be one to improve companies' performance when adopting a holistic approach to risk management. ERM systems are believed to minimise direct and indirect costs of financial distress and earning variability, as well as capital markets' cyclical failures (Florio & Leoni, 2017). As is the understanding sustained in the literature, ERM, a risk management strategy, has developed substantially and notably over time, becoming an important component of global organisational strategy (Pinto et al., 2020).

Additionally, companies have progressively needed a holistic approach and comprehensive strategy to tackle risk – risk identification, risk assessment or, more importantly, risk mitigation. Because of globalisation, the complexity and interconnectivity of risks have increased, pushing organisations to take far more integrated methods than ever before. Thus, ERM has its nucleus intention of protecting and maximising stakeholder value (Pinto et al., 2020).

In the 1940s, a small group of American buyers established a partnership with Aníbal H. Abrantes, a small business in Marinha Grande, which led to the development of the Portuguese mould industry. The firm subsequently became recognised internationally as a prominent mould manufacturer. Following Mota & De Castro's (2004) data collection, the industry expanded to encompass 250 SMEs employing a total of 7500 people at the time of the article's

publication. The industry is divided into two geographical areas: Marinha Grande in central Portugal and Oliveira de Azeméis in northern Portugal. At the time, around 90% of the industry's output was exported to clients in a range of end-user sectors with the majority located in the EU, the United States, and Canada. As a result, for several years, Portugal has been one of the top 10 global exporters of plastic injection moulds (Mota & De Castro, 2004).

Thereupon, as stated by CEFAMOL - Portuguese Association for the Mould Industry (2023), in their 2023 report, this industry occupied prominence in the national and European panorama, being the 3rd largest European producer and the 8th worldwide, exporting most of its production and exceeding 500 million euros in 2022. The Moulds and Plastics industry has significance in the Portuguese context; hence it was thought to be a relevant, pertinent, and applicable one to base the empirical analysis of the dissertation. Concomitantly, the Moulds and Plastics industry in Portugal has a relevant expression on the automotive industry, continuing as the main customer of this sector in 2022, although decreasing slightly (CEFAMOL - Portuguese Association for the Mould Industry, 2023). Likewise, it is mentioned that the automotive industry represents one of the 2022 largest economic sectors in terms of revenue. In the specific case of Portugal, in 2016, this sector represented 5.9% of GDP. What is more, many firms in this area use subcontracting in their strategy, notably in processes involving design, production, and assembly (Sá et al., 2022).

Malheiro et al. (2024) states that SMEs dominate Portugal's business fabric: 99,9% of the country's companies are small and medium-sized and only 0,1% are large. Companies with no more than 250 employees, no more than 50 million euros in annual turnover and net assets of more than 43 million euros are considered SMEs (INE, 2023). Malheiro et al. (2024) state that most Portuguese industrial SMEs are concentrated in the northern and central Regions.

In conclusion, this dissertation project aims to understand Enterprise Risk Management in the Portuguese Moulds and Plastics industry for SMEs. Subsequently, the research objectives and research questions will allow guidance throughout the project run. The Moulds and Plastics industry in the Portuguese panorama choice, aligned with the literature review on ERM and Subcontracting processes, gives the mote to the initial problem of the thesis dissertation.

1.2. Research Objective and Research Questions

The research intends to identify and describe the major risks faced by SMEs in the mould and plastics sector in Portugal. Furthermore, it examines the strategies to manage those risks and, consequently mitigate them. To guide the problem outlined, the present research is going to have the following Research Objectives:

RO_1: Identify and analyse the main risks encountered by subcontracted SMEs in the Moulds and Plastics industry.

RO_2: Investigate the differences in the risk profiles identified between fully subcontracted and partially subcontracted SMEs within the Moulds and Plastics industry.

RO_3: Identify and describe the risk mitigation strategies employed by subcontracted SMEs in the Moulds and Plastics industry.

RO_4: Assess how subcontracted SMEs in the Mould and Plastics industry perceive ethical concerns and implement ethical management practices within their subcontracted operations.

To support the Research Objectives, the investigation has the following research questions:

RQ_1: What are the main risks faced by SMEs in the Moulds and Plastics industry when operating under subcontracting arrangements?

RQ_2: How do the risks differ between fully subcontracted and partially subcontracted SMEs within the Moulds and Plastics industry?

RQ_3: What strategies do subcontracted SMEs in the Moulds and Plastics industry use to mitigate these risks?

RQ_4: How do subcontracted SMEs in the Moulds and Plastics industry address and manage ethical concerns in their subcontracted operations?

1.3. Dissertation Structure

The present dissertation is organised into 5 Chapters. Firstly, Chapter 1 – Introduction, gives an overview of the problem in study and its significance in the Portuguese context, as well as contextualisation of the problem, and the industry of which the problem is a part of. The first chapter also describes the purpose of the research, the research objectives, and the research questions. Chapter 2 – Literature Review starts by explaining the methodology used and the collection of documents, as well as the concepts associated with the research, Namely Enterprise Risk Management, Subcontracting, Power interactions, Business Ethics, Trust, Regulatory Compliance, and Intangible management.

Chapter 3 – Methodology presents the research methodology used in the empirical part of this study. In Chapter 4 – Findings and Discussion, the results obtained are described, and their practical implications are highlighted, discussed, and interpreted. Finally, in Chapter 5 – Conclusions, the study's main conclusions are stated, and the research questions are explained based on the theoretical findings. The limitations of the study and future research challenges and developments are found in this chapter too.

Chapter 2 – Literature Review

The research has based its foundations on the literature review of existing documents available on the various verified and reputable repositories, such as Scopus, Web of Science, and Google Scholar, as they are the most relevant in business and management. The research is grounded in a thorough literature review of the available documents from the mentioned repositories, all texts fully available electronically.

This approach ensures that the chosen theme is comprehensively analysed. The research has utilised the following keywords in both Portuguese and English between September 2023 and September 2024: Enterprise risk management, subcontracting, Moulds and Plastics Industry, Risk Assessment/ Risk Mitigation, Business Ethics, Strategic Risk Management, Subcontracting, and SMEs.

2.2. Enterprise Risk Management

The core idea of Enterprise Risk Management (ERM) is integration. Thus, an integrated risk organisation is the first prerequisite for ERM. This often entails a centralised Risk Management (RM) unit that reports to the CEO and the Board of Directors in support of their corporate and board-level risk supervision responsibilities. It is important to mention that organisational perspectives on RM have faced a paradigm shift (Gordon et al., 2009). Secondly, integrating risk transfer mechanisms is necessary for ERM, when its tactics are implemented at a transactional or individual level under a silo approach – meaning that a firm with a silo mentality finds it difficult to communicate or exchange knowledge amongst its departments or teams –, it makes it difficult to meet long-term objectives (Lam, 2011).

This method tends to lead to over-hedging and excessive insurance coverage because it does not include diversification within or between the risk types in a portfolio. Thirdly, RM must be incorporated into a company's business processes to meet the requirements of ERM. It improves the performance of enterprises by supporting and influencing decisions about pricing, resource allocation, and other business-related matters, as opposed to the defensive or control-oriented measures used to manage earnings volatility and downside risk (Lam, 2014).

According (Frigo & Anderson, 2011), Strategic Risk Management (SRM) is a process that facilitates an organisation in achieving its strategy and strategic objectives, which ultimately have the aim of creating and preserving shareholder and stakeholder value. It must have risks and uncertainties identified, assessed, and managed, which are impacted by both internal and external events or scenarios. Following this, SRM is focused on the most consequential risks to shareholder value, which is a crucial part of ERM.

"ERM business strategy is a process of enterprise risk management designed and implemented in a company strategy to achieve the company's goals and maximise the value of the company (…)" (Ricardianto et al., 2023: p. 251).

ERM integrated into a company strategy has the potential to take advantage of existing strengths and opportunities as well as mitigate risks and identify threats when compared to competitors (Ricardianto et al., 2023). Roach (2007) asserts that organisations frequently create strategic partnership agreements with the implied collaborative growth of the parties involved; yet Small and Medium Enterprises (SMEs) are frequently surpassed and disadvantaged by larger corporations. It signifies dangers and such risks should be taken under risk management methodological procedures. Additionally, competitive advantage is the ability to have the upper hand over the competitors as it can increase the performance of the company. However, if the risk is managed poorly, it can impair a company's competitive advantage and performance (Ricardianto et al., 2023).

According to research on risk reporting, disclosures are generic, qualitative, and backward-looking. Companies' public visibility and agency expenses associated with leveraged companies are important factors in driving risk reporting (Pinto et al., 2020). This is especially true during times of financial difficulty in nations with weaker legal systems, where the goal is to control strategic legitimacy and reputation by devoting more time to contextualising unfavourable outcomes. Corporate Governance systems, such as the participation of independent directors, board meetings, and unitary board leadership structures, play an important role in enhancing risk reporting (Pinto et al., 2020).

The Global Risks Report of 2023 (World Economic Forum, 2024) states that an evolved approach to RM and decision-making is necessary to address the risk of significant changes to Earth systems, which also includes Enterprise Risk Management by correlation.

In the same report, it is possible to observe the graphic of Top global risks (segmented into economic, environmental, geopolitical, societal, and technological categories) addressed by corporate strategies, such as ESG reporting, resilient supply chains, social initiatives, and public-private partnerships in descendent order from the approaches people expect to have the most potential for driving action on risk reduction and preparedness in the next ten years to the least: labour shortages, unemployment, disruptions to a systemically important supply chain, economic downturn, lack of economic opportunity, asset bubble bursts, cyber insecurity, concentration of strategic resources, pollution, technological power concentration (World Economic Forum, 2024).

Moreover, the regulatory reporting environment has an immense influence on ERM procedures. Regulatory requirements differ between industries and geographies, making ERM implementation more challenging. To remain compliant and avoid legal penalties, organisations must keep up with new legislation and change their RM practices, according to Lam (2014).

Risks are inherently dynamic, fluid, and interrelated. They cannot, therefore, be divided into independent parts and governed as such. Enterprises that operate in the volatile environment of today need to manage their risk portfolio in a far more integrated and interconnected way. Although, not so long ago, companies used to handle risk in separate branches, in a silo approach mode. Different hazards were handled differently and frequently by various individuals, teams, or departments inside a company (Lam, 2014).

However, it's becoming more clear that this fragmented strategy just does not work, since risks are thoroughly interrelated to be divided and handled by completely separate bodies. By doing this, organisational gaps and redundancies may lead to poor, inefficient, and substandard RM, and risk interdependencies and portfolio effects may not be recognised. Using multiple methodologies, and formats, and lacking standardisation to measure risk are a few of the main issues existent with each unit measuring and reporting its own within an organisation (Lam, 2014).

Lack of standardisation and the use of disparate procedures and formats are two of the main issues when different departments are measuring and reporting risk independently. Even so, it is pertinent to mention that ERM implementation has both soft and hard sides. According to Lam (2014), there are aspects such as measures and reporting, risk oversight committees, policies and procedures, risk assessments and risk limits, and audit processes that contrast with risk awareness, people, skills, incentives, culture, and values which reflect the more lenient aspects of ERM.

Moreover, it must be well explained what the expectations in terms of benefits are and how it can create business value when implementing it (Lam, 2014). When it comes, specifically, to the mould-making industry, it relies on an integrated range of extensive knowledge, capital, and added value, resulting in a competitive and differentiated offering and high-quality services (CEFAMOL - Portuguese Association for the Mould Industry, 2023).

The significance of behavioural biases influencing decisions made about RM, such as agency and information problems in firms, as Jankensgård (2019) stated, enables reflection about potentially disastrous risks and such diagnosis of behavioural biases are practices that are perceived as distractions from the efficient management of the company because they fit

poorly into most organisational structures. Identifying these risks enables an understanding of corporate RM theory so that it is possible to analyse frictions between the firm and external actors (Jankensgård, 2019).

It is important to take into consideration correlations between different types of risks to be able to measure accurately the impact within the firms, some of which are hard to quantify and are included in the strategic risk folder. Nonetheless, firms are often forced to simplify problems that are not so simple, and by doing so, they fall into the trap of ignoring correlations altogether. By managing risks wrongly, as mentioned previously, a firm can enlarge the probability of huge adverse cash-flow shortfalls (Nocco & Stulz, 2006).

Even though there are rationales behind why ERM influences increasing or decreasing of shareholder value, since it is only applicable to each company case individually (i.e. the reasons depend on the characteristics of the firm itself) the statement about the benefits or costs of ERM must be carefully considered (Beasley et al., 2005). The identification of risks is an ongoing process because to be correctly identified, it needs to be characterised, and have causes and consequences. This is an interactive activity because new risks can happen during the project life cycle (in which other risks already existing can become more obvious) (Violante et al., 2018).

Risk is a crucial element of project management and becomes more significant as more businesses invest in projects that have inherent risks at various phases. According to Musiello-Neto et al. (2022), risk is a manager's responsibility, with a value system and priority scale. Managers must constantly integrate activities and procedures to reduce risks. Ensuring the survival of firms and generating sustainable value is imperative.

This is particularly pertinent for SMEs, as their limited resources and structural attributes render them more susceptible and detrimental impacts of risks, due to their limited resources and structural characteristics (Musiello-Neto et al., 2022). Because risks can have an ownership or responsibility component, risk assessment tools may be incomplete or unavailable to managers. Typically, managers fill this gap by utilising an organisational planning framework variant. Moreover, even though it exposes SMEs to greater risk, innovation typically differentiates them according to the degree of technological uncertainty, development time, and process complexity, opening up new opportunities and allowing SMEs to establish a dominant position in the market (Musiello-Neto et al., 2022).

An ERM policy is advised to be implemented to assist the Board's RM monitoring efforts. The board and management governance structure, the summary of risk committee charters, RM roles and responsibilities, guiding risk principles, the summary of risk policies and standards,

the analytical and reporting requirements, and the exception management procedures are some of the essential elements of an ERM policy. To measure the risk, Key Risk Indicators (KRIs), used as metrics that show how exposed you are to risk over time, should ideally be integrated with relevant Key Performance Indicators (KPIs) and monitored against risk tolerance levels. By doing ERM integration, the organisation's risk/return profile is optimised, so it must be incorporated into key business processes (Lam, 2011, 2014).

Major disasters are frequently the result of a confluence of risky events. One important lesson is that organisations must manage risks and their dependencies holistically. Businesses will cease investing funds in ERM until they can see possible and bigger returns. Although, it is important to mention that in Lam (2011) companies have stated that their RM initiatives have improved stock prices, raised debt ratings, reduced losses, reduced exposure to hazards, and relieved regulatory capital requirements. Concurrently, they discovered that higher valuation, better profitability, and reduced risk are associated with companies that have stronger corporate governance Lam (2011).

ERM is considered one of the most effective ways to enhance company performance when using a holistic RM approach (Florio & Leoni, 2017). In fact, Pagach & Warr (2007) assert that the theoretical efficient capital market idea that a business should not spend resources controlling idiosyncratic risk is unreasonable in a world with market frictions. They also suggest that a holistic approach to RM may increase shareholder value (Pagach & Warr, 2007).

As per the literature gathered by (Musiello-Neto et al., 2022), a business's ability to recognise and handle its risks is primarily determined by how well it can adjust to changes in the environment, accept those changes, and carry out its business operations more effectively—all of which are connected to its capacity to seise opportunities. Therefore, it is one of the most popular tactics employed by top managers is business risk assessment. Establishing managed risks is the limit of living with risk to attain proactive and efficient governance.

Investors are willing to pay a premium for well-governed companies. To do so, certain requirements following Lam's (2014) thought process are crucial to address its implementation. It is advised for addressing ERM's implementation effectively, one must not overlook how challenging they may be for most firms. They are expressed into four questions, regarding governance structure and policies - "*Who is responsible for providing risk oversight and making critical RM decisions?* -, Risk assessment and quantification – "*How (ex-ante) will they make these RM decisions in terms of analytical input?*"- risk management - "*What specific decisions will they make to optimise the risk/return profile of the company?* - and Reporting

and Monitoring - "*How (ex-post) will the company monitor the performance of RM decisions (i.e., a feedback loop)?*" (Lam, 2014: p. 387).

Syrová & Špička's (2023) point of view is that adopting formal ERM methods does not always benefit SMEs, instead, in contrast to large companies it does. What happens is that the need to formally deal with risk increases the larger the company is, and since SMEs may lack resources to support their RM activities, the size of the firm affects the level of ERM implemented.

When using ERM indices to measure implementation risk at firms, it is key to recognise that complicated ones are not fitting for the nonfinancial sector because the input variables required to calculate such indices are difficult or impossible to obtain. Having both direct and indirect effects, the latter highlights the importance of organisational culture and strategic RM performance evaluations in the relationship between ERM and SMEs' subjective financial performance, and thus, ERM has a beneficial mediation function for SMEs, according to Syrová & Špička (2023)'s study. Indeed, Florio & Leoni (2017)'s tests verify that organisations in which it was implemented ERM have lower company risk and acquire better performance. ERM implementation systems are thus seen as a method to upgrade and strengthen operational and strategic decisions, reducing direct and indirect risk costs.

Furthermore, foreign capital can provide challenges for managers and business owners. To ensure success, companies must prioritise internal consistency, effective communication, and alignment with their vision. Implementing ERM in nonfinancial SMEs helps mitigate the detrimental impact of foreign equity on financial performance by enhancing organisational culture (Syrová & Špička, 2023). The study conducted by Florio & Leoni (2017) mentioned above also softens the worries regarding ERM's sophistication and performance, showing that the designing of such methodologies is perceived for medium-term firms with better performance, which allows them to be able to design them.

Research has shown businesses that use ERM perform better, are more valuable, and have reduced capital costs. According to Syrová & Špička (2023), SMEs have a larger need for more effective ERM strategies, but they may not always gain from adopting formal methods because firm processes tend to become more formalised as a company grows. However, the modern portfolio theory states that ERM might be destroying value in the sense that it assumes shareholders, through portfolio diversification, can remove idiosyncratic risks in a costless approach, under the hypothesis that capital markets toil perfectly and frictionlessly. Therefore, every expenditure taken by the company to reduce this kind of risk is seen as a negative representative of net present value (Beasley et al., 2008).

Pinto et al. (2020) conclude that ERM is still in its early stages in Portugal, with the Institute of Internal Auditors playing a leading role. They further claim that risk management reporting is extremely scarce on a national level. The Reports' primary conclusions revealed that ERM integration exists strictly through regulation, such as the Corporate Governance Code, Companies Code, and Stock Exchange Code. However, regulatory procedures could also be used through the International Regulation of Multinational Corporations (MNCs), which may involve treaties, organisations, and coordination of national policies when national regulatory measures fail to succeed (Roach, 2007).

Moreover, it appears that management still views risk management through traditional silo-based lenses, emphasising the major tasks impacted and the structures that are currently in place rather than paying attention to the system's regular monitoring and alignment with organisational goals, strategy, and culture (Pinto et al., 2020). Globalisation caused a paradigm change in the corporate environment, exposing organisations to various risks, including geopolitical, supply chain, and currency concerns. ERM has become a crucial tool for organisations seeking to properly handle these issues. The linked structure of global markets compelled organisations to evaluate risks that crossed regional boundaries, necessitating a more complex and adaptive risk management strategy (Pinto et al., 2020).

ERM disclosures display to be a necessary ticking box exercise that businesses must complete to prove they comply with all legal obligations and requirements. Notwithstanding, there are enormous efforts that must be undertaken to achieve an effective ERM integration among Portuguese non-financial companies. Hence the idea underlined in Mota & De Castro (2004) of the Portuguese Moulds and Plastics injection businesses provides an opportunity to investigate the concept of capabilities and their significance in the growth of firm boundaries.

2.3. Subcontracting

"*Labour market subcontracting is a global phenomenon.*" (Basu et al., 2019: p. 24).

Subcontracting is the process by which the subcontractor enters into a contract with the subcontracted to deal with aspects such as product design, processing or manufacture, construction, maintenance work, or services in a specific production cycle, according to OECD (EIM Business & Policy Research, 2009). Therefore, the technicalities and standards of the goods and services must be rigorously followed by the subcontracted business party. Additionally, the United Nations Industrial Development Organisation (UNIDO) defines subcontracting as an economic procedure in which a main contractor requests a different contractor to produce components, subassemblies, or additional services required to complete

an intended product, which should comply with the main contractor’s specifications (EIM Business & Policy Research, 2009).

Moreover, according to EIM Business & Policy Research (2009), subcontracting consists in the part of a product or service purchased from a different enterprise. It usually manifests itself as an asymmetrical connection between a small subcontractor and a large principal enterprise, in which an explicit contract and financial links are formalised. Businesses may choose to outsource several tasks to other businesses to address certain bottlenecks like transient technical issues or brief variations in demand, such as demand peaks or seasonal trends (EIM Business & Policy Research, 2009).

One reason for companies adopting subcontracting strategies is to attain a competitive advantage, to enhance operational performance effectiveness, and also, to reduce costs (Deardorff & Djankov, 2000). While it is affirmed to give better offers to customers, adding more value and creating differentiation, and being more flexible, it is also related to a lack of expertise and an attempt to reduce risks and operating costs, plummeting uncertainties related to production (Sá et al., 2022). For example, Mota & De Castro (2004) mentions that inter-firm connections may play a significant role in sustaining and increasing the industry's diversity of skills by avoiding hierarchical control and encouraging specialisation.

However, a study conducted by Ricardianto et al. (2023) concludes that competitive advantage can be directly influenced by business strategies, yet the first contributes indirectly to the performance of the company. These aspects go hand in hand with Enterprise Risk Management (ERM) since it hugely influences company performance and competitive advantage when implementing formal integrated practices to attain better performance. According to Basu et al. (2019), previous research has included subcontracting in response to the demand for high pay and flexibility in the labour market, as well as concerns about efficiency and variations in wage costs between countries. Efficiency losses occur when workers do not maximise their productive potential due to low morale in equilibrium (Basu et al., 2019).

The dynamic environment of global markets may come with many uncertainties such as changes in competition and in technology, supply, and demand fluctuations, labour issues, legal and public environmental regulations, which are not independent of entrepreneurs. Nonetheless, as firms expand globally, they may use their mobility to dodge national regulations (Roach, 2007).

Due to the emergence of new ethical issues as a result of the world's economy globalisation, many factories in Western Europe have eliminated numerous jobs, while working conditions

in subsidiaries, or at subcontractors in the newly industrialised countries, although in significantly inferior numbers (Fassin, 2005). Following Basu et al.'s (2019) point of view, employers make much profit from strong competition amongst subcontractors and subcontracting holdups arise when employers and subcontractors fail to consider this impact on labour effort.

This is aligned with an idea also discussed by Sá et al. (2022), given that the company could subcontract an activity and from there observe specific cost advantages, whether that might be through the subcontractor's negotiation power or the extent of competition and the salary cohort in the subcontractor's country. Additionally, fissured labour markets are characterised by salary disparities between permanent and contract workers, as well as the proliferation of subcontracting intermediaries competing in numerous markets, industries, and sectors (Basu et al., 2019). Then, the competitiveness of internal production might be promoted by subcontracting strategies that sequentially, represent a source for suppliers' competitiveness assessment (Sá et al., 2022).

Subcontracting can be the spotting of partners, and establishing a bilateral relationship, in which the partners make investments benefitting from this association, producing goods and services that meet the specific needs of the company in question. Although being endowed with benefits, subcontracting strategies have also potential risks associated with them, such as loss of control, and risks related to markets, quality, and production, which can be under different regulatory frameworks and laws (Sá et al., 2022). Jankensgård (2019) underlines that the aim is to manage the net aggregated risk exposures of the SMEs and how to frame their willingness and capacity to accept such exposures, identifying the effects of friction, such as contracting problems between the firm and other actors.

Nevertheless, despite subcontracting being within the strategic flexibility of firms being able to transform fixed-cost into a variable-cost frame, it enables the adjustment of the company's supply regarding the development of global markets, eliminating, in the meantime, uncertainties inherent to production. Subcontracting is being used by businesses worldwide, especially SMEs, whether they are in the manufacturing or service sectors (Sá et al., 2022).

Strengthening the idea, Sá et al. (2022) advise that it should be borne in mind that one of the processes that can lead to inefficiency in companies is subcontracting. Equally, risks exist in all operations implemented by a business. What is important is to be mindful that no subcontracting activity is risk-free and that when it comes to subcontracted activities, the risk may increase the more complex it is the activity at hand, as well as the higher number of interest parties involved, specifically the stakeholders. Profit-maximising employers may advocate

subcontracting to benefit from a more advantageous rent-sharing arrangement whenever multi-party employment biases the fair pay downward. In general, this preference does not equate to efficiency losses; rather, it does so only in certain circumstances—such as when subcontracting is free of recruitment expenses (Sá et al., 2022).

One example is mentioned by Suarez-Vallejo (2009), in which contractors were dissatisfied since they were unable to earn as much money as they were accustomed to, and some of their workers working for other firms complained. Unsatisfied contractors exerted, and enterprise performance management terminated the contract, leaving many of their subcontractors without significant incentives and bonuses (Sá et al., 2022).

The specialist subcontracted should supply specialised knowledge and abilities, unique tools, and procedures for carrying out the work assigned, being only able to do so if licensed. Furthermore, there are subcontracting types assessed by EIM Business & Policy Research (2009) that better enable the characterisation of subcontracted SMEs: capacity subcontracting is when a firm possesses the technical and human resources necessary to produce the required material, or component, although they lack, at least temporarily, the ability to do so, hence subcontracting functions as a hedge or protection against market risks; specialised subcontracting functions are used when a subcontractor wants to leverage a particular tool and capability to produce finished goods, specialised supplies or components that demand higher degrees of technical knowledge that the subcontractor is unable to provide, consciously deciding against developing a particular industrial process for their own strategic objectives (EIM Business & Policy Research, 2009).

At the same time, subcontracting can be characterised into 3 levels: First-tier, who is responsible for supplying complex types of equipment and systems that are ready to be assembled by the client, and usually are part of the designing of the supplied products and have technology patents, and are usually multinational companies; Second-tier, who essentially supply the firs-tier suppliers with sub-equipment, often complex as well, although not having a role in the product conception; and third-tier, who produce components, goods and services of a standard nature for second-tier subcontractors. These are identified as capacity subcontracting, whose fitting of the other suppliers of demand is particularly present in this group that is usually composed of SMEs (EIM Business & Policy Research, 2009).

Depending on the industry, the typical subcontracting market has a large number of subcontractors who face varying levels of entry barriers. Thus, the identification of subcontracting in the Moulds and Plastics industry may add a layer of complexity and potential risks to the risk management of companies integrated in such sectors (Sá et al., 2022). It is

ERM's concern that potential risks arising from subcontracting may make difficult the assessment of non-compliance, operational disruptions amongst its subcontractors, as well as lack of clear contractual terms and inadequate monitoring which lead to unforeseen risks that could be potentially dangerous for firms, especially SMEs (Basu et al., 2019).

2.4. Power Interactions

According to Fassin (2005), the economic crisis and globalisation have put pressure on managers and led to a rise in power abuse. Size is a common factor in power abuse, particularly when it comes to the interactions between bigger, frequently global corporations and their smaller suppliers. As Schleper et al. (2017) also mentioned, abusive power tactics happen more often than expected when power imbalances are the theme.

The power-imbalanced buyer-supplier relationships are supported by the idea that they might have no exit options and in consequence endure such practices from the stronger part. Another point regarding it is that research on negotiation has listed aspects concerning unethical behaviour, such as greed in the pursuit of profit, the nature of competition and the environment associated, and the demand to restore fair play that may have been violated [(Fassin, 2005; Schleper et al., 2017)].

If justice were done, there would be transgressions committed by the superior or the employing organisation that are so blatantly against decorum and the law that the subordinate could not keep silent. By failing to report and thereby compounding a felony, one becomes a partner in the crime and is legally accountable. Otherwise, the primary reason for not encouraging whistleblowing is not to weaken the connection of trust that connects the superior and the subordinate (Drucker, 1981).

Encouraging the whistleblower may cause the subordinate to lose faith in the superior's commitment and capacity to defend his people. These individuals, these whistleblowers are no longer considered supporters; instead, they are potential opponents, adversaries, rivals, or political players. In the end, encouraging and even allowing whistleblowers renders the weaker party - that is, the subordinate - helpless against the unscrupulous superior, simply because the superior no longer recognises or fulfills his commitment to the subordinate (Drucker, 1981).

According to Schleper et al. (2017) reference, expertise, and traditional legitimacy are examples of non-mediated power sources that originate from the perception of power on the part of a weaker agent. Whereas a supplier determines the extent to which a buying business influences non-mediated power, mediated power sources control the reinforcements which guide the target's behaviour. The purchasing firm determines (as a source of power and

control), whether and when it influences a supplier, typically includes- in a mediated power source- coercive, reward, and legaly legitimate power sources. Thus, it increases the probability of unethical supplier exploitation, given that the buyer has the upper hand in comparison to the supplier (Schleper et al., 2017).

Borelli (2022) attests that by subcontracting, firms are allowed to separate power and profits from risks and responsibilities and that the degree of control on the subcontracted companies is even higher when they belong to the same group of companies. Because the client and the main contractor keep control over their subcontracting chain, thus deciding the conditions that must be respected in service provision or goods production, such as timing required, technical specificities, and volume of production, to comply with the conditions mandatory by main contractors/clients, subcontracted firms they are more times than not forced to infringe labour regulation (Borelli, 2022).

Additionally, SMEs may face significant issues as a result of their subcontracting relationships, because, as previously acknowledged, contractors frequently establish requirements for joining and keeping up with the exigencies of their chains (Borelli, 2022), which makes the relationship buyer-dominated. Being part of the subcontracting arrangement, SMEs must respond to not met requirements, for instance, lower profit margins results or a loss of control over production decisions if they want to keep taking part in the interaction (EIM Business & Policy Research, 2009).

Nevertheless, specialised subcontracted suppliers are considered to have less asymmetrical relationships with the contractor because they possess stronger bargaining power than capacity subcontracted suppliers. However, increasing the specialised subcontracting increases the necessity of creating specially tailored goods and services that are made specifically for the contractor who demands them. This can bring up production and investment constraints for the smaller companies, since this way they grow reliant on the main contractors, having less opportunity to distribute risks amongst multiple clients and becoming extremely riskier (EIM Business & Policy Research, 2009).

2.5. Business Ethics

According to Fassin (2005), it seems that modern businesses are under pressure from all stakeholders involved, as well as time pressures, scarce resources, and competition. Consequently, it has evidence on the expectations and behaviours of all actors involved in the business. For example, staff long for better salaries and better working conditions, customers look for better quality at lower prices, suppliers anticipate raising prices, banks want interest

rates and guarantees, and the governments have in prospect collecting taxes which could imply constraints on business (Fassin, 2005).

The primary unethical business behaviours are fraud, unfair competition, breaking agreements, treating stakeholders unfairly, and abusing power in conflicts of interest when personal interests conflict with those of stakeholders. Whilst in negotiations, dubious practices may occur often, especially regarding mergers and acquisitions. These practices can be lies and deception, breaches of promise, passive corruption, unfair competition, personal advantages for management, and the manipulation of communication. To attain ethical progress in companies, ethical management ought to extend beyond significant strategic concerns and encompass the minor operational details of day-to-day corporate operations. Corporate social responsibility (CSR) and Corporate Governance alone are not sufficient to address ethics in business and entrepreneurship (Fassin, 2005).

Maximising financial gains has always been one of management's primary objectives. Therefore, as a strategic element to achieve such gain, some businesses choose to cultivate and maintain a positive company reputation, both managerial and social. Nevertheless, a lot of other businesses just prioritise the exclusive goal of maximising profits, *"even at the expense of distancing themselves from ethical behaviour"*(Cambra-Fierro et al., 2008: p. 646). However, they might not be aware that not acting ethically might increase transaction costs (by not working with suppliers and not abstaining from opportunist actions) (Cambra-Fierro et al., 2008).

That is to say, effectiveness, profit, self-interest, and even selfishness may all be consistent with moral behaviour under some circumstances. In other words, a focus on the market and customer expectations is a better path to success. The problem is that, since perfect information is a utopia, institutions should step in to control certain activities. Furthermore, some businesses, occasionally, base their actions on the alleged ethics of self-interest and focus their energies on projecting a suitable image (such as environmental respect) rather than operating in an entirely appropriate manner (Cambra-Fierro et al., 2008).

According to LeBaron (2014), a great deal of complexity and high levels of subcontracting within labour and product supply chains has been created because companies have restructured production and manufacturing to lower costs and curtail liability. However, the shift in contractual links between corporations and suppliers has stemmed from the potential for highly exploitative labour relations within the supply chain. Ethics of the business models and political economy supporting subcontracting have scarcely been discussed, despite framing evidence that subcontracting does encourage exploitative labour practices, e.g. contracts can last as little

as 45 days, though LeBaron (2014) says it is hard to quantify since there is not much statistical information about subcontracting practices from governments.

Even though not all subcontracting practices entail imposed labour conditions, it has been shown that it results in poorer working circumstances and standards, as well as fewer rights for employees. Thus, as per LeBaron (2014)'s assessment, subcontracting is a business practice that drives unethical behaviours down the supply chain, notwithstanding being depicted as an impartial business method that aims to increase efficiency and flexibility for enterprises (LeBaron, 2014).

2.6. Trust

All types of human social interaction depend on trust. Trust is brittle. It usually takes a while to develop, yet with just one accident or error, it can be destroyed in an instant. Therefore, it could take a while to restore confidence to its previous level once it has been damaged. There are situations where trust can never be earned back. The lack of trust is the reason for the limited success of risk communication attempts. Talking with the risk manager is not too difficult if you have faith in them. No method or style of communication will be adequate if there is a lack of trust.

Risk assessments and risk management scepticism or distrust when it comes to trust's perspective is paramount. The debates and conflicts around risk management are the byproduct of a unique kind of participatory democracy that has been aggravated by social and technological advancements that steadily erode trust, rather than the result of irrationality or public ignorance. Therefore, the future approaches to risk management are going to be significantly impacted by the understanding of system dynamics that could undermine confidence (Slovic, 1993).

Trust is affected at a number of different levels, such as the internal workings of particular organisations, the organisational structures of national and local governments, and individual psychological processes. There is a consensus that trust has declined proportionately to the crisis, especially among stressed-out risk managers. Many people tend to think that trust has decreased, which makes it harder, if not impossible, to manage environmental dangers and perform other crucial tasks needed in intricate modern cultures. Experts now understand that building public trust is crucial to achieving successful risk communication, and as a result, both theorists and practitioners in the field have given this topic a lot of attention (Cvetkovich & Lofstedt, 2013).

A study conducted by Yik et al. (2006) concluded that although this only happened infrequently and in the private sector, some interviewees stated that they had experience

receiving a subcontract for best compliance with technical criteria as opposed to lowest price. Most said that competitive pricing is the most important component and that they had never had this experience. In addition, interviewees were asked to rank the significance of "good relation" and "trust" in securing a contract, in which it was evident that every interviewee valued positive relationships (Yik et al., 2006).

One of the most important factors concluded that cause questions according to the point of view of contractors and subcontractors are issues due to partnering relationships mainly based on trust, respect, and honesty, as well as reducing procurement problems, claims, and litigation (Kowshik & Deepak, 2017).

2.7. Regulatory Compliance

In the economies of every EU member state, small and medium-sized enterprises (SME) are the predominant economic entity (Trybus & Andrecka, 2017). For that reason, (Trybus & Andrecka, 2017) puts the most recent subcontracting directives into perspective from one another. On one hand, the old 2004/18/EC Directive encouraged the involvement of SMEs undertakings in the public contract's procurement market, yet it only suggests that it is advisable to include provisions on subcontracting as a way to achieve this. Apart from articles 25 and 60, there are no provisions protecting SMEs relevantly, which leaves them unprotected from potential high risks (Jornal Oficial da União Europeia (PT), 2014; Trybus & Andrecka, 2017). On the other hand, the directive was updated in 2014, making subcontracted SMEs more protected against potential threats. Public Sector Directive 2014/24/EU2 includes measures designed to tender conditions and facilitate, thus encouraging and increasing SMEs participation in public procurement procedures (Trybus & Andrecka, 2017).

To summarise, Trybus & Andrecka (2017) consider the 10-year elder directive was short and granted Member States to require tenderers to indicate their subcontracting plans without further details regarding payments or protections. The new directive is more detailed and specific, providing more elaborate provisions on subcontracting. Because they are more protected, subcontracting firms can request their subcontractors' payments that are due from contracting authorities, bypassing the main contractor. This way subcontracted companies have increased protection, security, and rights (Trybus & Andrecka, 2017).

Furthermore, modifications of contracts or framework agreements during their term stated on Article 72(1)(c), for instance, where events transpire that the contracting authority could not have predicted, the contract may be executed without the need for an additional procurement procedure (OECD, 2014). This change is allowed as long as it doesn't change the contract's main terms, and the cost increase doesn't go above 50% of the initial contract's worth. Multiple

adjustments are feasible, with each alteration subject to a 50% cost increase limit (OECD, 2014).

The European Banking Autority (2019) considers that it is extremely important to institutions, payment institutions and competent authorities to adhere to the subcontracting principles under the UE Directives when overseeing their compliance. These principles pursue to ensure that the governance systems, namely those pertaining to subcontracting are consistent with the unique risk profile and business models of the institutions, which include the level of complexity of their activities (European Banking Autority, 2019).

The institutions involved must consider the sophistication of subcontracting functions, the risks associated with these types of arrangements and the critical nature of the subcontracted role, and its ongoing operations when implementing the guidelines outlined in them (European Banking Autority, 2019). The importance of whether the function subcontracted to a service provider is regularly and continuously performed and whether it typically falls within the range of activities of those organisations must be considered when conducting this assessment (European Banking Autority, 2019).

2.8. Intangible Management

As economic value shifts from tangible real to intangible capital, financial institutions face challenges in valuing and backing capital investments. Since intangibles are important in a firm's value creation, as well as the growing emphasis on financing intangibles, Intangible Management and the process of creating, monitoring, and utilising knowledge and Intellectual Capital (IC) management have emerged as critical issues in the European Investment Bank's (EIB) lending proposal assessment (Bounfour & Edvinsson, 2005).

Intangible capital has become the foremost asset, and investments in this capacity frequently have a higher impact on growth and productivity than expenditures in capital and equipment. Thus, at the business level, intangible assets, such as human capital, have supplanted fixed assets as the primary source of wealth, as well as the retention of knowledge and the value that this knowledge has when patented, or on the contrary, when there is no protective regulation that allows this to be done, losing the knowledge to other parties. Thus, measuring, maintaining, and monitoring a firm's intangibles is critical for making accurate estimations of the future benefits and risks connected with investment opportunities (Bounfour & Edvinsson, 2005).

Intellectual Capital is crucial to achieve competitive advantage, thus enhancing a company's performance. It can be divided into three major thematic groups, being human, relational and organisational. Brown et al. (2009) give an example to illustrate the importance

of the three components within a firm, explaining that if one has high quality engineers, which regards to human capital, a trusted network of suppliers and/or distributors, which is related to relational capital and well documented operational procedures, being part of organisational capital, it will most likely achieve better performance ratings than without those Intellectual Capital management resources (Brown et al., 2009). However, because of non-financial risks complexity, the Boards of Directors may not be able to fully rely on the audit committee alone to manage the risk management of the company when it comes to Intellectual Capital Management related processes preservation (Brown et al., 2009).

When noticing the significance of subcontracting (defined as nonequity agreements between companies) as a means of knowledge transfer, less attention has been put out in its comprehension. (Deardorff & Djankov, 2000). According to Kess et al. (2008), studies have proven negative impacts on sustaining subcontracting when Knowledge Management is not acknowledged. Many executives refrain from participating in processes to ensure successful knowledge sharing and transfer because they are preoccupied with the lack of clarity on activities and processes to guarantee their success (Kess et al., 2008).

Knowledge Management Subcontracting has not been broadly documented due to two main reasons: subcontracting does not imply cross-border capital transfers or amendments to the subcontractor's ownership and most empirical research on knowledge transfer has focused on developing market business, where subcontracting is not a usual agency means of international collaboration. They found out that Czech managers are devoted to their contractors because they sought to benefit from the joint venture creation. Nonetheless, Deardorff & Djankov (2000) analysis findings prove that knowledge transfer and subcontracting is positively related and there are even cases where subcontracting boosts business efficiency (Deardorff & Djankov, 2000).

Chapter 3 – Research Methodology

3.1. Case study

The case study methodology was chosen for this research. A case study can be defined as an in-depth investigation of the complexity and distinctiveness of a particular project, policy, institution, program, or system in a "real-life" environment, drawing on various sources (Thomas, 2021a). It is a research-based and evidence-based understanding of a certain issue, such as a thesis, to generate knowledge and inform the development of policies, fieldwork, and civil or community action (Thomas, 2021a, 2021b). The decision to analyse a small number of information elements comes with the downside of not being able to make generalisations about the findings, even though the case study provides greater detail (Thomas, 2021a).

As mentioned in Chapter 1, the research aims to find out which are the risks and risk mitigation strategies of SMEs in the Mould and Plastics industry. It has been assessed previously that Enterprise Risk Management is a crucial tool for companies to implement, given it improves organisational performance. Although, how it is implemented in the Portuguese Moulds and Plastics industry, how companies identify risks and assess to reduce them is not subject to much research, hence the case study approach was chosen to carry out the study.

Therefore, the exploratory research case study developed is an empirical investigation that delves into contemporary occurrences and their everyday surroundings, particularly when the distinction between the two aspects is unclear. Therefore, “How?” and “Why?” are two of the main questions a case study intends to focus on answering (Yin, 2009). According to Thomas (2021b), the case study should have an order of application. Firstly, a researcher must have a reason for needing to study a topic, and a purpose, which leads to a question that will be at the core of the research. It is then followed by the research design (Thomas, 2021b).

In general, it can be said that the subtlety of content analysis methods corresponds to the following objectives: overcoming uncertainty, on the one hand, to convey as unbiased a view as possible of the data at hand, and enriching the reading, on the other hand, by discovering content and structures that confirm or disprove what is being demonstrated (Bardin, 2016).

3.2. Research Design

The study followed a qualitative method approach, using semi-structured interviews to gather information and satisfy the research questions proposed initially. According to Yin (2009), an interview can be a supportive tool when it comes to a case study approach as it can be constructive in answering the how and why questions. In a semi-structured interview, the

research gives the framework with a list of issues to be addressed and is free to follow up as needed. Because of these advantages, it is the most often utilised interview format in small-scale social research (Thomas, 2016).

The analytical description uses systematic and objective processes to describe the substance of the interviews. Content analysis can be defined as the examination of meanings within a specific thematic or lexical field. Furthermore, descriptive treatment is the initial stage of the technique, but it is not limited to content analysis (Bardin, 2016). Therefore, Chapter 4 analysis describes what has been collected from the interviews and examines the risks mentioned by the interviewees as well as the risk mitigation strategies that their companies embrace. The descriptive analysis is performed manually, followed by the use of Atlas.ti software to aid in the empirical observation of interviews.

3.3. Data collection

Data collection using interviews took place between the 31st of May and the 28th of August 2024, with 7 interviews belonging to 7 different organisations included in the Moulds and Plastics industry. Subsequently, the data was analysed manually with the transcription of interviews and thorough examination. Afterwards, it was supported by the Atlas.ti software.

According to Soratto et al. (2020), computational resources have been increasingly used in research since the 1980s, with technological innovation affecting all economic sectors, including multiple areas of knowledge in which the research process is included. Nowadays, various software programs are available to use when doing qualitative or quantitative research. The software Atlas.ti is an example of CAQDAS (Computer- Assisted Qualitative Data Analysis Software) that assists with qualitative data analysis, used by different professionals and researchers from different fields of knowledge with different theoretical approaches and multiple data analysis processes. The use of Content Analysis formulated by Bardin (2016) is one of the possible approaches, thus being a useful resource for data analysis in qualitative research (Soratto et al., 2020).

Accordingly, Ngalande & Mkwinda (2014) also express that, Atlas.ti provides a variety of tools and functions as a container, storing all data, codes, memos, and findings from the same project in a single environment, helping the researcher to compare, extract, explore and manage data within the text documents uploaded which have meaning to the analysis. The software integrates all relevant data and allows the organisation of transcript data in preparation for analysis; thus it assists in building networks and relationships which give different types of graphical views of the data (Ngalande & Mkwinda, 2014).

The following table shows the characteristics of the interviewees within the Moulds and Plastics industry:

Table 1 - Characteristics of the interviewees

Interviewee	**Role**	**Academic Degree**	**Industry Experience (in years)**	**Interview Duration (in minutes)**
E1	CEO at Technology Centre for the Mould, Special Tools and Plastics Industry	PhD.	30	70
E2	General Manager of Thermoplastics production company	MSc.	24	54
E3	Business Development Manager at a Mould Company	BSc.	19	32
E4	Executive Director at a Mould Company	MSc.	21	33
E5	Expert in Subcontracting Risk Management	MSc.	40	30
E6	CEFAMOL Chairman	MSc.	35	72
E7	Sales Director at a Mould Company	MSc.	17	26
Total:				317

Source: Elaborated by the author.

Note: All interviews were conducted in Portuguese, thus the guide version in Appendix A is translated into English. All related documents, including audio recordings and interview transcripts, are in the possession of the author to guarantee the privacy of the data of all those involved, according to Iscte's regulation.

Chapter 4 – Findings and Discussion

The current chapter will describe the main findings gathered through the 7 interviews conducted, endeavouring to answer the starting questions set out in Chapter 1, discussing them through the interviewees' testimony. Data analysis of the main findings will be discussed in this chapter, starting with the followed by the comprehensive answering of all starting questions asserted in Chapter 1.1, drawn from the testimonies collected through the interviews based on a semi-structured interview script.

4.1. Case Study Findings and Data Analysis

As mentioned above, for reasons of data privacy, and to safeguard the privacy of the interviewees and, consequently, the companies they belong to, their anonymity has been maintained and any aspects that could jeopardise their professional situation have been omitted. When emphasising the most critical aspects of the research, there is no direct mention of who said what when quoting testimonies.

As far as the type of company interviewed is concerned, all 7 are considered medium-sized companies, as characterised in Chapter 1. All of the interviewees have been in business for more than 20 years. Given the concentration of industrial companies in one region of Portugal, it is confirmed that 6 are located in Marinha Grande, Leiria (central region of Portugal), and 1 is located in Figueira da Foz, Porto (north-region of Portugal). Concerning the Moulds and Plastics industry, 3 of the companies interviewed dedicate their efforts to the Moulds section, while 1 is only specialised in the production of thermoplastics. The other 3 produce both moulds and plastics. The national cluster of mould and plastics companies interviewed are all integrated into international supply chains.

Concerning the activities in which they mainly operate, the companies are part of, respectively: an innovation and research centre for the Moulds and Plastics industry; thermoplastics transformation by injection; manufacturing of plastic injection moulds; mould making based on plastic materials; plastics development and production, a non-profit institution of public utility - whose aim is to synthesise the interests of the Portuguese mould industry; and manufacture and sale of moulds, machinery and equipment for the plastics industry. In terms of turnover, from the interviewees' testimonies and official records, it emerged that the companies interviewed make several thousands of euros a year, especially given that most of them export internationally.

The risks the interviewees mentioned the most are, respectively (see Table 2): Economic and Legal (all 7 interviews mentioned multiple times the importance of economic and legal

mitigation strategies to reduce risk). Operational, Social (with distinctive prominence on Trust) and Geopolitical risks were also referred to multiple times in all interviews, although fewer times than the previous two, for instance, political instability was mentioned as an important risk to consider when sourcing suppliers.

Nonetheless, the Geopolitical risk of World Powers was explained by the interviewees to weigh the industry's panorama as a driving force of relationship maintenance between suppliers. Strategic credibility and reputation (Social risk) and Technological disruptions (Technological risk) were mentioned fewer times when analysing the testimonies, despite being mentioned in all interviews.

However, still, under Geopolitical types of risks, Tax Liabilities have less expression on interviewees' carefulness when assessing risk, being mentioned only a couple of times. The same happens to Intellectual Capital Management in terms of Human capital, being mentioned only in two interviews directly. Environmental issues are not very prominent, given they were rarely mentioned.

The companies have identified the risks that are present in their day-to-day subcontracting interactions. Examples of the risks quoted by the interviewees are identified in the table below:

Table 2 - Transcript of interviewees' response mentioning risks

Risk Type	Citation of Interviewee
Technological and **Intellectual Capital Management** (People Expertise)	*"Then there are the other problems, all of which are force majeure, sometimes the **electricity failed** during the night, sometimes **two people from the shift didn't turn up and we couldn't produce**, sometimes quality let parts pass that weren't quite right...there are many risks* (…)*."*
Intellectual Capital Management (Organisational)	*"From an **organisational point of view**, I'm going to say this out of turn, **but a manager is only a good manager if he can ensure that all his processes, all his processes are written down, are formal**, are clear and that they allow operational and process knowledge to be passed on."*
Operational (Supply chain disruption)	*"The **pandemic has shaken this up because no cars are being sold, there's no need for a house** or a car and after the pandemic, things started to get difficult. This is to say that for each type of offer or product or service, we had to create contingency plans."*

	"They ***cut back on resources, they cut back on technologies, often even on the materials they use, and then this leads to serious problems*** *in the start-up of projects and in the regular running of projects. I don't know how many tests and trials and adjustments."*
Environmental (Climate change impacts)	"[Company X] *is known for* ***its very strict standards in terms of the environment and protecting the environment and reducing the ecological footprint****, and it's very good for us. We can say that we're working with them, we're respecting their standards."*
Economic (Resource Allocation)	*"There are a number of variants that oblige us to foresee these risks, to analyse failures and* ***force us, for example, to have safety stock****, we don't just buy one batch, we buy two batches. We always have a batch for emergencies."*
Social (Trust and Strategic credibility and reputation)	*"All of this* ***has to be based on trust*** *and on the technical characteristics that are defined and on the parameters that are defined right from the start of the order."*
	"It's the customer's mould, it *arrives, and we don't know what the condition of the mould is. We* ***trust that the mould is fine, we trust that we can do the production cycle that the customer is asking for, but it's a very big risk*** *because the machine is different, the operators are different, the working conditions are different."*
Social (Strategic credibility and reputation) and **Legal** (Warranty claim -non-debt, certification)	*"And the client, in order to safeguard this idea and this trust,* ***demands a bank guarantee from us****."*
	"There are various ***types of guarantees*** *that we have to provide. For example, guarantees of good standing,* ***such as certificates of non-debt****, for example from the* ***social security and tax authorities*** *of each country. So if we don't have this guarantee of* ***good repute****, we won't even join the club. Then there are the certification issues, in our case IATF."*

	*"A **bank guarantee** can be requested, for example, for the first delivery."*
Geopolitical (Tax liabilities and Great Power)	*"Many of the companies that were subcontractors, faced the decrease in orders from the larger companies, now face competition from China, because the larger companies, started buying these types of components and parts manufactured there, **there was a setback here**. So nowadays the number of companies that subcontract to larger companies has fallen a lot. With the reduction in orders for moulds, **companies began to have the capacity to do everything and subcontract less**."*

Source: Elaborated by the author.

The most mentioned risk mitigation strategy amongst the testimonies was the necessity to have a continuously developed matrix of risks and impacts that indicates the change of them happening given the activity developed. To do that, the interviewees mentioned the implementation of quality assurance systems and the Failure Mode and Effect Analysis (FMEA) multiple times, whereas the ISAX certification for information security purposes was only mentioned one time. The companies also mentioned the need to calculate the cost of production of the safety stock, since most of the suppliers ask for it when celebrating written contracts – which was a present aspect in all interviews (see Table 3).

Table 3 - Transcript of interviewees' response on mitigating strategies risks

Citation of the Interviewees
*"We **have to have a failure plan**, which is called FMEA* [Failure Mode and Effect Analysis]*."*
*"We **carry out risk analysis, something that quality systems oblige or make necessary**. A company that is certified has to carry out risk analysis, which basically means mapping out the **degree of occurrence of these risks for a given type of activity**. And then we have to work out **what the probabilities are of these risks happening** and those that are more likely to happen, we have to have contingency plans."*
*"When **analysing suppliers, we have to assess them on various dimensions, on quality**. We are also assessed by our clients, basically, in terms of the quality of service, meeting deadlines, a whole range of things."*

"So, no matter how strange the situation, and I also trust the team that makes the natural selection, ***they reject people who don't agree or who have questionable behaviour in these matters****."*
"This ***has to be identified in the matrix of aspects and impacts****. What is the probability of it happening? Even if it's very low, the damage could be so great that it could still be relevant. We then multiply it. It comes* ***from a preventive quality tool within the assessment system*** *modal analysis of failures and financial effects."*
"One of the ***parts of the audit is to study our FMEA and find out the condition of the safety stock****. And how all the logic in a disruptive situation, what we do to remedy the problem."*
"I would get my engineering ***team to draw up the specifications with all the necessary and relevant information through contract documents so that there would be no more wasted time clarifying doubts.****. Then we would receive the appropriate proposals from our suppliers."*
*"****Qualifying suppliers at all levels, so it's not just about the quality of delivery of the end product, in this case the mould, but also about meeting deadlines****. This is very important because when you work with automotive OEMs, with car manufacturers, there are very strict deadlines to be met and very high penalties for not meeting them."*
"the ***hazards and risks matrix,*** *for example health and safety at work. A pothole in a road is a hazard. The risk is of a fall from a height if a pedestrian falls into that hole."*
"we have to ***warn our customers so that they don't put themselves at risk, because they're relying on our supply*** *and we can't replace people quickly, so we have to be careful."*
"services for ***implementing quality assurance systems*** *in companies."*
"But it is ***audited and every time a piece of work is produced it is also assessed and audited****. So it always allows us to have a more or less tight control over the quality of our partners."*
*"****Quotation process Approval of the quotation****, start of work. We have a* ***team that monitors the work, we have procurement that closes the deals****, then we have a technical team that monitors the work. And then we* ***close the cycle with validation and evaluation of the supplier's performance in the work that has been requested of them****."*
"We're preparing for ***certification later this year for ISAX****, which is a derivation of 27,000 for information security, and we'll probably be certified soon, I hope, for energy efficiency."*
*"****and we have to have systems, because if this stops. There are things that I think are important when we're talking about risk analysis****, which are that every now and then the Berlin Wall falls, (…) there's an invasion of Ukraine, every now and then there's a Trump*

who goes into office. We never know, we never control absolutely everything. And so we have to have several dimensions here, without making it a dogma or a problem."

Source: Elaborated by the author.

Business ethics emerged as a consistent aspect across all interviews, with every participant acknowledging its integral role in their daily operations. In the subcontracting context in the Moulds and Plastics industry, the concept involves regulatory compliance and trust in suppliers and clients, although being non-negotiable most of the time due to the framework governing subcontracted processes (see Table 4). In terms of ethical considerations, the businesses identified the following:

Table 4 - Transcript of interviewees response on the inclusion of ethical considerations

Citation of the Interviewees
*"All **commercial relationships between companies are governed by codes of compliance and codes of ethics, which are perfectly accepted by both companies**. One of the points of the written agreement is precisely the code of ethics of the company we are working with, i.e. the subcontractor, in which we sign, take note of, and will respect all the compliance, all the rules of compliance and all the codes of ethics that the subcontractor applies in its organisation."*
*"And then you start a **series of problems and disputes that wear down relationships, waste time and jeopardise the project in terms of quality**, logistics and deadlines. So even in life, if we have all these ethical and moral principles, I think everything is much easier."*
*"It's an inherent issue - we're **internationally audited**, we're a company whose owners are Swiss, they're not even Portuguese, **so of course ethics is something that I think is part and parcel** of our day-to-day life."*
*"**Ethical principles are part of our core**, our way of being and being, and so we don't have any specifications or any agreement to be made that is leonine."*
*"So sometimes people say it's more economically advantageous, but it's not, because then there will be a lot of unexpected costs and so it's not. **So if ethics are present, everything becomes easier** because there are no unpleasant surprises."*
*"if **we are very clear from day zero about the company's codes of ethics, the team's codes of ethics and compliance, we automatically remove people from the group who aren't willing to comply with them**. So there's a natural selection, and the team itself identifies and*

rejects people who don't follow these codes, don't have these codes of ethics or don't have this responsibility towards compliance."
*"**compliance and ethics come first, no matter what it is,** I always make sure that common sense, ethics and compliance are applied."*
*"When we sign, we are bound by these rules. Therefore, if we don't follow them, we could **face legal action because we've actually signed a contract** and we're not complying with it. This **starts a series of problems and litigation that wears down relationships**, wastes time and jeopardises the project in terms of quality, logistics and deadlines. So even in life, if we have all these ethical and moral principles, I think everything is much easier."*
"Of course, not just in subcontracting, but in everything. This is fundamental. And the contract should be seen as a tool for risk management and protecting both sides."
"There is nothing about the relationship with subcontractors. The subject is not addressed."
*"we **have to be able to feed expectations**, so to speak, and it's an important word, customer expectations, which is something that today, **if we want to win customers, we have to look at them, we have to make the marketing assessment.**"*
*"ethical issues, which also have to do with the beginning of our conversation, must always be present because, **there are people who think that yes, anything goes in business. So, in life, if we don't have ethics, we're a bit off track.**"*
*"There have to be ethics for everything. **In my day, ethics was a handshake and a word. Not now, now it's a written contract, a handshake, anything and everything**."*

Source: Elaborated by the author.

In general, the interviewees perception of the subcontracting risks (see Table 5) are as follows:

Table 5 – Subcontracting risk management given by the testimonies

Citation of Interviewee
"*Where does abuse begin? **The abuse starts way back.** And I say, to quote data, which I think is easier for outsiders, 97% of the bids we give don't turn into a deal* (…)*This world **should be symbiotic**, using metaphors from biology, it should be good for all sides, but the automotive industry is not the best case to illustrate this. It's a much more **draconian world** than it should be and then it would be healthy for it to be. But I insist, it is what it is, there's no point in making value judgments here"*.**"**

*"The **risk is high**. The risk is that not all, but some subcontracting companies will close down, in my opinion."*
*"know the value chain of these sectors and there really is a **predatory relationship**. We often joke that the analogy we live with is the savannah: 'every day the antelope and the lion wake up', it's just a question of who runs faster. And the world of industry."*
*"It's still a somewhat **demanding process**. They're usually parts for the car industry. **Some countless requirements and standards have to be met.** So we analyse it and, once we've got the go-ahead for that analysis, we move on to the quotation part. So we send the price to the client, the client analyses the price. In the end there's always a negotiation process."*
"So, what do companies do today? Instead of having a fixed number of employees, they have that minimum number of fixed employees and then they use temporary labour. What for? So that if there's a problem, it's more expensive now, but it's a burden I won't have tomorrow. That doesn't happen in the Moulds [industry]. ***In the Moulds, there are no people available in temporary work companies,** there may be…only in cleaning"*
"But I think that when we look at management, it's so systemic, it's so holistic that we have to have some tools here to help us minimise the damage and maximise the benefits."
"This [subcontracting] *gives companies a competitive advantage because **they don't keep the costs in-house**."*
*"There was a company, **what happened was that the steering wheel didn't fit and so** the cars on the assembly line were all being assembled without the steering wheels and **the company had to pay for the cars to come back a few months later to make the delivery and it had to pay the costs and it closed down**. So, the **company went bankrupt** because they are responsible for what they do, of course. So, they have to guarantee quality."*
*"Even though **it wasn't our responsibility**, we had to get involved, **help solve the problem** for our client and then **agree a way with our partner that would penalise** them, because in reality they were responsible, but that would allow them to maintain their relationship with this supplier for the future. And **so that turns out to be the key point,** which is to be able to solve the problems but **maintain the relationship with the partner**.""*
*"I think that subcontracting is something that should only be done if, on the one hand, we only have the internal skills to be able to carry out these jobs or **these services or if we are overbooking, if we need to free up, so to speak, or turn to partners that we trust and recognise** to guarantee the same quality of service that we offer."*

"So our production identifies, ***has a bottleneck there, contacts some companies with whom it already knows*** *the work and subcontracts, asks for a quote and subcontracts the work, then in the end checks whether it's in line with what was asked for or not."*
"There was already a very trusting relationship on both sides. And also, a very thorough knowledge of the normal requirements."
"And there's this whole relationship of trust that makes the difference. Now, not being in that situation all the time, because that even discredits me as a supplier."
"If the subcontracted supplier doesn't provide this precision, they have two alternatives: either they provide it with the precision that is required, or if they can't provide it with the precision that has been required ***if it has been defined in the drawing or some other document, make sure that this is very well defined. And if they can't do that, then there could be a problem and litigation.****"*
*"****There is no negotiation of subcontracting conditions****. The subcontracting conditions are on the Internet, they are the general purchasing conditions defined by the clients, which* ***basically means that we have responsibility for everything and they have no responsibility for anything.*** *They're very* ***draconian****, there's no room for discussion."*

Source: Elaborated by the author.

4.1.1. Data Analysis supported by Atlas.ti software

To support the data analysis performed manually firsthand, a quantitative examination of the concepts and their occurrence across interviews conducted with 7 different personas (E1 to E7 – Table 1) was assessed with the assistance of the content analysis Atlas.ti software (version 24.2.0.32043).

Table 5 describes the relation between the aspects codified within the software (that have their basis on the concepts analysed in Chapter 2). The 3 most mentioned aspects by the interviewees are Risk Management (281), Subcontracting (227), and Regulatory compliance (144). Just above 70 mentions are Negotiation and Power Interactions. Aspects such as Warranty claim (54), Trust (44), Quality Assurance (42), Intellectual Capital Management (Relational, Human and Organisational) (29), Knowledge Management (29), Technological Developments (17), and COVID-19 (8) – mentioned in only 4 out of 7 interviews- were less mentioned. Business Ethics has a weaker expression too, only being mentioned 40 times throughout the 7 interviews, even though there was an entire group of questions related to it in the interview guide.

Table 5 - Frequency of mentioned concept during the 7 interviews

	1: Interview 1	2: Interview 2	3: Interview 3	4: Interview 4	5: Interview 5	6: Interview 6	7: Interview 7	**Totals**
Business Ethics	7	7	4	6	5	5	6	40
COVID-19	4	1	1			2		8
Intellectual Capital (Relational, Human and Organisational)	9	4	4	3	3	5	1	29
Knowledge Management	11	1	1	3	2	10	1	29
Negotiation	8	12	11	11	15	9	10	76
Power Interactions	6	21	8	4	9	15	10	73
Quality assurance	9	8	3	7	10	3	2	42
Regulatory compliance	22	38	16	8	20	17	23	144
Risk Management	48	51	30	32	36	52	32	281
Subcontracting	21	41	31	27	30	48	29	227
Technological Developments	3	2	1	3	2	5	1	17
Trust	8	3	1	6	9	13	4	44
Warranty claim	4	8	6	3	10	14	9	54

Source: Elaborated by the author.

The analysis can also be based on interviewees that stood out by several mentions. Interview 6 mentions Risk Management 52 times and Subcontracting 48 times, but Regulatory Compliance only 17 times, while Interview 1 mentions Risk Management 48 times, Subcontracting 22 times as well as Regulatory Compliance. Interview 3 is the one that mentions Regulatory Compliance the most (38) and Interview 4 mentions it the least (8).

Overall, there can be seen a strong presence of Risk Management and Subcontracting mentions, followed by Regulatory Compliance mentions throughout the 7 interviews. It is observable that concepts such as Business Ethics, Negotiation, Power Interactions, Quality Assurance, Trust, and Warranty claims, Intellectual Capital Management, and Knowledge Management are mentioned fewer times than the previous 3. COVID-19 and Technological Developments are mentioned even seldom.

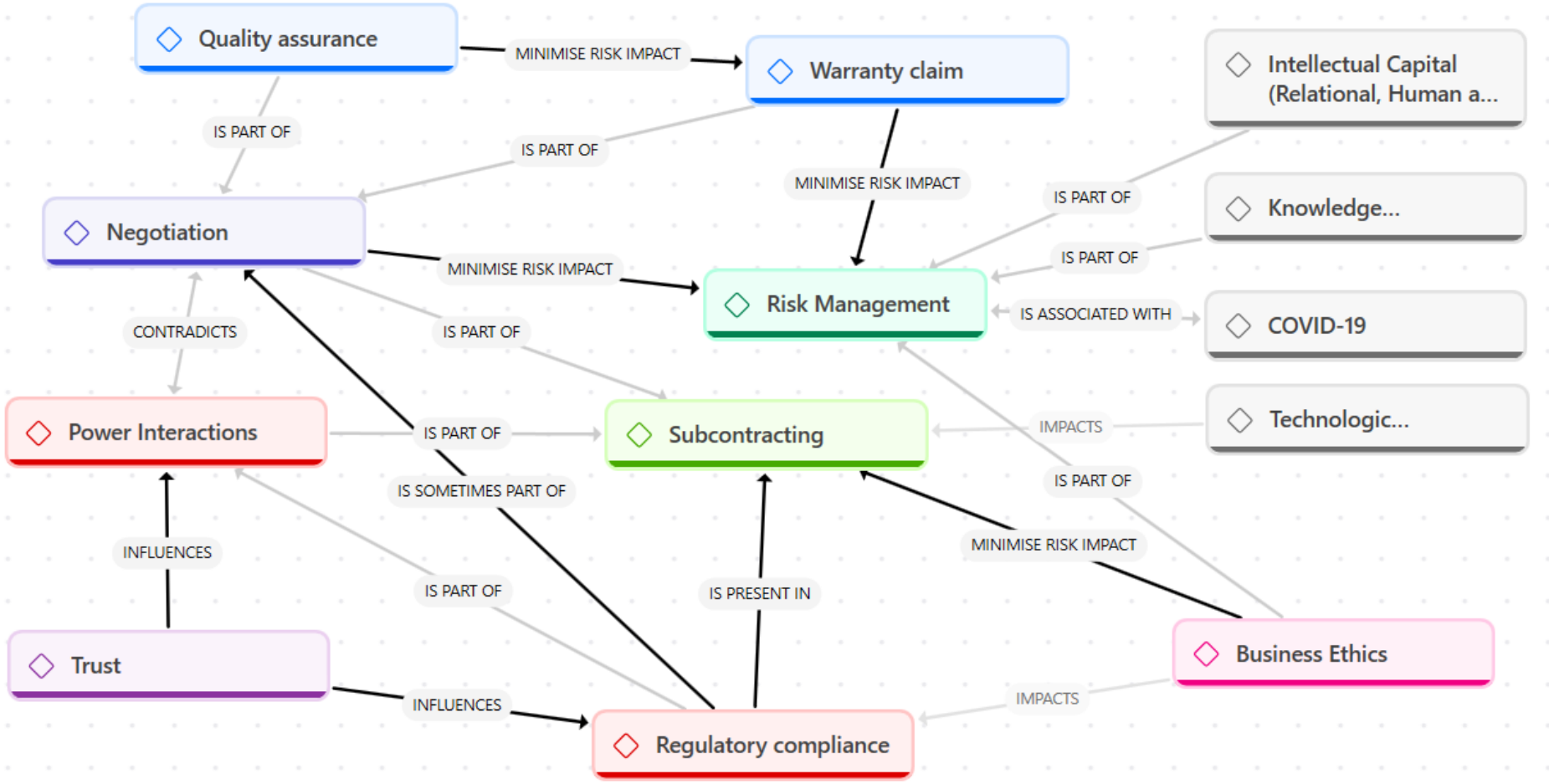
Graph 1 represents a conceptual model of Subcontracting Risk Management and its interconnectedness with the different codifications asserted through the testimonies of the interviewees. Enterprise Risk Management and Subcontracting play a central role in this model as the identification, assessment, and mitigation of risks that may influence corporate operation, particularly in contexts involving subcontracted companies.

Firstly, the Subcontracting and Risk Management concepts are related to each one of the other concepts present in Graph 1. It is visible that Quality assurance is part of Negotiation, which minimise risk impact, through Subcontracting and Risk Management. Additionally, Quality assurance minimises the risk impact of Warranty claims, while trust influences Regulatory Compliance and Power Interactions.At the same time, Warranty claims are part of Negotiation amongst suppliers. Regulatory Compliance is still present in Subcontracting Risk Management as a way of mediating Power Interactions, and sometimes being part of Negotiation.

However, while Negotiation minimises risk impacts, it also contradicts and is contradicted by Power Interactions that are also part of Subcontracting. Nonetheless, Intellectual Capital Management and Knowledge Management are part of the Subcontracting Risk Management within an organisation.

COVID-19 is associated with Risk Management and Technological Developments affects Subcontracting. These aspects are presented in grey because they represent the least mentioned concepts. Business Ethics is part of Risk Management. Concomitantly, as mentioned above, it minimises risk impacts while impacting also Regulatory Compliance (see Graph 1).

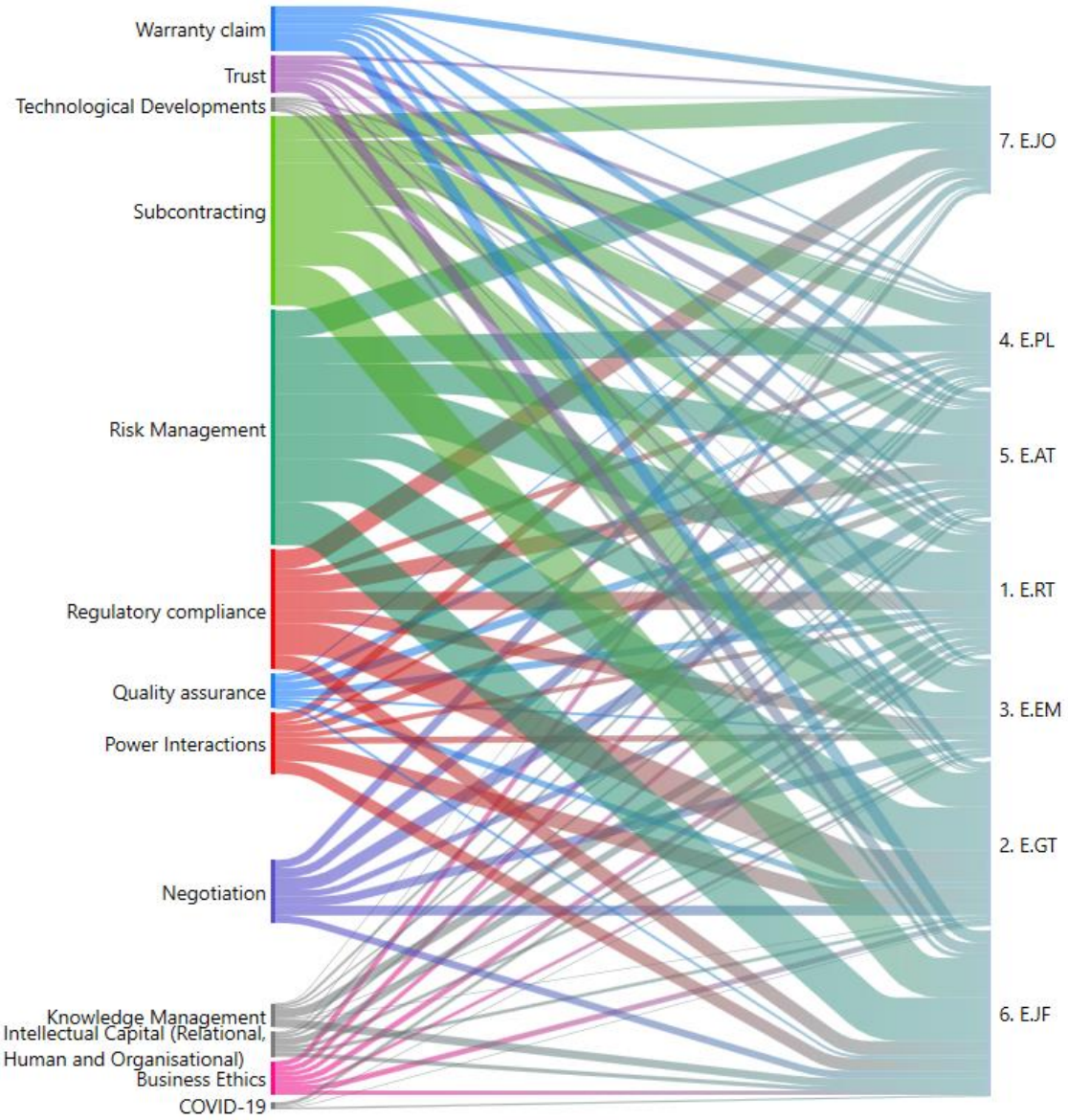
Graph 1 - Network of research codes on Atlas.ti



Source: Elaborated by the author.

Within the context of subcontracted Small and Medium Enterprises (SMEs), the complex interrelationships between different risk factors, business processes, and Intellectual Capital Management components are shown in the corresponding Sankey diagram below:

Graph 2 - Sankey Diagram to assess code flux according to interviews on Atlas.ti



Source: Elaborated by the author.

The relationships between several analysis dimensions on the left and their applicability to the 7 respondents on the right are represented by this diagram. Concepts like “Intellectual Capital (Relational, Human, and Organisational)”, “Knowledge Management” and “COVID-19” may have more focused or specialised effects, but others, like “Risk Management” and “Subcontracting” appear to have a larger or more substantial impact across companies.

Comparative study of these flows is made possible by the visual aid, which makes it clear which subjects are more important or pertinent to each group on the right.

This graphic serves as crucial for comprehending how various business aspects affect risk management and operational performance, particularly in the context of subcontracting. This Sankey diagram's study shows how much important ideas like Risk Management, Legal Compliance, and Intellectual Capital Management—which includes Relational, Human, and Organisational capital—take part in the interviewees' operating strategies.

This is reflected in the thick flows in the diagram connected to key concepts like "Risk Management," and "Subcontracting,". The layout also highlights the significance of "Regulatory Compliance", "Negotiation", "Power interactions", "Quality assurance", "Warranty claim", "Business Ethics" and even "Trust".

4.2. Synthesis of Risks and Risk Mitigation Strategies

Table 6 - Types of Subcontracting Risk Management risks

Risks Type	Risk Description	Risk Level
Geopolitical	Political instability	4
	World Powers (e.g. China)	3
	Tax liabilities	2
Economic	Production Costs	4
	Resource Allocation (e.g. Safety stock)	5
Operational	Supply chain disruption (e.g. COVID-19)	4
Social	Trust	4
	Strategic credibility and reputation	3
Technological	Technological disruptions	3
Environmental	Climate change impacts	1
Legal	Regulatory compliance (e.g. contract)	5
	Warranty Claim (non-debt, certification)	5
Intellectual Capital Management	Human (e.g. People Expertise)	2

Source: Elaborated by the author.

Table Key:

Risk Level				
1 - Very Low	2 - Low	3 - Medium	4 - High	5 - Very High

The mitigation strategies for subcontracting processes adopted by the companies interviewed are (examples are listed in Table 3):

- Develop a continuously updated risk identification matrix of aspects and impacts (e.g. through FMEA -Failure Mode and Effect Analysis).
- Analyse thoroughly their suppliers.
- Calculate the cost of production of the compulsory safety stock.
- Regulate the relationship between their suppliers and clients through contractualisation.
- Implementation of quality assurance systems.

4.3. Discussion: Empirical implications

According to the World Economic Forum (2024), risks are categorised into economic, environmental, geopolitical, societal, and technological groups. For Pinto et al. (2020) organisations are also exposed to supply chain and currency concerns risks as part of the paradigm change in the corporate environment caused by globalisation. The interviews conducted pointed out the existence of these risk categories, however, faithfully tracking the testimonies of interviewees, there were 2 groups added to the empirical analysis: Intellectual Capital Management (Relational, Human, and Organisational) and Legal (specifically Regulatory Compliance and Warranty Claim). There were also added subgroups to better identify the risks, such as Economic (namely Production costs and Resource Allocation (e.g. Safety stock)), Social (namely Trust and Strategic credibility and reputation), and Geopolitical (namely Political instability, World Powers, and Tax Liabilities).

As explained by Violante et al. (2018), risk identification is an ongoing process and to be correctly identified, it needs to be characterised, having causes and consequences. Even though there were more risks identified in this empirical study, the most probable is that there are many more that can arise during the project life cycle, since risks are interactional, and some might not have been mentioned by the interviewees because of not being on top of their minds.

As theoretically reviewed by Sá et al. (2022), companies use subcontracting policies, amongst other reasons, to get an edge over their competitors as it improves operational performance effectiveness. While providing clients with better offerings, adding value, differentiating oneself, and being more flexible is undoubtedly true, it is also linked to a lack of experience and an effort to lower risks and operational expenses, lowering production-related uncertainties. Even so, there are risks that were mentioned by the interviewees and may be worth pinpointing and listing. Therefore, based on the literature review aligned with the

mentions of interviewees, Table 6 assesses the main risks by severity subcontracted firms endure, exported from the testimonies.

Risk Management is closely related to Subcontracting and Regulatory Compliance. The reasons for this may be, for one, the construction of the script, which, based on the literature review, correlated the first two concepts. However, Regulatory Compliance emerged as a fundamental concept during the interviews, and it became clear that the industry is intrinsically affected, as predicted by OECD (2014) and Trybus & Andrecka (2017), by rigid contractualisation systems, and that smaller companies that make sweeping use of subcontracting in their operating processes are often dependent on the regulations imposed by larger suppliers and even OEMs.

Furthermore, Negotiation and Power interactions have representation when related to the 3 main concepts. In interview 2, it is possible to assess a relationship between Regulatory Compliance and Power interactions by the interviewee, who considers them to go hand in hand since when asked 'When does the subcontracting process start*?*' the interviewee countered with '*When does the* ***abuse*** *start*?' and he proceeded to comment that the relationship between the stronger supplier is abusive most of the time and often dictated by rigid systems to mediate the relationship (see Table 5). The expression *"****draconian world****"* used by the interviewee can be interpreted as a metaphor to illustrate that the Portuguese Moulds and Plastics industry is subject to laws or rules that are tough and repressive, affecting the smaller suppliers, conforming them to the existing circumstances because they cannot and do not have the power to affirm themselves.

Roach (2007) mentioned that businesses frequently form collaborative partnerships with the understanding that both sides will benefit from continued growth; nonetheless, SMEs are frequently overshadowed by larger businesses. It therefore indicates dangers, and according to the literature, these risks should be taken using Risk Management techniques. In the case seen above, the company in question is considered a medium enterprise, even though it is still smaller compared to bigger suppliers, the interviewee's testimony expresses a negative outbound regarding the industry's abuse of power.

Moreover, Negotiation and Power interactions have Regulatory Compliance at their core. Power interactions are arbitrated by a contractualisation, as interviewees often mentioned, and in most cases, already regulated, hence giving the subcontracting company an advantage over the requests it makes of the subcontracted company. Concordantly, recalling an idea Pinto et al. (2020) had already assessed, Portugal is still in the early stages of ERM, with the Institute

of Internal Auditors taking the lead, and that the reports' primary conclusions revealed that ERM integration exists strictly through regulation.

Even so, it is important to note that sometimes, for some operational issue that arises, Negotiation, which tends to minimise risk, is open, if it is provided for within the existing corporate legal terms and accepted by the subcontracting company (Schleper et al., 2017). Nonetheless, Roach (2007) anticipated that if national regulatory measures are unsuccessful, regulatory procedures may also be employed through the International Regulation of Multinational Corporations (MNCs), which may entail organisations, treaties, and the coordination of national policies (Roach, 2007), which under the testimonies statements given about Regulatory Compliance and auditing, have a huge weight on the industry.

Trust is present and is part of the subcontracting processes, but it is very frail when compared to Regulatory Compliance. It seems to be present in the discourse of all the interviewees, some more strongly than others, e.g. one of the interviewees considers that the subcontracting processes within the Portuguese Moulds and Plastics industry are based on word of mouth and trust between suppliers involved. Yet, what is proved by the relation analysis in Table 2 is contrary to the first assertion and notably mediated by formal and legal regulatory processes that govern relations between subcontractors and subcontracted firms.

Regarding the Intellectual Capital Management and Knowledge Management concepts, these companies represented by their leaders who mentioned it more often and consciously (Interviews 1 and 6), particularly concerning contingent employment (contingent worker is a person who works for a company, but is not employed permanently by it – Cambridge dictionary (2024), consulted on 20th of September 2024, available at https://dictionary.cambridge.org/dictionary/english/contingent-worker) and its relation to the specialisation of the profession within the industry, are more mature and have processes that are more thorough and sensitive to these matters. Intangible Management, which includes Intellectual Capital and Knowledge Management is something very flawed within the industry parameters of what is considered to be risky, which needs to be improved and developed. The link that the concept has with Subcontracting Risk Management processes is very tenuous and was mentioned infrequently. Although appearing in all the interviews whether mentioned consciously or unconsciously, it demonstrates its fragility by the small number of times it is referred to.

It was mentioned by an interviewee that contingent employment is not something done within the Portuguese Mould and Plastics Industry because of its extremely specialised labour which requires that the employees have high degrees of specialisation regarding engineering

tooling and manufacturing. Yik et al. (2006) theorised about the reasoning behind subcontracted companies in which the subcontractor must provide specialised knowledge and skills, as well as special tools or methods to complete the task required, involving most of the time only the licensed subcontractor or those authorised by them may complete the work. Concomitantly, the interviewee declares that the industry does not comply with having temporary employment due to its high levels of specialisation required to produce outputs (see Table 5).

Nonetheless, management in the two previously mentioned companies is probably more based on a holistic approach rather than a silo-based approach (Pinto et al., 2020), because it manages to observe the elements of risk, not only the concrete ones but also the intangible ones, as one of the interviewees considers that management is systemic and holistic, so there should be tools to help minimise the damage and maximise the benefits. Pinto et al. (2020) emphasised that management continues to see risk management through conventional silo-based lenses, focusing on the primary tasks affected and the existing structures rather than observing how the system is regularly monitored and how it aligns with organisational goals, strategy, and culture.

In fact, given the expression Intellectual Capital Management had in the testimonies, it may not be so wrong to give Pinto et al. (2020) some agreement since only 2 people mentioned it consciously. A more sophisticated and flexible approach to risk management was required due to the interconnectedness of the world's markets, which forced organisations to assess risks that transcended national borders (Pinto et al., 2020). Because they enable a company to take advantage of opportunities and adjust to changing circumstances, leveraging Intellectual Capital and Knowledge Management within an organisation effectively helps lower risks (Bounfour & Edvinsson, 2005).

It is said by Brown et al. (2009) that Intellectual Capital is a key point for companies to achieve competitive advantage. It is rather important in the Portuguese Moulds and Plastics industry since it requires exceptionally high levels of specialisation from employees, is supported by the maintenance of well-preserved relationships between suppliers and thrives when risk management procedures are correctly and appropriately implemented.

Knowledge transfer is potentially equally important, and its significance has been noted by Kess et al. (2008) that subcontracting procedures are negatively impacted when Knowledge Management is disregarded, even though not so much attention has been put (Deardorff & Djankov, 2000).

To carefully answer the starting question "What are the differences between fully subcontracted SMEs or partially subcontracted SMEs?" a systematic and exhaustive search throughout the available repositories was carried out to find an answer to the differences between each of the parties. To better answer this question, and also taking into account the discourse of the people who shared their experience, the initial idea was to clarify the definition between SMEs that provide total subcontracting services and those that only partially do so through the literature review.

However, due to a lack of access to documents, and because those available in the aforementioned repositories do not directly point out the differences, the differentiation will be further made based on the empirical understanding given by the interviewees. Moreover, although not able to write about it with bibliographic references, it was still found out categories of different types of subcontracting, one of which is present in Table 7. It is important to recognise that even doing so, may not represent the overall perception of people, hence it only being mentioned a few times during the interviews.

Regardless, it was noticed in the interviews that none are fully subcontracted SMEs. This may reveal an inconvenience since there are no attested testimonies of a pure subcontracted SME here. One interviewee even commented that *"none of them are pure subcontractors"*, in the sense of being subcontracting the totality of their services. However, it was empirically established that, as in the EIM Business & Policy Research (2009), the companies interviewed also have types of subcontracting, which are seen in Table 7: capacity, specialised, first-tier, second-tier, and third-tier (Chapter 2.2. - Subcontracting).

Table 7 - Transcript of interviewees on different types of subcontracting

Citation of the Interviewees	
Fully Subcontractor	"*A pure subcontractor is a subcontractor in which the client takes care of everything, orders the mould in Portugal, China, whatever, does the industrialisation and approval of that product, laboratory tests, long-term tests, ageing tests.*"
Capacity	*"At the end of the day, our client supplies Volkswagen directly just in time, he's on the Volkswagen side, on the industrial side, and in this case he doesn't have internal capacity, because he's producing other parts and we're producing for him as a complement to his capacity."*

	"we have an overload in the roughing phase, we can already contract roughing for some parts, we have an overload in polishing, we have to contract polishing, but not a mould as a whole. As a principle, we don't do."
Specialised	*"the* ***draconian policy*** *of calling us all there and all lining up* (…) *And we explain,* ***we take powerpoints, sometimes we take physical prototypes made on 3D printers****. They point it all out and in the end,* ***because the intellectual property of the solution is no longer ours, they send the designer to remake the part, and launch it back onto the market****."*
First-Tier	*"if it's not the customer who buys the car, down that chain are all the subcontracted in the value chain. They are commonly known in automotive history as* ***tier 1 or integrators****.*
Second-Tier	*"Our* ***client is always*** *a plastics company or an OEM, but it's not usually an OEM, it's* ***like a Tier1****, something like that."*

Source: Elaborated by the author.

Since first-tier subcontracted suppliers are usually up in the subcontracting supply chain, interviewees adopt and usually reveal higher levels of comfort and a more favourable attitude regarding the subcontracting processes subjugation between smaller and bigger suppliers, although still feeling weakened when compared to OEM clients that are usually part of their client portfolio (EIM Business & Policy Research, 2009).

Nevertheless, based on the interviewees discourse, a characterisation of fully and partially subcontracted firms was elaborated. On the one hand, fully subcontracted SMEs differ from partially subcontracted SMEs based on the extent to which they externalise operations. The first type mentioned has all of the primary manufacturing and service functions contracted out to other businesses. There are financial and flexible benefits from this method, although there can be drawbacks such as loss of supply chain control over deliveries, over quality, and over intellectual property.

On the other hand, partially subcontracted SMEs retain some of their essential operations in-house, while still outsourcing others. This way they have more control and depend less on subcontractors, limiting potential hazards, unlike what would happen if they were more dependent on third parties.

Additionally, fully subcontracted SMEs may rely more on their subcontractors and may need to have higher degrees of coordination and risk management analysis matrices to cope

with the demands, because their business performance is straightforwardly related to their output. When partially done so, risks are managed between the external necessities and internal resources, balancing out risk-reduction strategies. Likewise, the perception of the following interviewee considers that subcontracting should only be used in case of releasing some internal pressures and overbooking, and subcontracted companies should turn to partners they trust and recognize (see Table 5).

EIM Business & Policy Research (2009) establishes that firms might choose to subcontract some tasks externally to address a handful of bottlenecks, thus way mitigating risks of variations in demand or seasonal demand peaks. The idea did not go unnoticed by one of the interviewees, in whose company is already a recurring practice in case of a bottleneck (see Table 5).

Businesses are increasingly in need of a comprehensive strategy and an all-encompassing approach to address risk, whether it is through risk identification, risk assessment, or—more crucially—risk mitigation (Pinto et al., 2020). As Lam (2014) had expected, businesses are required to adapt risk management processes to stay updated and compliant with the law. Nonetheless, since regulatory reporting has a significant impact on ERM practices, it is important to mention that based on the interviews conducted, the majority of the companies testified that the risk management within their companies is done around the risk analysis of operational and financial risks. There is still an interviewee who, when asked how risks are mitigated, replies that the relationship between both sides is already existent in trust foundations, since both sides have thorough knowledge of the normal requirements. Since it is exploratory research, it would be probably fruitful to continue interviewing more people to assess how many share the same belief.

To some interviewees, trust is seen as a way of getting credibility from suppliers, although still relying mostly on Regulatory Compliance, without it, subcontracted SMEs are discredited. To experts, it is fundamentally important to build public trust to achieve successful risk communication (Cvetkovich & Lofstedt, 2013). Since it takes a while to develop and create a steady foundation of trust, interviewees understand that with just one accident or minor error, it can be completely chattered and even take longer to restore the confidence level previously undamaged (Slovic, 1993). Similarly, as previously stated by Deardorff & Djankov (2000), Portuguese subcontracting managers also pay careful attention to loyalty.

A series of risky occurrences often culminate in major disasters. An essential takeaway is that companies need to handle dependencies and risks comprehensively (Lam, 2011). It was possible to conclude through the interviewing process that most of the Risk Management

strategies are forecasted within a written contract. The contract is a mediator for almost all dimensions analysed such as Quality Assurance, Regulatory Compliance, Business Ethics Considerations, and Warranty Claims. When they are not, either the company files for bankruptcy like one of the interviewees described in Table 5 or it is or is discredited within the supply contexts.

Accordingly, regarding the maintenance of well-preserved and trustworthy relationships with the subcontractors that are extremely important for the company's survival, another interviewee recalls that he went to the lengths of helping out in a situation that he was not responsible for so he would help solve their partner's problem who would be penalised. This way the relationship between the two was preserved (see Table 5).

Therefore, establishing managed risks is the limit of living with risk to attain proactive and efficient governance (Musiello-Neto et al., 2022). In addition, ERMs are thought to reduce the (in)direct costs of earning volatility, financial distress, and cyclical failures in the capital markets (Florio & Leoni, 2017). Hence, Lam (2011) noted that businesses who have implemented Risk Management activities often climbed the debt rating, improved stock prices, and decreased their losses. Likewise, the testimonies confirm that having a well-constructed risk analysis matrix decreased their exposure to risks and lowered subcontractor's claims of regulatory capital requirements, i.e. Non-Disclosure Agreements, written contracts, risk analysis matrix, IATF accreditation, and tender dossier.

Furthermore, the environment for regulatory reporting has a significant impact on ERM practices. Different industries and regions have different regulatory requirements, which makes implementing ERM more difficult. According to Lam (2014), organisations need to adapt their risk management processes and stay up to date with new laws to stay compliant and stay out of trouble with the law. One of the participants pointed out that if the subcontracted supplier does not provide the precision required on the drawings or other official documents, there could be problems and litigation.

Ethical concerns are being considered within the scope of the testimonies' beliefs. Subcontracted SMEs adopt subcontracting practices to lower costs and curtail liabilities, as LeBaron (2014) mentioned. Nonetheless, subcontracting practices are still bound to high levels of Regulatory Compliance and Power interactions between the suppliers. An interviewee demonstrated the rigidity of the regulation imposed by the subcontractors, stating that after signing, subcontracted firms are bound to certain rules dictated by the larger companies, and in case of non-compliance, litigation can be used which wears down the relationships (Table 4).

More than being ethical for selfless reasons (although not excluding the possibility of its occurrence), SMEs are because of the written agreements celebrated and government regulations on reporting implemented to make them be so. This is perhaps why it was rarely and shallowly mentioned in the interviews, despite that there was a group of questions specifically dedicated to this matter.

Thus, ethics is partially controlled by written contracts that make companies comply and agree with certain conditions. Interviews show that ethical considerations should be considered not just in subcontracting but in everything since an ethical contract is a fundamental tool for risk management and the protection of both sides, therefore demonstrating the close relationship between ethics and contractualisation procedures. However, a more extreme approach to the same question where the respondent does not have contact with ethical considerations within his range of analysing thoroughly suppliers' interactions, therefore saying ethical considerations are not addressed in the relationship with subcontractors (see Table 4).

Being under pressure from all the stakeholders involved in the process, along with time pressures, scarce resources, and competition, SMEs are almost obliged to comply with the subcontractors' requirements to maintain high-level performance (Fassin, 2005). One of the interviewees even goes on to say and adopt a deterministic point of view regarding power interactions within the industry affirming that there is no negotiation of subcontracting conditions and that they are all available on the internet with general purchasing conditions which are defined by the clients – usually larger companies with more influence internationally (see Table 5).

On a final note, subcontracted SMEs mostly regulate their ethical expectations through Regulatory Compliance and, even if mediated by written agreements, those always depend on the degree of interactions in the Portuguese subcontracting contexts between the contractor and the subcontracted company. Still, there are subcontracting European regulations and guidelines, the degree to which Regulatory Compliance is considered rougher and stricter is built upon the degree of trust in the quality assurance of interactions between subcontractors and subcontractors.

Chapter 5 – Conclusion

The principal aim of this dissertation was to analyse Subcontracting Risk Management: The case of the Portuguese Moulds and Plastics industry, specifically within SMEs. In the current chapter, the research objectives and research questions were answered bridging the information gathered from other authors and the findings from the 7 interviews conducted. Thus, it is possible to conclude that the general perception of risks lies within financial risks found out through the interviews.

Most of the interviewees mentioned the risk of costs in detail, but only two mentioned consciously the importance of non-financial risks, i.e. intangible risk management, to the company's performance. Nonetheless, the risks were listed out based on their geopolitical, economic, operational, social, technological, environmental, legal, and intellectual capital management types and graded by gravity severity according to the frequency and importance given to each from the testimonies (RQ_1 e RO_1).

These non-financial risks include catering for the Intellectual Capital Management - namely Relational, Human, Organisational -, and Knowledge Management within a firm to optimise not only resources but also processes, constituting low-level risks although they could potentially be disastrous and lead to insolvency. Moreover, environmental risks were mentioned rarely, thus having tabled a low-level risk, although the interviewees assume there are OEM's that attach great importance to these issues.

The next objective of the research regarded the differences between fully and partially subcontracted firms (RQ_2 e RO_2), which turned out to be more challeging.

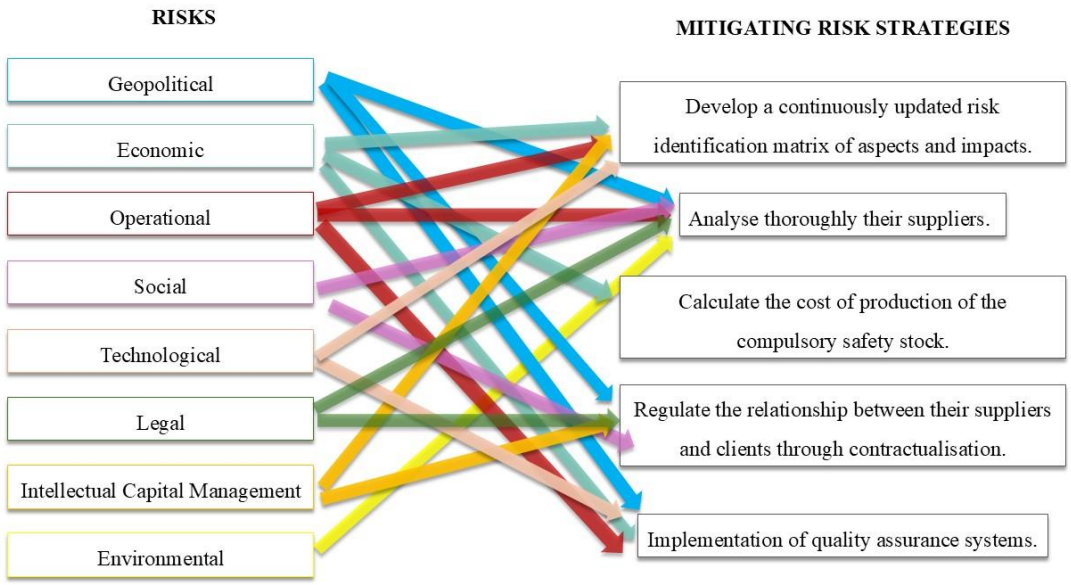
Firstly, it was found that subcontracted SMEs manage risks through written agreements that ensure some protection against bigger organisations. Negotiation and Power Interactions are mediated by Regulatory Compliance and SMEs are often reigned by very rigid and severe agreements, in which there may be tolerance for negotiation, although modestly. It is important to declare that negotiation tends to minimise the risk involved, but since there is not much space for it, it kind of loses importance weight on the general panorama, therefore giving the subcontracting firm an advantage over the subcontracted company. Even if the subcontracted company is considered Tier-one positioned, there are still handicaps to overcome, e.g. these firms usually have a say in the designing part, however, it is the bigger suppliers and clients who often get the copyrights for the product and start using it without giving credit to the smaller companies.

Due to the difficulty of finding open-access documents and because literature regarding the theme is scarce, the direct distinction and comparison between fully contracted and partially subcontracted SMEs through the literature was partially compromised. On the one hand, the comparison was made through the interviewee's responses. Over the testimonies, fully and partially subcontracted SMEs were given a definition and were both compared in relation to one another. On the other hand, in an attempt to compensate for this gap, articles were found categorising different types of subcontracting, which were then organised and made into Table 7 based on the interviewees' statements.

The main agent to mitigate risks in subcontracted SMEs, even though it still needs to be polished, is Regulatory Compliance. The Portuguese Moulds and Plastics industry, mostly regulated by the EU directives and auditors is still at the early stages of ERM, since ERM integration while existing, is based on the regulation existent without much care for the needing specifications of SMEs. Therefore, SMEs are still greatly bound to regulatory frameworks that rule their operational actions – e.g. FMEA, safety stock, contractualisation. While these may present themselves to be a challenge, because smaller companies may not have the resources to meet the required demands, it can also give them some sense of security, at least during the contractualisation period (RQ_3 e RO_3).

The graphic below illustrates the relationship between identified risks and the corresponding mitigation strategies as described by the interviewees.

Graph 3 - Relationship between risks and risk mitigation strategies



Source: Elaborated by the author.

Finally, the research examined how subcontracted SMEs in the Mould and Plastics industry perceive ethical concerns and how they implement ethical management practices within their subcontracted operations (RQ_4 e RO_4).

From the outset, the debate on the issue is lacking in the of literature, which may have influenced the structure of the interview script, the conduction of interviews, and, consequently, the depth of the interviewees' answers.

The findings reveal that subcontracted SMEs largely view ethical considerations through the lens of legal compliance and risk management. But also, trust is a highly present factor, since interviewees explained that the more trust there is between the contractor and the subcontracted, the less strict written agreements are, the fewer warranty claims are called for - even disregarding some of them that could be contemplated in the contract.

Subcontracted SMEs generally manifested that there is an imbalance of power within their interactions with bigger corporations. Mostly because larger companies have the power to decide on the contracts they sign, leaving SMEs with little to no negotiation power to upgrade their conditions, given the broadly written EU directives. Thus, SMEs are left vulnerable to risks. As stated in interviews, what should be a symbiotic alliance is mediated in *draconian ways*, where smaller companies often comply with the established decision, at the risk of increasing their operational costs. Another obligation is the tight deadline pressure imposed on SMEs to conclude a service, which if not rendered can compromise and result in penalties or even the loss of future contracts. The authors also alarmed about the risk of processes that can lead to inefficiency when subcontracting and that it can eventually increase the more complex is the activity.

5.1. Research limitations

Given that this is a qualitative study, the interviews conducted may not fully capture the diversity of experiences within the industry by SMEs, as the participants have specific points of view that cannot match one another. The extension to which each perception is considered is also limited by the number of interviews carried out. Therefore, the generalisability of the results is dangerous as the findings only shed light on how to conduct future related research.

Regulatory compliance regulation on SMEs being scarce has also affected the prosecution of the current study, as conclusions cannot be drawn based on the existing information. Since the Portuguese Mould and Plastics SMEs highly rely on regulatory frameworks and market conditions to subsist, the regulations existent nationally is not sufficient to protect them.

Ethical considerations need to be analysed more in-depth, more thoroughly because, although a whole group of questions was highlighted in the script to address this issue, the interviewees didn't specify much about it. This may have been due to a failure on the part of the researcher in conducting the interview, or there may be a gap in the industry in terms of awareness for the topic that does not put it at the top of the interviewees' minds.

Intellectual Capital as a concept was not deeply research in this investigation due to the lack of information available regarding research related to the industry, although it could represent a way of looking at ERM more carefully and completely since proven by the present testimonies that it impacts companies and SMEs in subcontracting contractualisation processes within the Portuguese Moulds and Plastics industry.

5.2. Future challenges

The EU has been raising the bar when it comes to sustainability and environmental regulations in the last decade. Although not much mentioned in the interviews, this could raise pressures within the Portuguese SMEs in the Moulds and Plastics industry, because of having fewer resources and technological developments accessibility to comply with the new framework. Thus, SMEs may struggle to implement the newfound systems, thereby increasing the risk of non-compliance. A second challenge could be digital transformation acceleration, requiring ongoing investment in advanced manufacturing technologies that could enhance competitive advantages while also posing risks for smaller companies that may not find the capital to invest.

Lastly, the trend of larger firms' power towards SMEs can continue to be a future challenge. SMEs can see their present ability to negotiate further pushed down and the asymmetry could worsen with increasing global competition, driving subcontractors to accept even more unfavorable terms. In that case, SMEs must search for and secure their upper hand by diversifying their contact base on a handful of different contractors to be able to mitigate the risk of power imbalances.

5.3. Future research developments

Future research could be improved by adding more interviews to the current range of interviewees so that the gap is offset in the current research and that the research is deepened in terms of listing down more risks associated with the context of the study. It could include the objective of understanding how SMEs can have more control over the subcontracting terms and how can EU directives be adjusted to cope with requirements from both ends. Moreover, future research can provide critical insights into how businesses can use technology to their own advantage in aims to reduce operational risks and thus improve efficiency.

As ethical considerations were scarcer in the present study, it could be interesting to analyse this theme more thoroughly, particularly within Corporate Responsibility and Governance. On one hand, clients and governments demand higher levels of transparency and social responsibility, leading and probably forcing SMEs to comply with more rigorous ethical practices. On the other hand, the way SMEs integrate these ethical practices without undermining their financial and non-financial aspects could be more developed as well.

Nonetheless, a historical point of view of risks could be also assessed, specifically in the last decade, including the COVID-19 pandemic period, since it was barely mentioned in this interview – because it was not contemplated in the interview guide – but it probably constitutes an important factor that deeply transformed industry's ways of mitigating risks since it happened.

In conclusion, for SMEs, subcontracting can be a double-edged sword, especially in fields where a high level of skill is necessary. By outsourcing non-essential tasks, it allows SMEs to concentrate on their key capabilities. Yet it also entails considerable risks that must be carefully controlled. These hazards include problems with quality assurance, following rules and regulations, the balance of power between contractors and subcontractors, and the overall integrity of business ethics. SMEs should implement comprehensive risk management frameworks and quality assurance procedures to mitigate these risks while preserving their competitive edge. The management of such risks becomes crucial in sectors like the Portuguese Moulds and Plastics industry, where subcontracting is frequent because of the high level of expertise needed.

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Appendix

Appendix A: The Semi-structured Interview Guide

Introduction and Notice

"Good morning, I'm [name] and I'm doing my master's thesis on how SMEs manage risks when they have subcontracting systems in the Moulds and Plastics industry in Portugal.

Before we begin, I want to confirm that according to the research carried out in this work, subcontracting consists of identifying partners, thus establishing a bilateral relationship, in which the parties make investments benefiting from this association, producing goods and services that meet the specific needs of the company in question. Although there are benefits, subcontracting strategies can have potential associated risks. That's what I'll be analysing in this interview.

Therefore, and after the initial note that starts our conversation, and bearing in mind that the recording of this conversation will be confidential and used only for academic and

Questions

"1. **Subcontracting:**

1.1 Tell me about (your company), in terms of its business and its main activities.

1.1.1 What are the main markets and industries in which (your company) operates?

1.2 Does (your company) participate in processes as a subcontractor for other companies? Is this a common practice?

1.3 **Existing subcontracting:**

1.3.1 Can you describe how the relationship (e.g. legal and business) works between (your company) and the other companies that subcontract it? What is the subcontracting agreement like? (RQ2, RO2.1)

1.4 When does the subcontracting process begin, what is its trajectory? Can you describe the process/cycle from start to finish? How does the subcontractor/subcontractor relationship begin?

1.5 Who are the subcontracting clients? Small, medium and/or large companies? Are they companies from more industrial or more technological sectors?

1.5.1 Which countries? What type of products?

1.5.2 On average, how long do the contracts last (short, medium, long term)?

1.6. In general, what are the main risks you identify in subcontracting? Please give examples (RQ1, RO1)

1.7. How are these risks mitigated at (your company)? (RQ3, RO3, RO4)

1.8. How do your subcontractors influence the products or services you produce (e.g. in terms of materials, software, logistics and other operations)? (RQ1, RO2, RO2.1)

2. **Power Interactions:**

2.1. How do you negotiate subcontracting conditions with the entities that subcontract to you?

2.2 For this type of contractualisation, what type of data and guarantees are requested from subcontractors by subcontractors? (e.g. references/credentials, financial statements? Company A - subcontractor asks for references on B - subcontractor before starting the subcontracting process).

2.3 What mechanisms are in place to resolve potential conflicts, disagreements or non-compliance in the subcontractor/subcontracted relationship? (RQ4, RO5)

2.4 In the case of your company, have you ever experienced situations such as those mentioned above, disagreements or non-compliance?

3. **Business Ethics:**

3.1 In your opinion, is it justified to consider ethical issues in the case of subcontracting?

3.2 How are ethical considerations included/taken into account in MOLIPOREX's business risk management? (RQ4, RO4)

3.3 Can you give an example of how in a particular situation you had to balance business risk with ethical considerations? How did you approach this event? (RQ4, RO4, RO5)

3.4 In your opinion, can ethics-based leadership contribute to improving the effectiveness of risk management? Can you give examples? (RQ4, RO4, RO5)

4. Do you have any stories you'd like to share with us, whether successes or failures, that we haven't covered?

Conclusion

"Thank you for taking the time to share your knowledge with me today. Your experience will be extremely important in building a comprehensive picture of risk management in the subcontracting sector."