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"Survey investigating the motivational mechanisms and the perceived impacts on business performance of quality and sustainability certifications in the secondary food industry"

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ABSTRACT

In recent years, the food sector has undergone a significant transformation driven by the rise in customer expectations, regulatory pressures and more complex supply chains. These dynamics have heightened concerns regarding quality, safety and sustainability, thereby certifications' importance as relevant tools for companies looking for compliance, product integrity and competitive advantage. In this way the agri-food sector is facing a wide adoption of standards such as ISO 9001, ISO 14001, BRC or IFS not just as instruments for quality assurance and compliances, but also as strategic tools that bring internal and external improvements for the companies.

Against this backdrop, understanding how certifications influence firms' performance becomes crucial. This thesis investigates the impact of quality and sustainability certifications on business performance within the food sector, focusing on large Italian enterprises, and explores the motivational mechanisms beyond the certifications' process. The study focuses on the motivations that drive companies toward the accreditation process, the perceived and measurable benefits, and on the main challenges addressed. By doing so, the research provides a comprehensive assessment on how certifications contribute to firms' outcomes and to what extent organizational, contextual and managerial factors influence these effects. The study is conducted on a sample of 30 Italian agrifood firms, using both quantitative and qualitative methods to examine how different motivational orientations shape the organizational outcomes. Regarding this, economic data such as revenues, EBITDA and growth indicators taken from financial statements, alongside survey responses, gathered through a semi-structured questionnaire, based on the personal judgements of the participants, are used to perform the analysis. By analysing the underlying mechanism that leads to the certification adoption it emerges that internal motivations significantly distinguish firms' approaches to certification while external motives are widely shared across the industry. Based on the content analysis and coding of the open question about the main motivations that drive companies toward the certification adoption, three archetypes are identified: Operational Excellence Seekers, guided by process improvement and efficiency, Market Conformists, driven by market concerns and Excellence Conformists, defined by a hybrid orientation. While perceived benefits differ according to certification mechanisms and show relevant insights, financial outcomes

remain hazy, confirming the debate in literature. The findings underline that the true value of certifications does not stand in the mere possession of the standards but rather in the firms' ability to embed them in the organizational cultural; the impact is often mediated by the motivational orientations that drive to adopt the certification and by the degree of internalization.

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Chapter 1

CONTEXTUAL OVERVIEW

1.1 The agrifood sector

This research is suited within the Italian agrifood sector, representative of a strategic and dynamic area of the national economy. Understanding its structure and dynamics could be essential to contextualize the role of quality and sustainability certifications which shape firms' performance and competitiveness.

According to the European Monitor of Industrial Economics, the agrifood sector "encompasses all operations within the food supply chain, including farmers, food industry, food retail, wholesale food service, as well as their suppliers of inputs and services. It comprises activities related to agriculture, farming, food processing, and beverage production" (European Commission, 2018). Within the European Union it represents the largest manufacturing ecosystem in terms of employment and value added while the Italian industry constitutes the 3rd largest food industry in the EU, following Germany and France due to its culinary culture (European Commission, n.d). In Italy the sector is fragmented, mostly characterized by small and medium enterprises (SMEs), 70% of which family based, and this determines some challenges such as sector concentration and internal structuring, intergenerational transmission and capital restructuring (Fondo Agroalimentare Italiano, 2018). In terms of production, it is mainly based on grains, soybean, meat and dairy in the Northern part

while fruits, vegetables, olive oil, durum wheat and wine are mostly present in the Southern part (European Commission, n.d).

Quality and safety are central priorities across all production stages. Italy is the leader in EU for the number of certified agrifood products with Protected Designations of Origin (PDO) and Protected Geographical Indications (PGI), counting 845 certified products, 319 agrifood products and 526 wines (Ministry of enterprises and made in Italy, n.d). This illustrates the centrality of the accreditation mechanism, playing a strategic role in the industry as a safeguard of authenticity, traceability and quality enhancing transparency, fostering consumer trust and differentiating products in the competitive global market ensuring also national and international regulation compliance. Further, the adoption of certifications demonstrates company's commitment to responsible practices, from sourcing raw materials to the final distribution and they also mitigate operational risks and facilitate access to new markets, both as assurance and strategic differentiation tool.

In the following paragraph it is provided an in-depth analysis of the accreditation system and the main certifications standards that have been taken in consideration in this study, going through their processes and relevant features.

1.2 The certification system and its importance

The certification system constitutes the institutional backbone of quality and sustainability assurance. The International Standards Organization (ISO), developed in the latest 1946 in London, develops standards which are internationally agreed by experts (ISO, n.d) defined as "a formula that describes the best way of doing something" due to the fact that those standards are adopted as guidelines of the best way of doing things whether in terms of product development or process management. Being internationally recognized they allow trade and cooperation between people and companies with the aim to increase public awareness of standards and standardization, promoting consistency and trust and their development happens as a response to a need in the market (ISO,2025).

ISO standards are defined as “the way an organization manages the interrelated parts of its business in order to achieve its objectives” meaning that these standards are addressed to interrelated processes to achieve organizational objectives, in fact they are applied as a way to improve the management system inside the company. The organizational objectives that can be pursue cover a broad range from product or service quality to operational efficiency, to environmental performance and health and safety in workplaces, depending on the type of organisation context to which the system complexity changes are related.

Adopting a management system (MS) may improve firms’ performance by increasing the implemented steps repeatability and achieving goals and objectives. The MSs determine the creation of an organizational culture focused on continuous evaluation correction and improvement of operations and processes leading to the creation of a stronger employee awareness and management commitment.

The ISO guide reports that the main possible benefits that an organization may gain by implementing an effective management system are:

- Efficient use of resources and improved financial performance
- Improved risk management and protection of people and environment
- Increase credibility and improved services and product, increasing the value delivered to the customers and stakeholders.

Those standards are designed to be applicable in all sectors, independently of the company size or type, in different geographical, cultural and social conditions; all different management systems standards, such as ISO 9001 or ISO 14001, have the same structure, representing guidelines, and containing recurrent terms, requirements and definitions (ISO,2025)

The MSSs (Management System Standards) are widely adopted and implemented in multiple and heterogeneous realities; there are almost 80 standards which are united by one fundamental principle namely the fact that all standards can work together due to the Harmonized Structure by which they are defined; this means that, regardless of the application domain, the MSSs are structured in the same way and this facilitates the adoption and integration of multiple standards (ISO,2025). Even if certifications are not mandatory, they provide external validation of conformity ensuring credibility

and confidence; for this reason, the certification process itself is subject to rigorous auditing performed by third parties, guaranteeing impartiality and reliability. These frequent audits allow to monitor the achievement of the established goals and objectives set and the adequate implementation of the standards (ISO,2025). The successful implementation of the standards is then recognized through receiving a certification, but which is not a necessary requirement: firms performing a management system not necessarily are certified. ISO provides just the tools for the management systems, but it doesn't perform certifications. The effective certifications are then obtained from independent Accreditation Bodies, adding credibility and demonstrating that a product meets the customer's expectations and requirements.

Some of the most used MSs are the ISO 9001 for quality and ISO 14001 for environmental management which are widely spread across the food industry where the adoption of standards is related to ensure safety, quality and sustainability of food products and farming practices (ISO, 2025). These standards will be presented in the following paragraphs to have a clearer idea on their characteristics and their relevance in the industry.

1.3 Quality management systems and ISO 9001

Now that we have an overview on how the accreditation mechanism works, it could be useful to go through the most adopted management system standards across organizations, identifying the key components. This section is focused on understanding how the quality management system works and which principles it is based on, to have a comprehensive outline on why it is adopted and the implications inside the organizations.

ISO 9001 Quality Management System (QMS) standard is the most widely adopted serving as a cornerstone of Total Quality Management (TQM) and process improvement. Companies undertake quality management systems as a strategic decision to improve their overall performance and to have a basis for sustainable development initiatives (ISO 9001:2015); its adoption and the receiving of the certification represent the starting point to create an environment quality-oriented and

this action, over the years, has become more and more widespread among companies that have understood the importance of the quality of their product (Kakouris & Sfakianaki, 2018). The International Organization for Standards (ISO) was established with the purpose to upgrade quality management worldwide (Daoud Ben Arab, 2022) sustaining that it allows the achievement of the following potential benefits:

1. Provide products and services that meet customer requirements;
2. Enhance customer satisfaction;
3. Address risks and opportunities;
4. Demonstrate conformity to specified QM requirements (ISO 9001:2015).

These potential benefits that companies may gain are not just referred to internal process, as the standards may enhance internal capabilities and process efficiency (Wu et al., 2008; Darnall et al., 2008), but they are also associated with a more strategical use of the standards, for firms market oriented. The standard is composed by several sections: ISO 9000 provides the general guidelines to be followed describing the basic principles and the language used whereas the ISO 9001 determines the main requirements for a quality management system allowing to obtain the certification if all requirements are fulfilled. There are 7 main quality management principles included, set on beliefs, norms, rules and values (Daoud Ben Arab, 2022) which are: customer satisfaction, leadership, engagement of people, process approach, continuous improvement, evidence-based decision making and relationship management (ISO 9001:2015). The implementation of these practices allows companies to have unique resources that improve their competitive advantage (Wu et al., 2008; Darnall et al., 2008; Chahal et al., 2020) alongside the increase in efficiency and performance where performance is continuously evaluated and improved though data-driven decision-making and stakeholders engagement; thus, standards are transformed from formal procedures into tacit knowledge and learning.

ISO 9000 standard was developed with the idea to standardize production processes for internal and cross-company comparability through measurable quality requirements by means of objectives and performance indicators of the company (Hillnhagen et al., 2023). The focus on the processes is crucial for the QM because it allows companies to control the interrelationships and interdependencies among the

processes of the system improving the overall performance and consistency in meeting requirements, enhancing also customer satisfaction (ISO 9001:2015). To pursue performance there is the necessity of a continuous improvement orientation, following Deming's PDCA (Plan-Do-Check-Act) cycle approach which allows a continuous review and improvement of the processes (Hillnhagen et al., 2023). In order to have an effective implementation, those standards needs to be transformed into tacit knowledge through an internalization process which is translated in an active use of the standard practices in the daily activities determining an improvement in operations (Cai & Jun, 2018) due to the vision on the ISO 9000 as a system to "manage internal business processes from the beginning to the end of a value chain" (Sharma, 2005).

The adoption of the ISO 9001 takes place when organization tries to "demonstrate its ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements and aims to enhance customer satisfaction through the effective application of the systems, including processes for improvement of the system and the assurance" (ISO 9001:2005). The requirements specified in the standard are generic and they are applicable to any kind of organization independently of the size or products and services. (ISO 9001:2015).

Adopting a quality management system can be beneficial in terms of companies' performance and different motivations drive companies into the ISO 9001 accreditation process. While there is a wide literature on the non-financial benefits arising from the adoption of the standard there is more uncertainty about the direct impact of certifications on the merely financial performances.

1.4 Sustainability concerns in the food industry

In parallel with quality management, sustainability has become a relevant dimension of modern business strategy considering the global increasing attention on environmental and social aspects. For this reason, this paragraph analyses shortly what sustainability is and why is becoming of vital importance, focusing then on the Environmental Management System (EMS) namely the ISO 14001 standard and its associated certification.

In the latest 1987 sustainability has been defined by the United Nations Brundtland Commission as “meeting the needs of the present without compromising the ability of the future generations to meet their own needs” (United Nations, n.d) but nowadays this concept has acquired great relevance, and it has been expanded to capture different nuances of the matter. According to the Triple Bottom Line approach (focused on people, planet and profit) “firms should commit to measuring their social and environmental impact in addition to their financial performance” (Harvard Business School, n.d), this means that firms are increasingly integrating environmental and social considerations into their operations not focusing anymore only on the financial side. These concerns and efforts have been intensified also by the United Nations’ 2030 Agenda for Sustainable Development and the European Green Deal, positioning sustainability as a strategic imperative rather than mere compliance and firms started integrating in their culture and daily routines these objectives focused on the achievement of peace and prosperity for people and planet (United Nations, n.d). This commitment is not required just to the legislative word but also to the single business that has started adopting more environmentally friendly actions and trying to decrease the environmental footprint.

The food industry faces heightened scrutiny due to its significant environmental footprint arising from the use of fertilizers and pesticides, soil exploitation and habitant destruction alongside workers abuses, increasing its attention on environmental protection and sustainability issues, accounting for the 26% of the global greenhouse gases emissions. For this reason, a focus on the overall supply chain has became of necessary importance considering that food production is connected to the survival of plants and animal species (Pullman et al., 2009). To tackle these issues more companies have adopted a Green Supply Chain Management (GSCM) based on green design, green purchasing, green manufacturing, green logistics and reverse logistics (V. K. Sharma et al., 2017) to pursue environmental sustainability combining sustainability elements and environmental thinking related to intra and inter firm management of both upstream and downstream supply chain.

Given the complexity and breadth of the supply chain, traceability plays an important role to ensure information flows security in the entire value chain security; regarding this the food sector has developed a wide range of measures that cover every stage of

the chain. In this sense, blockchain technologies may offers significant potential, enhancing transparency and traceability, tracking efficiency and all the production processes, facilitating also transactions and contractual agreements. In this sense, these improvements can increase the efficiency of the global food safety and sustainability efforts, leading to better food quality, more effective supply chain management and financial solutions (Apeh & Nwulu, 2025). Alongside the environmental issues, the sector is also affected by many social concerns such as labour migration, harsh working conditions and low payments as well as illegal migrants and child labour, human rights abuses, low wages. Further, several issues arise in terms of workers' safety, sanitation and pesticide poisoning. All these aspects must be strictly monitored and to do so, standardised management systems can be of relevant importance (Pullman et al., 2009). Therefore, the implementation of Environmental Management System, the ISO 14001 standards, aligns with global sustainability framework reinforcing the transition toward responsible production.

1.5 Environmental management systems and ISO 14001

In recent years, companies' environmental concerns and their efforts to demonstrate and achieve environmental performance has grown significantly (ISO 14001:2015). The ISO 14001 standard has been developed to provide a structured framework for businesses to address key environmental challenges such as climate change, biodiversity loss and resource depletion (ISO 14001:2015). It serves not only as a tool for regulatory compliance but also as a continuous environmental improvement commitment. By adopting the standard, companies can enhance their corporate reputation, strengthen stakeholders' trust and integrate sustainability more effectively into strategic objectives.

The standard defines a framework for the implementation of an Environmental Management System helping organizations to achieve both environmental and economic benefits by providing a set of tools based on continuous improvement and systematic evaluation, embedding environmental considerations into business practices (ISO14001:2015). Also in this case, the underlying logic follows Deming's quality management cycle of Plan, Do, Check, Act which ensures ongoing

improvement in environmental performance (Massoud et al., 2010). To gain this outcome the standard provides several requirements for implementing the EMS, primarily focused on implementing environmental policies and objectives that focus on legal obligations and significant environmental aspects. Providing just a guidance framework, as for the ISO 9001, the standard does not guarantee optimal results; those ones depend on the ability of the company to integrate and pursue the standards (ISO14001:2015). Alongside the management systems requirements, the standard requires companies to identify and manage significant environmental aspects such as air emissions, water and land releases, use of materials and natural resources, use of energy and energy emitted, waste and by products, physical attributes and these evaluation process should also account for location, costs and time to undertake the analysis but it doesn't require a detailed life cycle assessment (ISO 14001:2015).

Overall, ISO standards provide guidelines for establishing and implementing efficient management systems, focusing on organizational processes and not directly on the resulting product or service. But this is not enough in the food industry to ensure food quality and safety therefore more product-specific certifications, evidence of the compliance with quality and safety requirements, are often required especially by the retailing side. In the last years, several product-oriented certifications have become increasingly widespread especially in the European context.

1.6 Quality food safety certifications, BRC and IFS

Beyond management systems certifications, the agri-food sector relies also on product-specific standards such as BRCS (Brand Reputation though Compliance Global Standard) and IFS (International Featured Standards) developed by major European retailers, aiming to ensure food safety, quality and traceability in the entire supply chain. The compliance to these requirements allows companies to ensure clients and consumers of safety products, increasing trust and loyalty, gaining a higher reputation. In recent years, as retailers demand for standards requirements compliance has increased, firms started certifying themselves as certifications have become a requirement to operate and remain competitive on the market. While the previous mentioned standards are product-specific and they are mainly a market requirement,

widely spread among organizations are also some voluntary management standards such as the FSSC (Food Safety Management System) which is based on the ISO 2200 that provides food safety standards for processes.

The BRCGS, originally British Retail Consortium (BRC) developed in 1996 by retailers, which operates as a third-party certification, was designed to harmonize food safety standards across the supply chain. It provides assurance to the customers that products are safe, legal and of high-quality including guidance across multiple domains such as food safety, packaging materials, storage and distribution, consumer products setting clear industry benchmarks (BRCGS, n.d.). Complementing the system, compliance against brand and retailers' standards is ensured by Safefood 360 which provides digital tools to monitor food safety, representing a central platform for documentation management, food safety and quality management workflows, updated at each international and standard requirement change. The BRCGS is mainly adopted by retailers to demonstrate their adherence to standards of safety, quality and legal compliance, thus strengthening their relationships with current and potential consumers (RINA, n.d) and it is composed of nine core sections namely senior management commitment, food safety plan (HCCP), food safety and quality management systems, site standards, product and process control, personnel, production risk zone and requirements for traded products (BRCGS, n.d).

Another widely implemented certification in the food sector is IFS Management GmbH (IFS), developed from the joint venture of the French retail FCD and the German retail HDE, globally recognized as product safety and quality standards. IFS provides tools and services that support continuous quality management improvements and it verifies that suppliers of private-label and branded products deliver safe food that meets all legal and customer-specific requirements, strengthening consumer trust and enhancing reputation (IFS, n.d.). The standard evaluates both products and processes, ensuring that audits focus on operational efficiency as well as product quality and it allows businesses to have greater transparency and traceability in the markets alongside an improvement of the product and increasing efficiency (IFS, n.d.). The main benefits that companies may face by adopting the IFS certification are defined as follow:

- The requirements reduce operating costs and increase efficiency
- The scoring system drives continuous improvement
- The IFS risk-based approach enables individual risk assessments
- The non-prescriptive approach allows custom-made solutions

In this sense, IFS Certification offers several key benefits for food companies striving for excellence in quality, product safety, and customer satisfaction driving the companies toward competitive advantage in their marketplace leading also to a growth in sales since certified firms retain existing customers and gain new ones and this is connected to the trustworthiness the certification spread.

After this overview on the main certifications adopted in the food sector and how they work, there will be presented the literature review on the topic of this thesis namely how the adoption of those certifications influences the performance of the firms operating in the industry going through the studies made by researchers.

Chapter 2

LITERATURE REVIEW

To conduct this research and identify which is the art of study several research have been made, and different papers have been analysed and studied to have an overview on the topic and to understand how the ongoing study can be placed among the already existing scientific context. Further, the literature review has been of fundamental importance to take insights for the development of the questionnaire used in the subsequent survey and to identify which methodologies, already used, are more suited for this specific scenario. Moreover, an in-depth analysis of the papers allows to identify the possible literature gap giving the opportunity to define a guideline for future research directions.

In this sense, a variety of sources have been consulted, scientific papers, journal articles, books and literature reviews. The methodology adopted to select the most significant ones and to have a reasonable number of papers was the PRISMA methodology which stands for Preferred Reporting Items for Systematic Review and Meta-Analysis. This method facilitates authors in defining what techniques they used, the results found and why the review was done, increasing the quality and transparency of the study by designing a structured approach to reporting reviews and giving also a clearer understanding (PRISMA 2020). Starting from the overall number of sources found, the process includes exclusion criteria at each stage that allows to select which papers are more suitable for the study conducted, checking the validity and the completeness of the literature review. With the exclusion criteria at each stage there is a progressive path, meaning that if a paper has been excluded at a previous stage, then it is not considered anymore in the subsequent stages.

All the sources used in this thesis have been identified using Scopus and ScienceDirect filtering initially by a general query “certification” OR “ISO” AND “impact” AND “food” obtaining 1620 papers. Additional filters have been put in place, in particular papers in English within the 2010-2025 timespan reducing the number of papers to 1440; further the research field has been limited to Business and Management and Accounting, Engineering, Economics, Econometric and Finance looking for articles, books, reviews, conference papers and papers with open access and open archive; this resulted in having at disposition 112 studies. Additional selection was made by verifying the inherence of the title with the topic and subsequently the abstract analysis. Because not so many papers where exactly centred on what I was looking for, also the waterfall method was allowed considering that in some papers there were cited some references to other interesting and related papers and they have been selected despite, in some case, they were older with respect to the time period considered. For this reason, the PRISMA diagram is not reported as the approach was not totally followed but combined. The process led to base this study on 55 existing papers.

This literature review aims to identify how the adoption of certifications can impact the business performance of organizations in the food industry, focusing especially on quality certification such as ISO 9001, BRC, IFS and environment certifications, specifically ISO 14001. The analysis evaluates a broad range of aspects concerning certifications, from the main motivations that drive companies toward the accreditation process, to the benefits arising from the standards’ implementation but also the challenges that must be overcome and how companies perceive their impact.

Firms operating in the manufacturing sector face significant market competition, regulatory and stakeholders’ requirements. This contributes to the increasing quality assurance role of certifications such as ISO 9001 and ISO 14001 which tend to be used as strategic tools to meet specific obligations. This is especially evident when companies are characterized by strong concerns in terms of exports and food safety risk management, aiming to increase customers confidence and facilitating market access. These features represent a prerequisite to do business at large scale or entering regulated markets (Kotsanopoulos & Arvanitoyannis, 2017), for this reason of relevant importance.

All current studies emphasize how certifications' impact on business performance is closely connected with the effectiveness of standards implementation and the ability to internalize the standards and create in line management systems. This implies that it is not enough to get certified and obtain the certification but, what is mostly significant, is the way all the guidelines are translated into organization reality and how the management implements the systems accordingly considering that, generally, a better management leads to better firm-level outcomes. In this sense, several factors are influent on the implementation effectiveness, from cross-country and within country differences (the results suggest that the international standards could be an effective mechanism for transferring good management practices to emerging and developing markets that could have a lack in this sense) to firms size, larger firms tend to realize grater benefits having at disposition a higher resource availability and also obtaining more financing. Further, being some certifications a prerequisite to access the global supply chains, exporting firms gain more benefits from them, being trusted at large scale and especially by the international retailers. On the other hand, also the sector type is a fundamental determinant since, depending on the product delivered, consumer may be harmed consequently prevention is essential; this is particularly relevant in the food and pharmaceuticals industries which have stronger certification-performance linkages (Javorcik & Sawada, 2018).

2.1 Motivations

A substantial body of studies have explored the motivations driving firms to pursue certification and this research will investigate the motivational mechanisms and orientations. The exploration of the main motivations behind companies' willingness to get certified would reveal not only why companies implement the standards but also what they expect to obtain after the accreditation process. Early studies emphasize the coexistence of internal and external drivers suggesting that certification adoption results from the overarching aim of improving business performance, despite the variety of contextual factors (Zubizarreta et al., 2023), and the interaction of efficiency-seeking and legitimacy-seeking behaviours (Casadesús & Karapetrovic, 2005; Heras-Saizarbitoria & Boiral, 2013).

With the intensification of globalization, firms experience a growing need to align with international standards to ensure that their products are accepted in global markets. The primary aim of these standards is to establish robust management systems that focus on processes and operations, capable to meet customers' requirements and expectations (Su et al., 2015). For instance, ISO 9001 is often regarded as the first step to create a quality-oriented environment and to implement a Total Quality Management. Its adoption fosters production efficiency, enhances process control and increases quality awareness inside the organization, thereby serving also as a pathway to international expansion. These aspects reveal the interconnected nature of internal and external motivations. Therefore, internally, firms seek to improve products, services and process efficiency while externally driven firms pursue competitive advantage through market expansion and responsiveness to customer and market pressures (Kakouris & Sfakianaki, 2018). In addition, the external motivations are linked to the ability of certifications to facilitate entry into global supply chains, giving opportunities to benefit from economies of scale and improving the company's chances in tender processes conferring a preferential status (Javorcik & Sawada, 2018). Regarding this, while Buttle (1997) sustains that the main drivers to adopt certifications are identified in the willingness to boost profits, improve processes and obtain marketing benefits, recent research highlights additional motivations such as strengthening sustainability commitments and improving overall quality of business processes (Ali & Yusuf, 2021). From this perspective the implementation not only of a QMS but also of an EMS demonstrates how a company integrates in its operations commitment to a sustainable development. In fact, firms adopting management systems, based on the "Plan-Do-Check-Action" cycle, are enriched with a structured foundation for continuous improvement and efficient strategy formulation (Massoud et al., 2010). The above cited study on Lebanese food firms adopting ISO 14001 provides a concrete example: companies are motivated by the desire to overcome the export barriers being able in this way to access new markets facing new customers and achieving recognitions for the company's products. Further, certification is also seen as both a supply-chain prerequisite and a means to comply with international regulations, leading to improve corporate image, cost reduction and enhance performance.

Within the food industry many companies adopt multiple certifications to strengthen product quality and safety to prevent foodborne diseases and reduce food-related risks, relevant concerns that must be guaranteed to remain competitive in the market. The effectiveness of these outcomes depends on how standards are implemented and internalized. Adopting standards like HCCP (Hazard Analysis and Critical Control Points) and FSSC (Food Safety System Certification) doesn't just guarantee safe foods but also demonstrates transparency on how food safety has been planned and implemented (D. P. Kafetzopoulos & Gotzamani, 2014). Connected to the degree of standards integration and implementation there is also the link between certification and innovation; effective implementation of standards can generate product and process innovation, even if this depends on the company's motivation. Considering what is mentioned in Manders et al. (2016), just having implemented a quality management is not enough for companies to increase their competitiveness and survival but there is the necessity to guarantee a certain degree of innovation which can be considered as one of the main contributors to the competitive advantage of a company. But the contextual factors, such as company size, sector and regional environment, influence the degree of innovation and effectiveness of the standards' implementation. While larger firms operate in more dynamic, research-oriented regions, being better positioned to integrate certification with innovative practices, smaller firms often face financial and structural constraints that limit their ability to fully benefit from certifications. Working in regions characterized by public research institutions, large dynamic firms, with a strong entrepreneurial environment may influence the willingness to adopt quality certifications like ISO 9001 and pursue product innovation due to a higher easiness of the organizations to work with customers, competitors, suppliers and the research. Companies operating in regions with a certain level of economic development may have already implemented sophisticated management systems so easier to meet customers' needs. Additionally, as Cai & Jun (2018) pointed out, firms' motivation to obtain certifications is also determined by compliance requirements, especially government agencies regulations and procurement requirements, as well as customer's pressure and requirements for quality goods and services. In this way companies, by increasing their commitment in being compliant to the requirements, focus also on the marketing needs and enhance their reputation by producing high quality products. As defined in Siougle et al. (2019)

certifications constitute a mean of disclosing information to external parties and so the market can favourably assess and value their implementation due to their signalling power of unobservable quality. This leads to a positive judgement toward the company since it spreads the idea that it meets the customer's expectations. By doing this, there is a higher possibility for companies to procure new markets or keep the access in the market, even if it is not guaranteed to obtain a higher economic return in terms of price premium (Siougle et al., 2019). They are exploited as signalling mechanism to communicate trustworthiness of organizational practices, being issued by authorized third parties. Further, certifications may alleviate pressures in imperfect markets characterized by information asymmetries (Valero-Gil et al., 2023) creating social legitimacy in the stakeholders' eyes. Certifications referred to management systems, such as ISO 9001 and ISO 1400, aim not only to improve performance but also to communicate to external stakeholders the unobservable quality management systems that have been implemented into the company to be compliant with market and customer requirements. However, certifications do not always result in tangible improvements due to their symbolic adoption, decoupled from business practices (Valero-Gil et al., 2023).

To have a better clarification and to synthesize the literature, motivations for certifications can be classified into four broad categories, two externally driven and two internally, reflecting different strategic orientations:

- *Strategic and competitive advantage*: this is mainly referred to the fact that companies adopt certifications aiming to remain competitive in the market and exploit the early-mover advantage reaching higher financial return and exploiting earlier the opportunities with respect to competitors (Su et al., 2015), obtaining competitiveness and differentiation. Certifications may help also in reducing information asymmetries in the supply chain. When an enterprise sends signals of certification it can activate innovation activities that induce reliability to costumers. In the food industry consumers' concerns are an essential element to consider as they tend to be very highly demanding regarding the products they consume and they expect a certain degree of quality delivered; this aspect reinforces certifications strategic role in terms of competitiveness (Jeong et al., 2021).

- *Market related and external pressures:* external pressures such as customers' expectations and regulatory compliance requirements represent one of the main drivers for certifications' adoption considering that companies have to comply with external needs and provide a certain degree of satisfaction, thus the adoption of the certification reflects the organization's intent to be quality oriented. Further, companies seek accreditation as an instrument to maintain legitimacy, satisfy client demands and access to new markets (Cai & Jun, 2018; D. S. Sharma, 2005). This last aspect is pivotal in organizations' strategies because it allows to expand business and increase competitiveness; regarding this, certifications may play a significant role allowing the access to sensitive environmental markets (Zubizarreta et al., 2023) or new customer segments. From a different perspective, certification adoption emerges also from a mimetic isomorphism where firms imitate competitors' practices to align with industry norms and decrease rival pressures (Wiengarten et al., 2017) determining a widespread diffusion of standards across national borders.
- *Internal improvements and performance:* from an internal perspective, the primary reason for certification adoption is company's willingness to formalize management systems based on quality, sustainability and safety aiming to improve productivity and efficiency, thus delivering high quality products (Â Casadesu Â & Gime Ânez, 2000), reducing costs, minimizing waste and adopting a more effective resource depletion. Intuitively, taking into consideration these motivations to adopt certifications, companies expect consequently to gain higher profitability, profit margins, increase sales and overall returns (Zubizarreta et al., 2023). In this sense lots of studies focus on financial aspects, but the results are almost inconsistent (Cai & Jun, 2018) since financial outcomes tend to me mediated by non-financial measures.
- *ethical and moral reasons*: ethical motivations reflect an increasing focus on sustainability and corporate responsibility. In this sense, companies recognize more the need to balance profit with social and environmental objectives, embedding sustainability principles in their operations (Zubizarreta et al., 2023).

Table 2.1:References of Motivations types

Motivation	Reference
Access to new markets and export opportunities	Javorcik & Sawada (2018); Pérez-González et al. (2019); Blind et al. (2018)
Customer or buyer requirements' compliance	Pérez-González et al. (2019); BRCGS (2020); Lupascu & Paunescu (2017)
Internal process and efficiency improvements	Zisopoulos et al. (2018); Lo et al. (2014); Naveh & Erez (2006)
Firm reputation and brand image	Martínez-Costa et al. (2009); Valerio-Gil et al. (2024); Ullah (2020)
Competitive advantage	Martínez-Costa et al. (2019); Toke et al. (2012); Blind et al. (2018)
Financing access and risk reduction	Ullah (2020); Altomonte et al. (2021)
Regulatory and legal compliance	Kotsanopoulos & Arvanitoyannis (2017); Lupascu & Paunescu (2017)
Continuous improvement	Martínez-Costa et al. (2009); Lo et al. (2014); Naveh & Erez (2006)
Social and environmental responsibility pressure	Geng et al. (2017); Valerio-Gil et al. (2024); Wiengarten et al. (2016)
Global or industry standards alignment	Geng et al. (2017); Valerio-Gil et al. (2024); Wiengarten et al. (2016)

2.2 Benefits

After identifying the motivations that drive companies toward the certification process, the next step is the examination of the expected outcomes, the benefits organizations anticipate from the certification process. It is evident that motivations and expected benefits are closely interrelated: the same factors that prompt companies to adopt certifications often shape their expectations of the outcomes. In this sense, the adoption of certifications, especially in the domain of quality, sustainability and safety, has evolved into a strategic tool for businesses for enhancing internal process improvement, gain competitiveness, and strengthening financial performances. The analysed literature demonstrates that certifications such as ISO 9001, ISO 140001,

BRC, IFS generate a broad spectrum of tangible and intangible benefits for firms. A recurrent finding is the positive relationship between certification and internal operations improvements, especially from ISO 9001. It is the most widely adopted management system and considered a foundation for process standardization, continuous improvement and error reduction according to the 8 principles which it is based on.

Sumaedi and Yarmen (2015) developed a comprehensive measurement framework for assessing the effectiveness of ISO 9001 identifying 12 dimensions and 33 indicators that capture both performance and improvements. It emerged that 8 of the dimensions, customer focus, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making, and mutually beneficial supplier relationship, act as leading factors which lead companies toward improvement while the other 4, product performance, process performance, system and customer based performance, and financial performance, are lagging dimensions reflecting the contribution of ISO 9001 to firm success. These results emphasize that the overall success of companies adopting certification stands in the implementation effectiveness of the standards. Furthermore, when adopting a combination of certifications like ISO 9001 and ISO 22000 (food safety management standard) firms can face significant gains in production flexibility, delivering reliability and cost efficiency. These improvements are also statistically significant in explaining the variance in the competitive performance (Kafetzopoulos et al., 2013). In the above cited study, it results that "employees attributes", "organization attributes" and "internal business motives" have a significant contribution to the effective implementation of the system which then determines the business performance. In fact, from the analysis it has been found that internal business motives, employees attributes and organization attributes influence the system effectiveness which consequently influences product quality, financial performance and operational performance. The authors demonstrate that certification effect on financial performance is indirect, mediated by the organizational improvements and product performance.

As concerns the impact of certification on financial performance the findings are not clear and there is a debate ongoing about the matter. Certification implementation impacts first the organizational performance and product quality and then these ones

affect the financial performance; this underlines the presence of some mediators on financial performance. The link between certifications and financial performance is more nuanced. Islam, Karim and Habes (2015) studied the relationship between quality certification and financial and non-financial performance in organizations and what emerged is that there is no significant relationship between ISO 9001 and financial performance whereas there is a significant relation with non-financial performance, emphasizing the mediating role of non-financial indicators. In their view, certification enhances operational and reputational foundations first, which subsequently lead to financial results. This nuanced relationship underlines that certification serves as an enabler of performance rather than immediate driver of profits.

Beyond quality standards, environmental and safety certifications also contribute to operational excellence. Environmental management system, for instance, focuses on waste reduction, efficient resource utilization and environmental controls which contributes to gain more operational efficiency. The adoption of green supply chain management practices enhances economic, operational and environmental performance (Wiengarten et al., 2017; Geng et al., 2017). Additionally, Wiengarten et al. (2016) found that firms implementing simultaneous multiple management systems such as ISO 9001, ISO 14001 and OHSAS 1800 (Occupational Health and Safety Assessment Series) perform better in environmental and occupational health and safety dimensions whereas, from a quality point of view, the adoption of multiple certifications doesn't seem to affect performance. These three types of performance are considered as determinants of operational excellence, and the multi-certification process increases the positive impact on them. Alongside the adoption of an environmental management system (ISO 14001), the implementation of an efficient green supply chain management (GSCM) leads companies to better perform from and economic (profitability), environmental (energy, pollution, waste reduction), operational (scrap rates and delivery times) and social (product and company image) viewpoint (Geng et al., 2017), although the strength of this relationship is mediated by several factors as industry type, firms size, ISO certification, export orientation. While the implementation of GSCM requires initial high upfront investments, the long terms

benefits including saving energy, waste reduction, increase in operational efficiency and customer image, typically outweigh the initial costs.

From a market perspective, to be competitive companies need to maintain their position in the market against their competitors, and be able to access into different markets, for this reason certification may act as a prerequisite for internationalization, entering regulated or international markets. To promote a reliable image, firms in the food sector are required to adopt globally recognized standards such as BRCS and IFS which have become almost mandatory in the last years. These product-specific certifications determine an increase in customer trust by promoting high traceability, reliability and recall readiness which are highly valued by retailers and institutional buyers (Lambert & Frenz, 2021). In fact, buyers' confidence in certified suppliers reinforces the relational and reputational advantages of certifications (Santos et al., (2018). Consequently, certifications contribute to reputational and relational benefits ensuring long term sustainability in addition to operational and safety improvements. The ability of certification to enhance market image and reputation is related to their signalling power, especially in contexts characterized by information asymmetries, spreading a sense of reliability and operational control. Additionally to image advantages, certified firms enjoy better access to external finance, including banks loans and equity capital compared to uncertified firms that rely more heavily on informal sources of finance. These certifications are low costs instruments that allow firms to signal their unobserved quality, reducing informational asymmetry and getting external finance (Ullah, 2020); for this reason, they are used as managerial and strategic tools to enhance productivity, employee motivation and product and service quality. This advantage is particularly significant for small and medium-size enterprises for which formal financing channels are often constrained. This argument is reinforced by Blind et al. (2018) that define how the participation to international accreditation arrangements, such as IAF, enhances cross-border trade flows through increased institutional and product trust because certifications reduce uncertainty in product quality.

The realization of benefits can be influenced also by sectoral variations. In food manufacturing, certifications such as ISO 22000 and BRCGS, are often associated with safety and legal compliance benefits, while in manufacturing and engineering

contexts, ISO 9001 tends to deliver stronger process optimization and supplier quality assurance. Moreover, the degree to which firms experience positive outcomes depends on how deeply certifications are embedded into managerial practices. Psomas and Fotopoulos (2010) argue that certifications can only yield substantial performance gains when supported by genuine commitment from top management and adequate training and internal integration. In this sense, certification is not a substitute for sound management but a mechanism that reinforces it.

Despite some inconsistencies regarding direct financial returns, the broader evidence confirms that certification adoption contributes to organizational learning, operational efficiency, market access, customer satisfaction and sustainability performance which determine long-term competitiveness and resilience. As Terziovski and Power (2007) note, “the value of certification lies not in the certificate itself, but in the disciplined systems, culture, and learning it fosters within the firm”.

Overall, the literature supports the view that certification is not merely a compliance exercise but a strategic investment. When genuinely implemented and effectively integrated, certification frameworks provide firms with structured mechanisms to enhance performance, strengthening stakeholders’ trust, and compete effectively in increasingly demanding global markets.

Considering the above literature review the benefits that companies face due to the adoption of certifications can be classified into the following sections:

- *Operational and quality improvements*: ISO 9001 implementation leads to reduce defect rates, improves process control and increases customer satisfaction benefits arising from pursuing continuous improvement and prevention of non-conformities (Sumaedi & Yarmen,2015). All the benefits depend heavily on effective implementation of the standards that contributes to quality assurance and managerial commitment (Kafetzopoulos et al., 2013; Psomas & Fotopoulos, 2010).
- *Market access and competitive advantage*: certifications enhance competitiveness by enabling companies to access international markets and strengthen their competitive position gaining better corporate image and customer relationship (Islam et al., 2015); they demonstrate compliance with global quality and safety standards which build trust with customers and supply chain partners (Lambert & And Frenz, 2021).

- *Economic performance and access to financing*: financial gains are often indirect as reported by Islam et al. (2015) and mediated through operational and reputational outcomes. Certified firms can access better external finance (Ullah, 2020) and more possibilities to increase their exports, sales, and productivity (Javorcik and Sawada, 2018). Blind et al. (2018) show that ISO 9000 certification facilitates international trade by increasing trust and reputation across borders, especially when certification is backed by accredited bodies recognized by International Accreditation. In addition, certifications can be used as a signal under conditions of information asymmetry. Ullah (2020) found that ISO-certified firms are more likely to secure formal bank financing and equity capital, particularly in economies with underdeveloped financial systems, due to the certification ability to signal organizational competence, quality control, and reduced operational risk, thereby increasing lender and investor confidence.

- *Environmental and sustainability performance*: According to Wiengarten et al. (2017) ISO 1400-certified firms show better environmental performance and more efficient use of resources. Geng et al. (2017) define that green supply chain practices positively affect economic, operational, and environmental performance in Asian emerging economies.

- *Health, safety and social performance*: lots of certifications like ISO 22000, SA 8000 contribute to improve working conditions, traceability and ethical labour practices, in particular, the adoption of ISO 22000 may reduce food safety risks and improve traceability across the supply chain (Kafetzopoulos et al., 2013).

Table 2.2: References of Benefits types

Type of Benefit	**Reference**
Operational efficiency	Javorcik & Sawada (2018); Zisopoulos et al. (2018); Lupascu & Paunescu (2017); Wiengarten et al. (2016)
Market access	Javorcik & Sawada (2018); Pérez-González et al. (2019); Martínez-Costa et al. (2019); Blind et al. (2018
Sales and revenues	Javorcik & Sawada (2018); Toke et al. (2012); Ullah (2020)
Financing constraints reduction	Ullah (2020);
Customer satisfaction and trust	Sumaedi & Yarmen (2015);

	Lupascu & Paunescu (2017); Pérez-González et al. (2019)
Reputation and credibility	Martínez-Costa et al. (2009); Valerio-Gil et al. (2024); Ullah (2020); Kotsanopoulos & Arvanitoyannis (2017)
Employee discipline and productivity and engagement	Wiengarten et al. (2016); Naveh & Erez (2006); Lupascu & Paunescu (2017); Martínez-Costa et al. (2009); Lupascu & Paunescu (2017)
Innovation and continuous improvement	Lo et al. (2014); Martínez-Costa et al. (2009); Naveh & Erez (2006)
Alignment with international standards	Pérez-González et al. (2019); Kotsanopoulos & Arvanitoyannis (2017)
Food safety assurance	Pérez-González et al. (2019); Kotsanopoulos & Arvanitoyannis (2017)
Waste and environmental impact reduction	Geng et al. (2017); Wiengarten et al. (2016); Zisopoulos et al. (2018)

2.3 Difficulties

Despite the numerous benefits associated with certifications, the adoption and implementation of certifications is not always straightforward, and it may present a range of difficulties and challenges as firms must navigate internal, operational, financial and contextual barriers that can affect the certifications outcome. The analysed literature underlines that certification implementation success depends not only on technical but also on firms' ability to overcome systematic obstacles that can be related to operational, organizational and financial constraints.

One of the most critical barriers is the lack of managerial commitment and awareness, which undermines the effective implementation of the standards and their integration into organizational strategy. In many cases, certifications are primarily adopted as a formal requirement rather than as an integral component of strategic planning and this leads to minimal organizational transformations and limited practical application of the guidelines (Sumaedi & Yarmen, 2015). Furthermore, the same study emphasizes

that the lack of clear instruments for measuring implementation effectiveness further decreases managerial engagement, as firms struggle to demonstrate the tangible outcomes of certifications. This lack of commitment is reinforced also by the resistance to change, a widely spread issue across organizations when new management systems are introduced. The resistance arises not just in the upper part of the company hierarchy but also from employees who may perceive the certifications-related changes as burdensome, especially when higher responsibilities are needed. Păunescu et al. (2018) similarly argue that the process can be hardened by the inexistent involvement and responsibility from the top management side which does not totally understand and apply the standards' procedure, additionally to the lack of employees' skills and reluctance to change.

Another major constraint concerns financial limitation which continue to be a significant barrier for firms hindering certification adoption especially for small and medium enterprises. The difficulty does not arise directly from certification cost itself such as consultancy fees, employees training, audit expenses, new machines and upgrades (often modest relative to overall business expense) but from the indirect costs associated to the internal changes and compliances to the standards requirements that lead to production losses during the implementation phase. This combination of upfront investments and delayed financial returns generate the raise of doubts about the overall returns, especially when they are not immediately visible (Blind et al., 2018). The absence of funds, as well as the absence of an appropriate infrastructure create additional obstacles for the certification adoption (Păunescu et al., 2018). Empirical evidence confirms that financial constraints can constitute a decisive obstacle. In the above cited study, one of the research hypotheses is exactly referred to how the costs of food safety management system can obstacle the ISO 22000 implementation in the Romanian companies; the results confirm the hypothesis, highlighting that for many organizations financial feasibility remains a crucial factor determining whether certifications' efforts are sustained or abandoned.

Additionally, a further dimension of difficulty regards the lack of governmental support and the stakeholders demand, particularly in contexts where certifications are not mandatory. Although ISO 14001 has become almost mandatory for firms, standards related to food safety, which are of vital importance in the sector that is

increasingly expecting their adoption, are not mandatory and this absence of formal obligation does not encourage firms to undertake the accreditation process not being supported, also from an economic point of view, by the governmental institutions. In many developing economies governmental bodies fail to promote certification adoption through financial support. Moreover, as regard the ISO 14001, there is also a lack of local customers demand who are less interested in environmental performance of food companies, focusing instead more on quality and safety. This misconception is compounded by the perception that food companies are less polluting than other types of heavy manufacturing industries, assumption contradicted by evidence that show as the food sector accounts for 26% of GHG emissions (Massoud et al., 2010). Also Sharma et al. (2017) sustain that, in many cases, especially for environmental certifications, managers adopt standards primarily for reputational purposes rather than for a genuine commitment in sustainability and the willingness to enhance their environmental management systems. This tendency is evident when global supply chain exerts strong external pressure that forces local firms to pursue certifications in order to maintain the business relationships when an adequate support mechanism is missing and not well established. This leads suppliers to engage in certification adoption just in a symbolic way to accomplish market demand without effectively implementing the standards and not obtaining clear quality or sustainability improvements. This is further evident when certification infrastructure is weak and there is not an appropriate governmental support which undermines the credibility and efficiency of the processes. Regarding this, inadequate infrastructure and weak accreditation mechanism can also compromise the signalling value of certification. When accreditation bodies lack international recognition or technical competence the reliability of certification becomes questionable. Regarding this, the IAF MLA (International Accreditation Forum's Multilateral Recognition Arrangement) plays a crucial role in confirming the credibility, especially of ISO 9000, facilitating the international trade (Blind et al., 2018).

From an operational standpoint, firms face technical and operational complexities in the standards' implementation. This is related to difficulties in understanding and interpreting the multifaced requirements and the ability to translate them in concrete practices. The complexity becomes even greater when companies pursue multiple and

simultaneous certifications which require effective harmonization among the overlapping standards; the integration process can create confusion and inefficiency in the system, alongside the burden of documentation and the need to maintain extensive records in order to ensure audits that can be overwhelming, especially for those companies that have a limited administrative capacity (Sumaedi & Yarmen, 2015).

Table 2.3: References of Difficulties types

Difficulty	Reference
Implementation and maintenance costs	Ullah (2020); Valerio-Gil et al. (2024); Zisopoulos et al. (2018)
Internal and trained personnel lack	Lupascu & Paunescu (2017); Kotsanopoulos & Arvanitoyannis (2017)
Complexity and bureaucracy of certification procedures	Lupascu & Paunescu (2017); Kotsanopoulos & Arvanitoyannis (2017)
Limited access to qualified external auditors	Kotsanopoulos & Arvanitoyannis (2017); BRCGS (2020)
Multiple standards integration difficulty	Wiengarten et al. (2016); Lo et al. (2014)
Resistance to change	Naveh & Erez (2006); Lo et al. (2014)
Limited added value perception	Altomonte et al. (2021); Toke et al. (2012)
Short term disruptions to operations	Zisopoulos et al. (2018); Lupascu & Paunescu (2017)
Challenges in maintaining continuous compliance	BRCGS (2020); Pérez-González et al. (2019)
Unclear or overlapping certification requirements	Wiengarten et al. (2016); Blind et al. (2018)

In summary, certification successful implementation is contingent upon overcoming several internal and external complexities. Lack of managerial commitment, internal resistance, financial constraints, limited support and operational challenges hinder the realization of standards' full potential. The findings in the literature emphasize that certification effectiveness depends not only on the standards themselves but on broader organizational and contextual factors.

2.4 Evidence in the food sector

The above presented sections have provided a general overview on how certifications influence business performance considering a wide range of empirical evidence. Certifications such as ISO 9001, ISO 22000, BRC and IFS have become pivotal in the food industry to ensure safety and quality standards for products, but not only, they are also a tool to enhance business performance and several studies underline the benefits that companies gain from the accreditation process, going from financial, to operational, and market access perspectives. There is also a relationship between the positive outcomes as certification implementation may lead to improvements in planning and control processes which consequently determine decrease in error rates leading to an increase in cost efficiency. These benefits are not just from an operational point of view, but they are complemented by intangible gains such as increase in customer trust and employee discipline, especially when it comes to the implementation of the ISO 22000 certifications as it is reported by Păunescu et al. (2018). Not just the international certifications defined by the ISO have explicit benefits on business performance but also narrower and private schemes such as BRC and IFS, European realities, which demonstrate positive effects especially in the international trade context. The study of Fontaine et al. (2018) reports how food firms in the Canary Islands adopting BRC and IFS standards experience a boost in satisfaction, obtaining an easier access to foreign markets and greater internal consistency in food safety processes. The certification adoption not only facilitates the market access but allows to overcome the information asymmetries due to their signalling power which, especially in case of ISO 9001 certification, helps to reduce the gap between firms and external financiers because it strengthens the reliability and the managerial capability. This is of particular importance for small food firms seeking investments in uncertain environments. Moreover, the adoption of multiple certifications amplifies the perceived performance benefits; in this sense Martínez-Costa & Martínez-Lorente (2007) define how firms adopting multiple certifications (ISO 9001, BRC, ISO 22000) perform higher operational performance level and market responsiveness. This arises from an overlapping improvement of processes enhancement of documentation and credibility among stakeholders. This last point is related to the fact that certifications improve firms' reputation and supply chain

stability that indirectly contributes to business stability and long-term performance (Santos et al., 2018). However, the effectiveness of the certification adoption is not homogeneous and uniform in all contexts. Kotsanopoulos & Arvanitoyannis (2017) emphasize that the benefits are highly related to the rigor of implementation, auditor competence and the integration into a broader management system; their adoption just for superficial or symbolic purposes may bring short term marketing advantages.

2.5 Theoretical lenses

Findings from the literature underline the existence of multiple drivers and outcomes of certifications' adoption in the food sector, especially the coexistence of internal and external motivations which reflects both efficiency seeking and legitimacy seeking logics that characterize enterprises. These motivational mechanisms can be better understood if contextualized and interpreted through some theoretical lenses; if we analyse deeply the motivational mechanisms and the expected outcomes, they can be reconducted to established theories. The main theories that we can identify behind the reasons firms get certified and want they want to achieve are the Resource Based View, Signalling Theory and Institutional Theory. The different motives and benefits pursued by firms are recognized in these theoretical frameworks.

The *Resource based view* was first articulated by Barney, 1991 and subsequently extended by Teece (2018); it considers firms as bundles of heterogeneous resources and capabilities on which the competitive advantages is based on, in fact firm's performance depends on its ability to develop and protect resources which should respond to the VRIO (valuable, rare, inimitable, organized) analysis. In this theory lens certifications, such as ISO 9001 and ISO 14001, can be seen as organizational valuable resources and practices, referring to the Practice-Based View. The mere possession of the certification does not respond to the analysis' requirements, not being inimitable and rare, but the way the standards are implemented and integrated in the organizational culture can make the difference, turning the certification in something that is not easy to copy. An efficient standard implementation contributes to achieve organizational learning, process standardization and knowledge accumulation which then turn into capabilities that enhance efficiency and long-term competitiveness. The

capabilities developed can formalize routines, codify knowledge and institutionalize continuous improvement, enhancing firm's ability to integrate, build and reconfigure resources in response to environmental changes. This aptitude has been defined by Treece (2018) as dynamic capability which is the main responsible feature of the higher competitive advantage of an enterprise with respect to its competitors. These internal drivers are of relevant importance in the food sector considering that quality and safety standards are central to value creation and risk management (Giacomarra et al., 2016; D. Kafetzopoulos et al., 2013). Cai & Jun (2018) illustrate that firms motivated by internal learning and process improvements tend to internalize more deeply the standards practices obtaining higher organizational and operational benefits. So, from a Resource-Based View perspective certifications are not merely a compliance tool but a strategic investment that transforms intangible resources into competitive advantage. In this sense, internal motivations such as process standardization, innovation, continuous improvements, product quality, process control are consistent with the RBV, considering certification as the enabler of organizational resources, structured processes and managerial skills that determine internal efficiency and quality management (Cai & Jun (2018). Further certifications enable firms to improve operational performance by decreasing waste and scraps and having a better planning.

While the RBV focuses on the internal side on a firm, the *Institutional theory* (DiMaggio & Powell, 1983) looks at the external pressures that shape the organizational behaviour considering that firms operate within institutional environments characterized by social norms, regulatory systems, stakeholders' requirements, and all of these constrains influence the strategic choices. This leads companies to adopt management systems as a way to gain legitimacy, stability and acceptance within their filed. The types of pressures defined by the theory are coercive pressures that comes from legal or customer requirements; normative pressures arising from professional norms and industry standards and mimetic pressures due to the fact that firms imitate competitors or market leaders to gain legitimacy. In the agrifood sector these institutional pressures are highly pronounced due to the global supply chains and high consumer sensitivity to quality and safety so certifications can be adopted because of the external pressures such as client expectations, industry norms

and regulatory requirements which are particularly strong where the global retailer demand and consumer request for compliance and quality and sustainability proof are significant competitive pressures (Yang et al., 2024). Also, Delmas & Montes-Sancho (2011) demonstrate that frequently certifications are adopted to align with market expectations and regulatory frameworks functioning as a legitimizing mechanism that signals conformity even in case of poor internal benefits (Boiral, 2011). Thus, the external motives are strongly connected with the different types of pressures present in the market: buyers' requirements can represent a form of coercive pressure, industry expectation as normative and the willingness to stay on the market and be competitive as a mimetic pressure leading to imitate the competitors' behaviour.

Finally, the *Signalling theory* has been developed by Spence (1973) in economic context and later applied to marketing and organizational context proving a market-based perspective on certifications. Certifications are used by companies as a credible signal of unobservable quality in markets where there is presence of information asymmetries (McClure, 2009; Ullah, 2020). This comes from the fact that the theory concentrates on the information asymmetries problem between firms and stakeholders, who look for product or process quality or safety but where quality attributes are not directly verifiable, especially in markets of credence goods as food. For that reason, in the food sector, characterized by the necessity to demonstrate quality and safety, strengthening trust and increasing reputation between producers, distributors and consumers, third party certifications may reduce uncertainty, (Delmas & Montes-Sancho, 2011; McClure, 2009), leading to indirect financial and markets benefits. Reputation enhancement, brand image, trustworthiness are the main external motives that determine certification adoption, closely connected to the Signalling theory and the strong firms' willingness to confirms credibility and product quality.

In summary, the empirical evidence from the food sector underlines that certifications are used as powerful drivers of both operational excellence and strategic transformation. The main benefits firms can gain are referred to operational efficiency, market performance, grater planning capabilities and stronger customer and stakeholders' relationships. Thus, certifications should not be seen solely as

instruments of regulatory compliance but as mechanisms to pursue organizational learning, continuous improvement and long-term competitiveness.

2.6 Methodologies

Alongside the identification of the main drivers, benefits and difficulties associated to certifications, the analysis of the literature review has been of fundamental importance in identifying the methodologies commonly used in the field to collect data and the techniques most suitable for the subsequent data analysis. These insights have been used to propose a model to design the methodological framework of the study, from the data collection method to the analytical approaches to interpret the survey results and extracting meaningful intuitions. A large share of the studies reviewed are based on quantitative, survey-based methodologies, typically adopting Likert Scale as data collection and elaborating the results through descriptive statistics (means, standards deviation, frequencies), regressions and correlations (Ali & Yusuf, 2021; Cheng et al., 2021; Fontaine et al., 2018; Kakouris & Sfakianaki, 2018; Păunescu et al., 2018). Also Daoud Ben Arab (2022), Hillnhagen et al. (2023), Pullman et al., n.d, Wiengarten et al. (2017) adopt quantitative survey-based approaches but their empirical analysis employs OLS regression line, correlations, t-tests, ANOVA and SEM (Structural Equation Modeling), adopted to model complex cause-effect relationships and to capture latent constructs and mediating relationships, developing the results in a robust quantitative finding. In addition, several studies adopt mixed-method approaches where, in first instance, exploratory interviews, based on a more qualitative analysis, are conducted to test the questionnaire and its efficiency followed by structured surveys, useful in defining the contextual factors. Data is mainly elaborated through cross-tabulation and content analysis. This approach was identified in Massoud et al. (2010) and Kafetzopoulos et al. (2013). Further, many studies employ large datasets, relying in this case on econometric and panel data analysis from national datasets, using stochastic frontiers and fixed-effects models that allow stronger longitudinal conclusions (Blind et al., 2018; Goel & Nelson, 2020; Hernandez-Vivanco & Bernardo, 2023a; Ullah, 2020). Overall, most of the literature uses primary data, collected through surveys and questionnaire; however, a significant portion is based

on secondary data from audits and document analysis combined with stakeholders' interviews adopting a qualitative thematic coding. Apeh & Nwulu, (2025), D. P. Kafetzopoulos & Gotzamani (2014), Manders et al. (2016), Trienekens & Zuurbier (2008) employ secondary data for framework and model development, primarily using report review.

The sample size used to run the studies is heterogenous, going from small samples to very large ones and, according to sample size, the methodologies used vary. Smaller - scale studies are characterized by 22 firms in Kafetzopoulos et al. (2013) and 32 companies in Fontaine et al. (2018) adopting qualitative interviews for data collection and the results are elaborated through qualitative scoring in the case of the former and descriptive statistics in case of the latter. Same approach is used by Păunescu et al. (2018) whose sample is composed by 53 food firms. Similarly, Kakouris & Sfakianaki (2018) adopt a more quantitative approach; despite the relative limited sample composed by 48 companies, statistical methods such as t-tests, ANOVA and correlation are used. On the contrary, very large samples such as Ali & Yusuf (2021) characterized by 135 firms, rely on OLS regression to analyse the performance dimensions. On the same line Hillnhagen et al. (2023) study, based on 173 manufacturing firms, uses empirical quantitative methods such as regression models and factor analysis present as well in Pullman et al. (2009) whose research is based on 223 US food companies introducing the Structural Equation Modeling approach.

This examination underlines how the nature and size of the sample strongly influence the methodological approaches and analytical techniques adopted. It is also evident the heterogeneity of the approaches which varies according to type and scope of data collected. Below it is reported a summarizing table indicating the methodologies adopted in the literature.

Table 2.4: Methodological approaches in literature

Methodology	Key features	Study	Sample size
Quantitative survey - based	Structured surveys, Likert Scales, regression or SEM, correlation, descriptive statistics	Sumaedi & Yarmen (2015); Pérez-González et al. (2019); Lupascu & Paunescu (2017); Zisopoulos et al. (2018); Martínez-Costa et al. (2019); Toke et al. (2012); Wiengarten et al. (2016); Lo et al. (2014); Naveh & Erez (2006); Wiengarten et al. (2016)	From 32 to 223
Econometrics Panel data	Large-scale panel data with fixed effects regression	Ullah (2020); Blind et al. (2018); Javorcik & Sawada (2018); Altomonte et al. (2021)	From 16395 to 39638
Meta-Analysis	Aggregated impacts	Geng et al. (2017)	11 127
Literature review/ Conceptual	Conceptual frameworks; no new data collection	Martínez-Costa et al. (2009); Valerio-Gil et al. (2024); Tian (2016); Kotsanopoulos & Arvanitoyannis (2017); Sumaedi & Yarmen (2015)	N/A
Mixed methods	Interviews and surveys; contextual and quantitative methods; content analysis	Flynn et al. (1994) Delmas & Montiel (2009);	22 and 70
Qualitative and secondary data	Audit and company report data triangulated with stakeholder interviews, benchmarking	BRCGS (2020)	N/A

The next chapter will deeply analyse the methodological approach used in this study to gather and elaborate data, going from the questionnaire developed to the theoretical framework on which the empirical findings are based on, the statistical methods adopted, and the hypothesis formulated.

Chapter 3

METHODOLOGY

This research explores the perceived impact of quality and sustainability certifications on business performances in the food industry with a specific focus on the mechanisms thought which certifications influence firms' efficiency, competitiveness and strategic orientation. Given the high multidimensional nature of certifications, being adopted as technical tool, institutional mechanisms and reputation signal, their effects are heterogeneous and complex. To capture this complexity a combined qualitative and quantitative approach has been used allowing to analyse both underlying motivational dynamics and measurable outcomes.

By adopting a mixed-method research design the study is composed by complementary components starting from a qualitative content analysis which enables the understanding of meanings, intentions and perceptions and a quantitative analysis that examine the relationship between certifications and economic indicators. This dual approach bridges managerial and institutional logics allowing to interpret performance metric through the lens of organizational behaviour and strategic choice (Boiral et al., 2018; Delmas & Toffel, 2008). The study focuses on the willingness to construct a comprehensive model of certification behaviour. To reach the final conclusions several steps has been pursued and it was carried out in a quite large time-span due to the fact that, being a survey based on primary data, the process of gather them required some time; regarding this the process of data collection was conducted on a 3 months' time-period.

3.1 Research hypothesis

As it emerged from the literature, the agrifood sector displays a high exposure to quality, safety and sustainability pressures, regulatory requirements, competitive supply chains and high expectations from customers and retailers; in this sense, standards as ISO 9001, ISO 14001 and BRC/IFS may have a dual nature, both licenses to operate and source of differentiations. Estimating the impact of certifications in this industry can be of relevant interest and curiosity and this study aims to investigate these aspects, evaluating the impact of the different certifications adopted on business performance from different points of view, both from a more objective perspective, thus evaluating economic indicators, but also assessing the more subjective dimensions focusing on the perceptions. The literature underlines that certifications effects among food companies is far from uniform, some internalize standards as genuine instruments of improvement, other adopt them to satisfy external demands (Henson & Humphrey, n.d.; Heras-Saizarbitoria & Boiral, 2013). To face this heterogeneity motivational mechanisms and organizational configurations have been also addressed.

Regarding this, this research seeks to investigate the mechanisms through which quality and sustainability certifications influence business performance in the food industry. Based on the already discussed empirical evidence several research perspectives have been identified to be explored in this study. The following working hypothesis are derived from the theoretical analysis of the literature which suggests that the impact of certification on business performance is shaped by the underlying motivations, the integration extent and the organizational context.

Studies in the literature underline that certification adoption is not a homogeneous phenomenon, but it depends on the deeper organizational orientation beyond the willingness to pursue certifications either as a genuine management tool for internal improvement or as response to external pressures and legitimacy concerns (Casadesús & Karapetrovic, 2005; Heras-Saizarbitoria & Boiral, 2013). The underlying motivational mechanism that leads firms in the food industry to adopt different standards is a very nuanced one and the expected benefits change accordingly. Firms driven by internal motivations tend to view certifications as a way to strengthen their managerial systems looking for process improvement, increase efficiency and

fostering continuous improvement; in this sense, standards are used as operational tool that leads to knowledge formalization and dynamic capabilities. Conversely, firms guided by external concerns sometimes engage in certification focusing on short-terms legitimacy and external pressures seeking reputational benefits and market access. Taking all these findings in consideration intuitively we would think that internal driven firms expect to experience higher operational and organizational benefits by embedding certification principle into their practices while external-oriented firms focus on market benefits. To this extent certifications act as both learning tool that increase internal efficiency but also as legitimacy and reputational instruments.

This evidence suggests the formulation of the following hypothesis:

- **H1:** *The underlying mechanism that drives toward the accreditation reflects the motivational orientation of firms to gain efficiency, legitimacy and reputation*

To expand the analysis on the relationship between the motivations to adopt certifications and the expected benefits which is reported in literature the following hypotheses capture this aspect:

- **H2**: *Firms primary motivated by internal motives perceive higher operational and organizational benefits than those external-oriented, driven more by market pressures*

The ongoing debate and the fuzzy findings from the literature about the certifications' impact on firms' economic performance sparks interest in analysing the evidence arising from this sample and this study. Several studies (Javorcik & Sawada, 2018b; Ullah, 2020) have shown that certified firms experience economic benefits from standards adoption especially profits increase and cost reductions while some others (Islam et al., 2015) have underlined that these benefits may emerge only in medium term. Thus, we can hypotyze:

- **H3:** *Firms adopting certifications in the food industry face superior economic performance*

These research hypothesis shape the subsequent data collection and analysis.

3.2 Sample selection

After the initial study of the literature, necessary to understand which studies have been already made and to understand how to conduct the survey, the first step made was to identify the sample to be used in this research. Two databases have been used to create the sample, one to identify the firms in the food sector and the other one to select the certified companies. The first one is AIDA (Analisi Informatizzata delle Aziende Italiane), a database delivered by Bureau van Dijk S.p.A that contains the financial statements and personal information of all active and bankrupt Italian companies (excluding banks, insurance companies and public companies). In this database several research can be done, and the results can be consulted and exported. In this case, the research was conducted filtering by the product classification code, the ATECO code, for the food industry and the codes used were 10 for the food industry and 11 for the beverage production; moreover, in order to narrow down the scope an additional filter was set, namely the interest to focus the research on large companies, defined by the European Commission as those ones that have 250 or more persons employed (Eurostat, n.d). From this database, additional exported information was those related to the operating office, the number of employees in the last available year and their financial statements to have a clearer overview on the single context. This research on the large Italian food companies delivered a sample of 200 firms.

This sample was narrowed down by determining, among the obtained companies, which of them are certified and which not, focusing on the type of certification and the adoption year. To do this, Accredia databased has been used, which is Italy's sole national accreditation body, created in 2009; being a national accreditation authority it ensures that certification and inspection bodies, testing and calibration labs are competent, credible and impartial (Accredia, n.d). To find the adopted certifications by the firms obtained from the previous research, each name has been inserted in the database getting the certification name and year but, since Accredia delivers just the ISO certifications and this study considers also food certifications such as BRC and IFS, a double check was required. In this sense the analysis was conducted by going through the firms' websites and looking for the certifications that they have published. By doing this, not only the BRC and IFS certifications have been found but also some others ISO certifications having in this way a more complete perspective.

With this second step of filtering, the sample was reduced to 128 firms to be contacted, asking for their availability to participate in the study.

3.3 Data collection

Subsequently it was developed the semi-structured questionnaire (Appendix) used to conduct the interviews and gather data. The questionnaire was developed based on prior existing studies which investigate the impact of certifications in manufacturing and food industry. It tried to capture both motivational constructs and perceived outcomes through open-ended and close questions being composed by three sections: the first one capturing more general information, focusing on motivations, company's characteristics and certification processes; the second one analysing the main benefits and challenges related to certifications and the third part a more in-depth analysis defining deeper impacts, including innovation, sustainability, market aspects. The questionnaire was made up of closed-ended questions both 1 to 5 Likert scales, ranking the degree of consensus from strongly disagreeing to strongly agreeing, considering also the neutral element neither agreeing nor disagreeing, and multiple-choice questions, choosing from a list of options; to capture additional information open-ended questions were used as well, to which the participant was able to express his/her self, giving a motivation to the question. This double structure allowed to gather both quantitative data for statistical analysis but also information for nuanced and qualitative insights. Further, an overview on the company context was permitted enhancing the robustness of the analysis. Afterward, the questionnaire approval was required ensuring that it covered all the features of interest and then it was delivered to the companies' part of the sample. The main dimensions identified in the literature that the questionnaire aimed to explored were:

- Internal and external motives
- Firms features
- Types of benefits (operational, organizational, external)
- Difficulties
- Internationalization
- Innovation and new technologies

- Implemented changes
- Sustainability

Each of these dimensions is composed by multiple and different variables such that all features are taken in consideration and analysed allowing to have an in-depth understanding and overview on the topic.

Contacting and obtaining the participation of the firms was of vital importance. In this sense, simultaneously to the preparation of the questionnaire, it was conducted the first attempt to contact the companies in the sample. After analysing different possibilities and scenarios and considering previous results from other research, it has been concluded that approaching directly members inside the companies, looking for the most adequate professional figures such as managers, quality and sustainability specialists, could have been the most successful strategy. Regarding this, the main channel used was Linkedin, looking for the firm's page and then identifying the professional profiles most aligned with the research's matter, sending them a connection request. Afterwards, to all accepted requests, it was sent the invitation message to participate in the survey providing the pdf of the questionnaire such that they could evaluate it. In this first stage the aim was to conduct only face to face interviews to gather data but, after a period of time during which feedbacks were slow to arrive, there was introduced a change in the path, more precisely it was given the possibility to choose between the proper interview and the compilation of the questionnaire independently on a Microsoft forms, thereby completing the first round of contacts. Three contact attempts were made via Linkedin, the first one with the initial and original request and two follow-up messages kindly asking for the participation. Afterwards, because the rate of response was not sufficient, an additional change in the roadmap was implemented namely the institutional mails of all remaining companies have been collected and a message with the request was send again. In this way all firms present in the sample were at least contacted and the message was forwarded. The rate of responsiveness was a low one, and also the follow-ups were not so effective either.

As regard the interviews, the number of the face-to-face interviews conducted was 6 acting as a testing step of the questionnaire to ensure its effectiveness. This gave the

possibility to understand if the questions were clear enough and of direct understanding. It emerged that the structure of the questionnaire was a good implemented one, but a clearer description of the sections would be necessary, in fact for each section there was introduced a short description such that to give a context of the questions. The interviews had a duration of approximately 45 minutes depending on the responder.

Conducting the direct interview was of significant relevance because all the answers came with exhaustive explanations and with some insights about the internal world of the companies, obtaining in this way a better understanding not only on the certifications and the accreditation process but also on the firms' drivers and how effectively these standards are translated in the organization's practices. Afterwards, the other results were obtained just from the questionnaire form filled autonomously by the representatives of the companies. The response rate was not a very high one, just the 23% of the companies contacted, to which the questionnaire was sent, participated; this led to have a sample of 30 Italian agrifood companies to be examined.

For privacy reasons and companies requests the following data analysis will be conducted not mentioning the names of the firms that participated in the survey.

3.4 Statistical instruments

To test the research hypothesis and investigate the results, descriptive statistics is used to summarize the central tendency and dispersions of the indicators and compare their median values and, given the small sample size (30 elements) and the non-normal distribution to test the hypothesis, non-parametric tests are preferred such as Mann-Whitney and Kruskal-Wallis. The statistical analysis reported in this study were performed using the statistical software tool, Minitab.

Mann-Whitney is a non-parametric statistical test used to compare the difference between two independent samples when the distributions are not normally distributed, the sample sizes are small (N<=30) and the variables are ordinal or continuous. It considers the null and the alternative hypothesis as $H_{0:}$: the two populations are equal and H_a : the two populations are not equal (Statology, 20229. It is used to test the

difference of the economic indicators between groups of firms with and without specific certifications.

Kruskal-Wallis test is also a non-parametric test used to test if there is or not a statistically significant difference between the median of three or more groups when the sample size is small; it is the equivalent of ANOVA test but used when normality is not satisfied and it is less sensitive to outliers (Statology, 2022). It is applied to test the differences across three different groups in which the firms are classified in the subsequent analysis.

These tests allow to evaluate whether certification types or motivational orientations correspond to significant variations in performance providing a robust inference under small samples.

To further expand the analysis some correlations are computed among the different dimensions analysed. Also in this case, due to the limited sample size, Spearman's rho correlation which assess the direction and strength of a relationship between two variables (Technology Networks, 2024) is used rather than Pearson correlation; all correlations are computed at firm's level using so composites scores for each construct. To validate the use of the constructs as representative dimension for the analysis, Cronbach's alpha is computed. Cronbach's alpha is applied to test the reliability and the internal consistency of the variables such that to condense them into the single construct to which they are associated such that to perform a firm-level analysis. This measure defines how closely the items in a group are related, thus if the variables are measuring the same thing. The interval of α acceptance is: > 0,90 excellent, 0,8-0,9 good, 0,7-0,8 acceptable, 0,6-0,7 questionable (EBSCO,2024).

The main constructs considered are:

- Internal motives
- External motives
- Operational Benefits
- Organizational benefits
- External Benefits
- Difficulties

Each construct is composed by a set of variables which are evaluated on a 1 to 5 Likert scale by the respondents of the questionnaire. The following table reports the variables considered for each construct.

Table 3.1: Association Constructs and items,subdimension

Construct	Items (subdimensions)
Internal motives	Quality improvement, sales increase, operational practice improvement, higher transparency, production efficiency
External motives	Customer request, reputation improvement, market share and competitivity, exports increase, customer satisfaction, governmental pressures
Operational benefits	Standardization, traceability, productivity and efficiency, cost reduction, waste and non-conformities reduction
Organizational benefits	Cooperation and participation, activities organization, communication, objectives improvement, networking
External benefits	Higher quality perception, market access, reputation, customer loyalty, brand image, exports
Difficulties	Bureaucracy, certification costs, internal resistance, auditors' competences, training absence, certification bodies slowness, government agency support absence

3.5 Archetypes definition

The need to test the reliability of the different variables and to condense them in a single construct is related to the more qualitative dimension of this research that covers the motivational mechanisms, assessed through the analysis of the open question about which are the main motivations that drive companies toward the accreditation process, answered by the managers. This qualitative content analysis (Hsieh & Shannon, 2005) results in the subdivision of the firms into 3 archetypes, named Operational Excellence Seekers (dominated by strong internal motivations and process oriented), Market Conformists (driven by external motives and legitimacy concerns) and Excellence Conformists (demonstrating a hybrid orientation). This outcome comes from three sequential steps:

1. Identification of the meaning units
2. Categorization and coding
3. Theoretical association

The motivations that pilot towards the accreditation process are characterized by a considerable degree of heterogeneity in terms of how firms interpret and experience certifications. This challenging nature suggests that to have a complete understanding of the certification adoption in the agrifood sector, it is necessary a more nuanced exploration of the underlying motivational mechanism and the contextual meaning firms attach to certification. In this view the following analysis concentrated on the comprehension of the mechanism behind the mere possession of the standards, trying to understand how certifications lead to the perceived outcomes. To arrive at the final conclusions, exploring then also the quantitative side of the results obtained, first a qualitative analysis has been conducted. In particular, the answers to the open question regarding the main motivations to adopt certifications has been considered as a starting point to understand firms inside mechanisms and strategies that lead to the standards adoption, and an in-depth qualitative content analysis has been applied to extract the hidden information. This methodological approach, alongside the quantitative one, allows to move beyond the simple numbers and to explore the qualitative structure of managerial reasoning and to capture more nuances and shades of the topic. The goal of the applied content analysis is to capture how firms frame certification, whether to gain internal improvement and so more internal driven or as a response to market and regulatory needs and a strategic tool to enhance credibility and differentiation. Following Hsieh & Shannon (2005) the content analysis conducted is chosen because it allows to interpret contextual data systematically identifying recurrent themes and linking them to theoretical constructs having the possibility to define cognitive and strategic rationales that drive decisions; it focuses on identifying recurrent themes emerging from the managers narratives. This process is characterized by an inductive stage in which each answer is reviewed line by line to extract meaning units, recurrent expressions or sentences reflecting motivations, which are then summarized in codes, similar expressions grouped under thematic categories associated to the statements of the answers. By exploring these codes, a category development is applied meaning

that these inductive codes are classified and associated to internal motives and external motives.

Being this analysis based on the evaluation of the open question about motivations to adopt certifications which, in the previous chapter of the Literature review, have been reconducted to the theoretical frameworks, the content analysis is combined with a theory guided clustering strategy meaning that the codes are based on deductive theoretical dimensions derived from the Resource based view, Signalling theory and Institutional theory to integrate empirical meanings with established constructs (Boiral, 2011;Cai & Jun, 2018). This means that the codes are associated to the theories features, especially to the main characteristics that are reflected into the motives to pursue certifications. To each textual segment extracted from the answers, one or more codes are associated and then the coding is validated through cross-checking for consistency and theoretical fit. This dual approach ensures that the analysis is both empirically grounded and theoretically based giving a rich interpretation of the certification mechanism. To ensure rigor of the coding process responses are re-evaluated a second time to ensure that no new themes emerge. After all the codes are collected, they are put into a table and to each firm is associated 1 if that code is present, 0 otherwise and this allows to classify firms according to the associated common codes and create the subsequent archetypes based on the presence or not of the codes.

In the table below there is a summary on the textual quotation and the associated assigned code.

Table 3.2: Content analysis features

Quotes	Code	Motive type	Orientation	Theory
"to pursue a continuous improvement process"; "push to excellence improvement"; "to improve firms' processes"	Continuous Improvement	Internal	Processes	RBV
"to implement a standard management system"; "to pursue excellence standards"; "structural definition of processes"; "transferable SGQ"; "process standardization"	Standardization	Internal	Processes	RBV

"increase quality and safety level"	Quality	Internal	Processes	RBV
"demonstrate the quality system"; "clients recognition"; "intention to highlight the work performed"	Reputation	External	Reputation	Signalling theory
"offer assurance to consumers"	Trust	External	Reputation	Signalling theory
"ensure transparency"	Transparency	Internal	Reputation	Signalling theory
"to implement a MS that satisfy internal and external clients"	Customer satisfaction	External	Market	Institutional theory
"consumers/clients (wholesale and retail) request"; "market necessity"; "client's recognition"	Market request	External	Market	Institutional theory
"prerequisite to participate to tenders"; "access to public tenders and tax relief"	Tenders	External	Market	Institutional theory
"full compliance with regulations"; "adaptation to international quality and safety standards"	Compliance	External	Market	Institutional theory
"internationalization"; "to have an international recognized improvement standards"; "possibility to access external markets"	Market access	External	Market	Signalling and Institutional theory

These codes are deductively aligned with the theoretical dimensions derived from the Resource Based View, Signalling Theory and Institutional Theory integrating the empirical meaning with established constructs as suggested by Boiral (2011) and Cai & Jun (2018). By analysing the type of motivations that drive companies toward the accreditation process and the associated codes and orientations we can connect them to the previous cited theories. Firms guided by internal motivations focuses their attention on the internal process improvement to achieve operational and organizational benefits by focusing on valuable resources and developing capabilities that determine efficiency gains (Cai & Jun, 2018). Regarding this the codes associated with the RBV are: continuous improvement, standardization, quality, transparency,

efficiency being directly connected to the creation of internal capabilities and knowledge-based resources that turn into competitive advantage (Barney, 1991;Teece, 2018). Existing studies confirm that these kinds of companies tend to internalize standards practices more effectively and achieve more operational performance (Cai & Jun, 2018; Giacomarra et al., 2016; D. Kafetzopoulos et al., 2013). These codes correspond to efficiency seeking and capability building mechanisms underlined by the theory. On the other hand, firms moved by external motivations adopt certifications to gain market legitimacy and transmit credibility and proof compliance being able in this way to obtain competitive advantages on the market and improve their reputation in line with the Signalling and Institutional theory (Boiral, 2011; Delmas & Montes-Sancho, 2011). The associated codes for external motivations are: market request, market access, regulatory compliance, tenders which are connected to the company's behaviour as a response to external pressures and legitimacy needs (Delmas & Montes-Sancho, 2011; DiMaggio & Powell, 2010) and customer satisfaction, reputation, trust, credibility linked to the Signalling theory which sustains the use of certification for their signalling value, transmitting to external stakeholder unobservable quality and reliance reducing information asymmetries (Kirmani & Rao, 2000; Mcclure, 2009; Ullah, 2020). The empirical evidence in the agrifood sector demonstrates that often companies adopt the standards as a conformance behaviour to coercive, normative or mimetic pressures (Boiral, 2011; Heras-Saizarbitoria & Boiral, 2013; Yang et al., 2024) and that third's party certifications increase firm's visibility and reliability especially when some products' features cannot be directly verified (Delmas & Montes-Sancho, 2011; Giacomarra et al., 2016). Also, Ullah (2020) and McClure, (2009) emphasize the certification function in reducing informational asymmetries towards consumers and investors.

These three theoretical lenses are not exclusive but rather overlapping. By analysing the open question almost half of the answers exhibit both internal and external motivations confirming that the certification mechanism is a multi-dimensional one and the reasons companies adopt the standards cannot be found in just one dimension; so firms can simultaneously pursue internal efficiency (RBV), external legitimacy (Institutional theory) and market signalling (Signalling theory) demonstrating a hybrid approach to motivations defining multiple institutional logics (Yang et al. 2024). This

integrative perspective is also present in the studies conducted by Boiral (2011) and Heras-Saizarbitoria & Boiral (2013) and Wiengarten et al. 2017), who reinforce the coexistence of substantive and symbolic motives in certification practices.

The nature of the mechanism of why companies get certified is a multifaceted one characterized by many interdependent drivers, for this reason it is of particular interest to have a better idea on this side. Taking in consideration the codes associated to each firm and so the underlying mechanism that drives toward the certification process, a classification of the firms into groups with similar characteristics is performed, capturing the heterogeneity of certifications rationales. In this way three different archetypes are identified, each of them embodying a different motivational rational to get certifications. The approach used for the archetypes definition allows for a hybrid logic of certification due to the fact that many firms display overlapping codes referred to both internal and external motivations, reflecting the multidimensional nature of certifications; based on the codes associated, each firm is assigned to a group:

- Internal motivations: focus on the internal processes (RBV) →Operational Excellence Seekers
- External motivations: focus on the market and reputation (Signalling and Institutional theory) →Market Conformists
- Hybrid motivations: focus on both internal processes and market aspects → Excellence Conformists.

This classification can be reconducted to previous studies that also group firms based on motivational patterns and consider also hybrid situations. Cai & Jun (2018) identify symbolic and internalized adopters of the ISO 9001 standards while Heras-Saizarbitoria & Boiral (2013) consider substantive and ceremonial implementation types; Wiengarten et al. (2017) and Giacomarra et al. (2016) sustain that hybrid or integrative adopters face higher benefits. The archetype-based analysis gives a multi-theoretical lens to understand certification mechanism in the agrifood sector and the integration of the three theories underlines how the standards' adoption is not a homogeneous managerial practice, but a strategical contingent process shaped by internal priorities or external context. Regarding this, Hernandez-Vivanco & Bernardo, (2023) and Yang et al. (2024) say that the effectiveness of certifications depends more

on motivational and cognitive orientation underlying their implementation rather than their formal adoption.

The resulting three archetypes in this study reflect different strategies toward the certification and they demonstrate how different combinations of internal and external motivations influence firms practices and their outcomes.

The three emerging archetypes are:

- *Operational Excellence Seekers*: focus on the internal process improvement, guided by internal motivations; the recurrent themes in the answers are process standardization, efficiency enhancement, continuous improvement. The firms in this group are prone to associate certifications with tangible operational and organizational benefits especially when standards are well integrated into the managerial systems. This archetype is closely related to the Resource Based View perspective seeing certification as capability building mechanism that improve productivity and competitiveness as suggested by Barney (1991), Teece (2018) and Cai & Jun (2018) .
- *Market Conformists*: this archetype is composed essentially by firms driven by external pressures and legitimacy concerns putting a high attention on the market. Their motivations are mainly related to customer and retailer requirements, market access, compliances and certifications are seen as a condition to participate in tenders and accessing markets more than a mere intrinsic improvement aligning with the concepts of the Signalling and Institutional theory having a symbolic or compliance-oriented adoption (Delmas & Montes-Sancho, 2011; DiMaggio & Powell, 2010).
- *Excellence conformist*: the firms in this archetype display a hybrid profile, being guided by both internal and external motivations and so adopting the standards both as an internal management tool and external credibility signal recognizing the operational and organizational benefits as well as the market and reputation advantages demonstrating a synergic coexistence of efficiency, legitimacy and signalling motivations (convergent institutional logic by Yang et al., 2024) but also reflecting the integrated management systems (Wiengarten et al., 2017).

In the Empirical findings chapter, it will pe provided a table clearing explaining the archetypes characteristics.

3.6 Certifications impact on business performance

To evaluate if and how certifications impact the business performance, objective economic indicators are used, derived from the investigation of the financial statements of the companies in the sample. These indictors provide a multidimensional picture on business performance for this reason multiple parameters are considered in particular revenues, EBITDA, and operating income and their associated ratios such as EBITDA margin (EBITDA/revenues) and operating margin (Operating income/revenues) but also how they changed over the time considering their compound annual growth rates (CAGR). A 10 years' time span, from 2015 to 2024, is considered for the economic parameters and the calculation of their rates, so the values used for revenues, EBITDA, operating income are the average of the values on 10 years except just for three cases for which the available data downloaded from AIDA do not cover the considered period of time but a shorter one and so the average is computed for that period.

The choice to evaluate the business performance by considering the Operating Income and the EBITDA stands in that the fact that both of them are referred to the profitability and efficiency of the enterprise especially in the perspective that certification should lead to an enhancement of the internal operations and productivity than could turn into economical evidence. The Operating income (also called EBIT, Earnings Before Interest and Tax) is a measure of the company's profit generated solely from its core business operations considering that it deducts all operational expenses including also non-cash expenses like depreciation and amortization.

Operating income = Revenues – Cost of good sold – Operating expenses

This indicator measures directly how efficiently a company manages its operations to generate profits considering also the real-world cost of using its assets to produce revenues by including the depreciation and amortization (Investopedia,2025).

On the other hand, the EBITDA (Earning Before Interest, Taxes, Depreciation and Amortization) adds back the non-cash expenses, excluding the interest (cost of debt financing), taxes (the impact of tax rates) and depreciation and amortization (non-cash charges).

EBITDA = Operating Income + Depreciation + Amortization

It is used to compare the core operational earning power and the profitability; by excluding interest and taxes it neutralizes differences in capital structure (debt and equity) and tax policy among companies allowing a better comparability of their profitability. In this way it is a simplified proxy for operating cash flow considering that by adding back depreciation and amortization, which are non-cash expenses, it gives a clear view of the cash generated by the business before financing obligations being also used as a valuation tool (Investopedia, 2025).

To further explore the economic differences between firms two productivity indicators have been considered as well; these two measure the labour productivity and the operational efficiency of the firms in the sample. In particular, it has been considered the value of revenues per number of employees which defines how effectively a firm transforms its humans' resources into sales and so reflecting the efficiency of resource utilization. In this context its relevance stands in the fact that productivity improvements often stem in process optimization and better quality of management systems that can arise from the standards' implementations. On the other side, EBITDA per number of employees incorporates not just the output volume but also the cost efficiency defining the profitability generated per employee before accounting the capital structure and taxation. These indicators are calculated considering the value of revenues, EBITDA and employees for 2023 due to the fact that this year was considered at the beginning as a threshold for firms' classification as big companies with more than 250 employees. In two cases the data for revenues and EBITDA weren't available and so the computation was made considering the 2022 values. It was evaluated to compute for all the firms the ratios referring to 2022 but in some cases for this year the company would have less than 250 employees and so not coherently with the initial assumption. For the firms based on the 2022 this problem is not present.

As concerns the economic indicators, the objective is to understand if the certifications' possession really determines an increase in the economic performance, so the already mentioned hypothesis that we want to either confirm or reject is:

HP3: firms adopting certifications face superior economic performance.

The previous reported hypothesis is tested in three different scenarios; because the focus of this research is to evaluate the impact on business performance of quality and sustainability certifications three different situations are considered:

- Firms possessing ISO 9001 vs firms without ISO 9001
- Firms possessing ISO 14001 vs firms without ISO 14001
- Integrated firms vs non integrated

Integrated firms are defined those ones possessing both ISO 9001 and ISO 14001 and BRC or IFS.

In this chapter we have outlined the main theoretical methodologies and considerations used to perform the subsequent reported analysis and to test our hypothesis. The combination of the quantitative and qualitative approach allows to explore not only the measurable outcomes but also understanding the motivational and behavioural dynamics beyond the certification adoption. By integrating multiple variables such as survey data, financial indicators and content analysis the study has a solid foundation for the results discussion; nevertheless, the study main criticism stands in the sample size which constrains the generalizability of statistical findings and the adoption of non-parametric tools. In addition, being the data used self-reported, even if they allow to capture perceptions, they may reflect social desirability bias. However, the convergence between qualitative insights, statistical patterns and economic data mitigates these concerns supporting credibility.

Chapter 4

EMPIRICAL FINDINGS

Building on the methodological framework presented in the previous chapter, this section will present and interpret the empirical results of the study. The following discussion will combine the qualitative insights obtained from the open question content analysis and managers perceptions with the more quantitative evidence related to the financial indicators and firms' characteristics. This mixed approach allows for a multidimensional understanding of how quality and sustainability certifications affect the agrifood sector also in relation to motivational, organizational and strategic dynamics and not only economic parameters. The integration of the two approaches is justified by the fact that certification is not a homogeneous phenomenon, operating simultaneously as a management system, institutional practices and strategic signal and the certifications' outcomes can significantly vary depending on how firms integrate the standards (Boiral, 2011; Delmas & Montes-Sancho, 2011). Thus, the qualitative side sheds light on the mechanism of internalization, learning and adaptation, while the quantitative part allows identifying measurable patterns and relationships.

The chapter is structured around the main analytical dimensions and the research framework, going from the evaluation of the sample characteristics to the analysis of motivational drivers and archetypes construction with the associated analysis of perceived benefits and difficulties, to strategical considerations, and finally to the evaluation of the impact on economic performance on the sample. In this way we go through the entire process mechanism, evaluating why companies pursue certifications, how they implement the standards and the outcomes they perceived and achieve. Going through all these features, after the initial description of the sample and its characteristics, it will be discussed whether the empirical findings align with the

hypothesis previously developed in the Methodology section. Specifically, first the reasons companies undertake the certification process will be investigated, evaluating their motivational orientations toward efficiency, legitimacy and reputation assessing the validity of *Hypothesis 1*, leading to the formation of the three archetypes. After having grouped firms according to their motivational mechanisms into the three archetypes, it will be analysed how they perceive the impacts of certifications both in terms of benefits and difficulties verifying if firms guided by internal motives perceive higher operational and organizational benefits than the external-oriented ones, as proposed by hypothesis *H2*. Subsequently to the analysis of the archetypes, we will move on assessing certifications impact on the economic indicators both for the archetypes and the overall sample, testing the *H3* hypothesis which considers that certified firms perceive an improvement in economic terms.

The results confirm the existence of differences but confirm also that the effectiveness of certifications depends less on the formal possession of the standards than on the strategical and cultural depth with which they are embedded in the organizational routines. What we obtain is that this study contributes to the ongoing debates in quality and sustainability management by reconciling the Resource based view, Institutional and Signalling perspectives into an integrated interpretation of certification as both internal capability and an external legitimacy mechanism.

4.1 Sample characteristics

Although the firms considered in this study operate in the same industrial sector, the sample is characterized by a high degree of heterogeneity in terms of structural and operational features. The differences emerge especially in firms' size as the number of employees (even if the sample is focused on large enterprises with more than 250 employees), product category and type of certifications possessed. A preliminary profile analysis is therefore of paramount importance to develop a clearer idea of the entities under investigation. In terms of product categories, the surveyed companies encompass a heterogeneous mix including firms specialized in the agricultural production, bakery and confectionary products, meat and cold cuts, dairy products and beverages. This high diversity ensures a comprehensive perspective within the agrifood sector and enables an analysis that account for different production logics. Firms' distribution across the product categories is shown in the graph below

displaying that the highest participation comes from the Chocolate and Confectionary category representing the 27% of the answers.

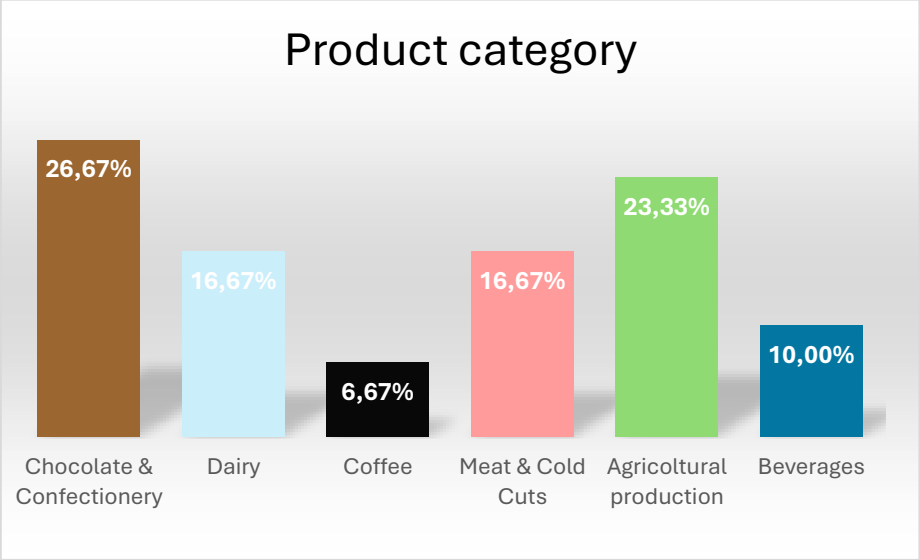


Figure 4.1: Firms distribution based on the product produced

In addition to sectoral specialization, noteworthy are also the differences in firms' size and economic scale. For this kind of profile definition an adaption of the FoodDrink Europe benchmark can be applied defining three levels of revenues categories:

- Low revenues level below 300 million euros
- Medium revenues level between 300 and 700 million euros
- High level above 700 million euros.

Considering the revenue value for 2023, the results obtained reveal that 43% of firms belong to the low revenues level, 40% to medium and 17% to high revenues group. However, given the heterogeneity of the sample, considering nominal revenues alone may not fully capture firm performance or efficiency. In this sense, to consider a more representative indicator, a productivity ratio is computed by dividing the total revenues value by the number of employees for each firm defining revenues per employee and serving as a proxy for labour productivity and efficiency. Based on this ratio firms are categorizes as:

- Low productivity level: below 400 000 EUR/employee,
- Medium productivity level: between 400 000 and 800 000 EUR/employee

- High productivity level: above 800 000 EUR/employee

This results in 20% of companies having a low level of revenues per employee, 47% medium and 33% high level.

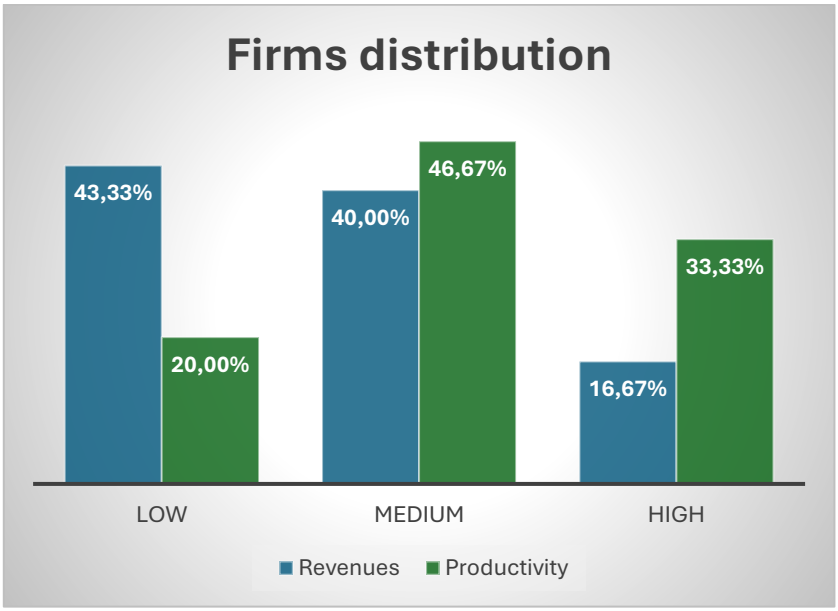


Figure 4.2: Firms distribution based on Revenues and Productivity level

Finally, a further classification considering the 30 firms in the sample can be defined by analysing the certifications possessed: 70% of firms possess the BRC certification and the 60 % has adopted the IFS while the ISO 9001 is present in the 57% of cases and the ISO 14001 is adopted by the 67%. In many cases firms hold multiple certifications simultaneously. In this research firms combining ISO 9001, ISO 14001 and BRC or IFS are classified as integrated companies, reflecting a more structured and comprehensive approach to quality, sustainability and food safety and in this sense the sample is composed by 12 firms possessing integrated certifications while the remaining 18 do not possess all types of standards.

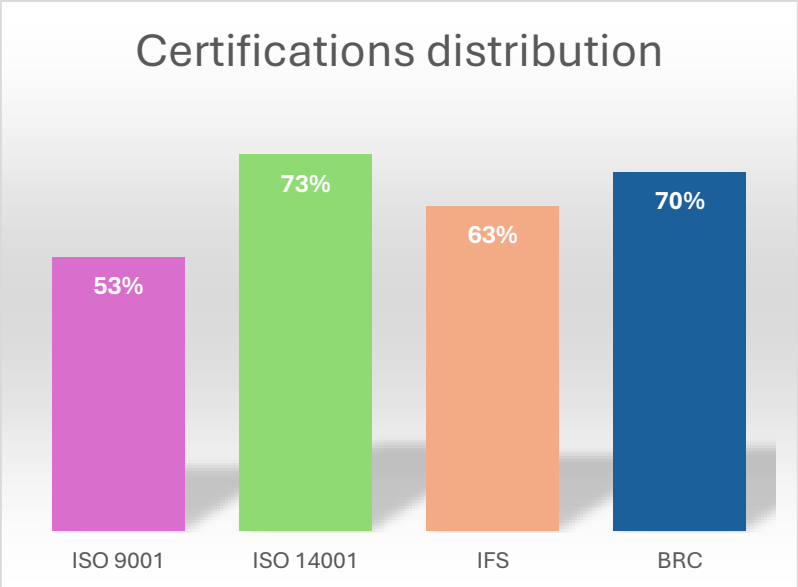


Figure 4.3: Distribution of certification types adopted in the sample

These different types of classifications underline how there is a degree of heterogeneity and diversity within the sample, despite companies belong to the same sector and all categorized as large firms.

The aim of this study is to evaluate how companies operating in the agri-food sector perceive the impact of the adoption of various types of certifications both in case of single certification presence and in case of multiple certifications. Being the results of the survey based on perceptions a certain degree of subjectivity is certainly present but, combing the open questions answers with the more quantitative answers obtained through the Likert scale answers, we can consider that the results of the analysis are reliable and acceptable. Regarding this, the existing literature provides a broad perspective on the topic, and some studies present also contradicting and opposite results. For that reason, the interesting side of this study is to understand which is the prevailing dynamic in the Italian agrifood sector, even if the sample is not large, and identify the trend with respect to what was already defined. Further, the diversity of firms' profile allows to have broader insights from the analysis.

4.2 Certification mechanism

The mechanism that drives companies toward the certification process is a quite complex and dynamic one, characterized by a variety of nuances. Understanding the motivations that lead firms to adopt the standards is central to explain the heterogeneity in their implementation and impact. On this purpose, the mixed approach, combining both qualitative and quantitative analysis, is carry out to evaluate the main motivations for which enterprises decide to adopt certifications and the associated perceived benefits and difficulties. What emerges from the content analysis of the open question and the subsequent analysis of the close questions is that motivations are not only diverse, but they are also deeply embedded in firms' strategic orientations and internal logics. This is confirmed by the archetypes' formation, supported by the statistical evidence and the theoretical reasoning.

Before going to the core part of this study, which is the discussion of the archetypes results, it is interesting to assess how the overall sample address what concerns the main dimensions considered in this study, namely internal and external motives, operational, organizational and external benefits and difficulties. In addition, a preliminary step is also performed namely the possibility to condense the different variables related to a construct into a single composite score through the Cronbach's alpha calculation.

The following results are at item level, meaning that the values are referred to each item (variable) considered under the main construct analysed.

4.2.1 Internal motivations

The variables considered under internal motivations primary reflect firms' willingness to pursue continuous improvement and internal processes. Regarding this, the variables included within this construct, and so the main reasons to adopt certification for internal aspects, relate to quality improvement, sales increase, operational practice improvement, higher transparency and production efficiency. Considering the nature of these variables they are aligned with the Resource Based View and the Practice Based View theories which interpret certifications as a mechanism that enable

distinctive organizational resources and dynamic capabilities, formalizing knowledge and routines (Barney, 1991).

Table 4.2.1 reports how firms in the sample evaluate the different internal motives. The values displayed are calculated as the mean, median and standard deviation of each variable across all 30 firms and Cronbach's alpha is calculated to verify if all internal motives can be condensed into a single construct. It confirms that the five variables can reliably be grouped ($\alpha = 0{,}8226$), supporting the internal consistency of the scale and justifying the use of a composite score to represent Internal Motivations.

Table 4.1: Descriptive statistics and Cronbach's alpha of Internal Motivations

	Mean	Median	STD
Quality improvement	4,367	4,00	0,718
Sales increase	4,000	4,00	0,871
Operational practice improvement	4,067	4,00	0,691
Higher transparency	3,800	4,00	0,847
Production efficiency	3,467	4,00	0,860
Cronbach's alpha		0,8226	

Overall, what emerges is that internal motivations appear closely associated with improvement of organizational processes and capabilities. Looking at the five variables, quality improvement and operational practice improvement record the highest average rating, indicating that firms perceive certifications as tools to strengthen product and process quality and managerial control. These findings are also supported by Giacomarra et al. (2016) and D. Kafetzopoulos et al., (2013) that define how firms, especially those ones possessing ISO 9001 or integrated systems, institutionalize quality culture and improve control over production and logistics.

The radar charts reported below help visualize the pattern across firms considering the answers to the 1-5 Likert scale question seeing how quality enhancement is the one reaching the highest value, followed by operational practice improvement, instead production efficiency shows comparatively lower scores.

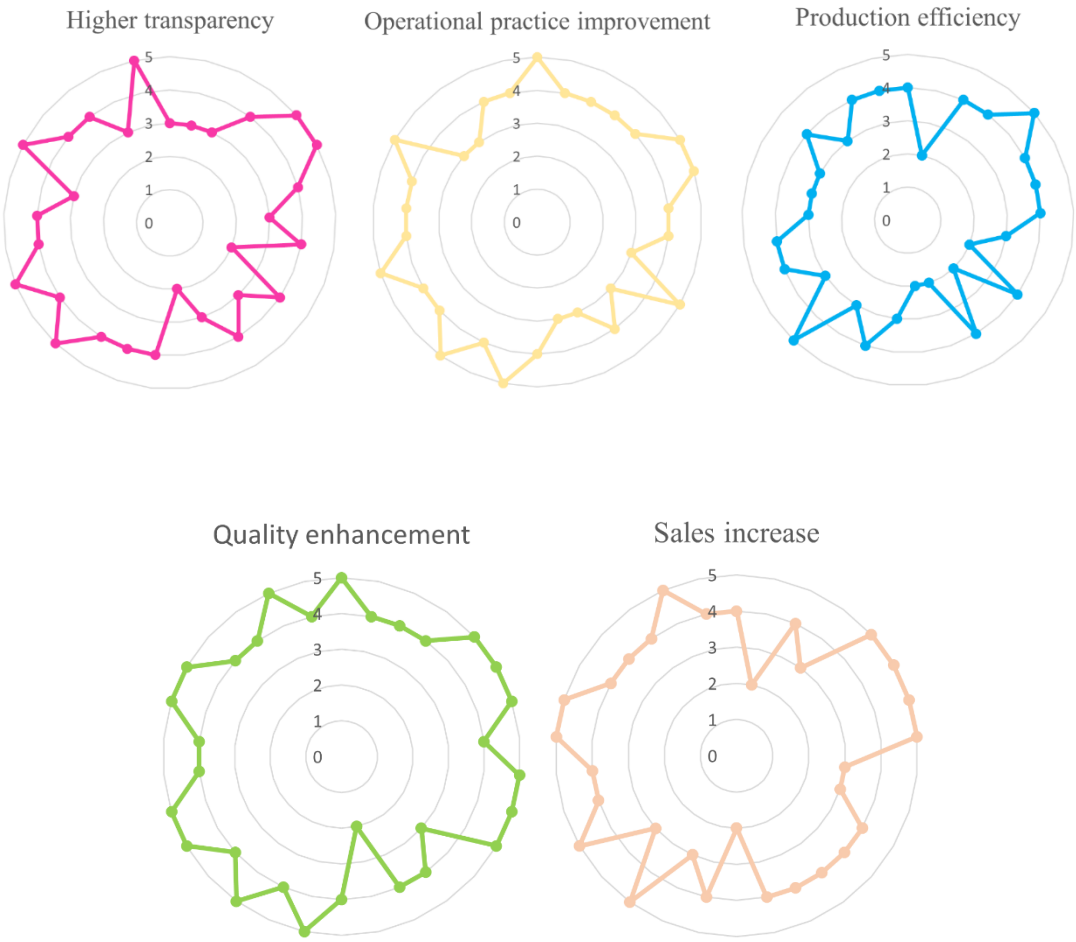


Figure 4.4 Spider graphs for Internal motives items, entire sample

4.2.2 External motivations

Table 4.2: Descriptive statistics and Cronbach's alpha of External Motivations

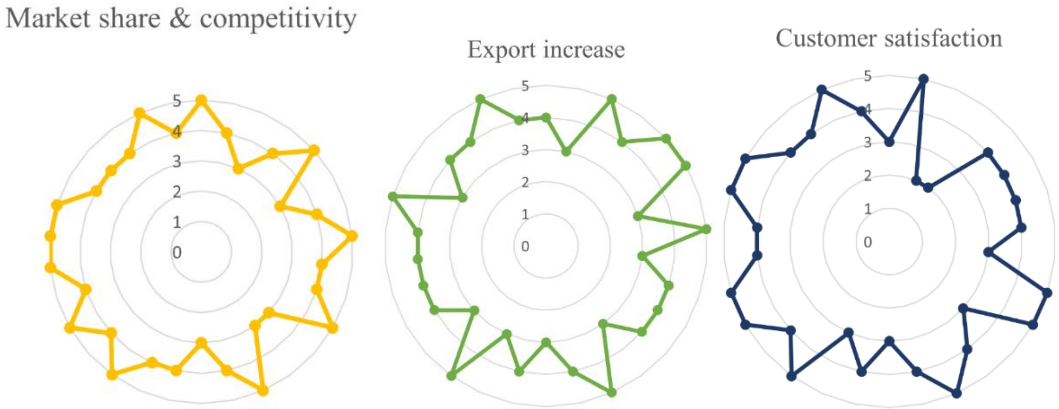
	Mean	Median	STD
Customer request	4,533	5,000	0,571
Reputation improvement	4,300	4,000	0,596
Market share and competitivity	4,200	4,000	0,714
Exports increase	4,000	4,000	0,743
Customer satisfaction	4,033	4,000	0,890
Governmental pressures	2,900	3,000	0,845
Cronbach's alpha		0,7728	

External motivations arise from pressures and expectations originating in firm's institutional and market environment. Among these, customer request constitutes the primary driver of certification adoption looking at the external motivations, reflected

by the highest score. Such customers are not the mere end consumers of the firms but rather, from a broader perspective, they represent the supply chain actors such as retail chains, large scale distribution, supermarkets, whose requirements strongly influence the upper stream supplier. Because these actors interface directly with the final consumer, they demand high levels of reliability and assurance from the suppliers' side, encouraging or forcing firms to adopt certifications. Another relevant external motive is the willingness to increase reputation among stakeholders, leveraging certifications as a signalling tool to attract clients. This aligns with the idea that firms adopt certification to conform to external norms, gain legitimacy or maintain market access according to the Institutional theory (DiMaggio & Powell, 2010; Yang et al., 2024). On the opposite side, lower score emerges for governmental pressures, indicating that companies are not so much influenced by public regulatory forces, so they adopt less certifications as a compliance mechanism.

Cronbach's alpha (α = 0,7728) confirms the internal consistency of the construct External Motivations; even if in this case it is slightly lower than in the previous case it still indicates an acceptable reliability level supporting the aggregation of the variables and the subsequent use of composite index.

The spider diagrams below provide a visual representation of the numerical values and what has been said. Most of the firms report high values for customer request, reputation and market share and competitivity while reporting low perceptions for the governmental pressures.



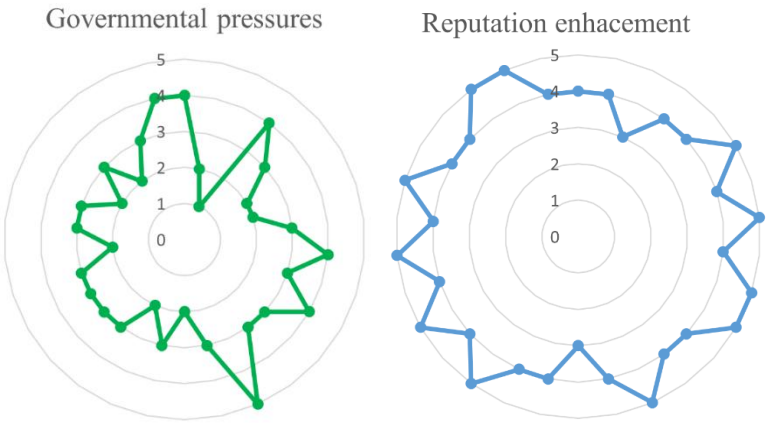


Figure 4.5 Spider graphs for External motives items, entire sample

These results demonstrate that internally driven firms associate certifications with learning and process improvement while externally driven ones associate it with legitimacy and competitive positioning. Switching the attention on the benefits, the literature distinguishes between internal benefits such as operational and organizational ones and external benefits related to market aspects (D. Kafetzopoulos et al., 2013; Sampaio et al., 2012).

4.2.3 Operational benefits

Operational benefits are closely related to improvements in process performance and efficiency. Table 4.3 reports descriptive statistics for the five variables, allowing to identify which ones are highly valued, and confirms that the variables can be reliably aggregated into a single constructed due to the Cronbach's alpha $\alpha = 0{,}8214$.

Table 4.3: Descriptive statistics and Cronbach's alpha of Operational benefits

	Mean	Median	STD
Standardization	4,400	4,00	0,621
Productivity and efficiency	3,533	4,00	0,776
Traceability	4,233	4,00	0,774
Cost reduction	3,233	4,00	0,817
Waste and non-conformities reduction	3,867	4,00	0,730
Cronbach's alpha		0,8214	

Among the items, the most perceived operational benefits are standardization and traceability, which report the highest scores, followed by waste and non-conformities reduction while cost reduction receives comparatively lower score. These results are completely aligned with the purpose of standards implementation that aims to improve the internal processes and reduce the inefficiencies especially in case of quality management system implementation, whose first order impact is exactly to gain standardization and predictability that consequently determines the background for competitive advantages (Psomas & Fotopoulos, 2010; Sampaio et al., 2012). This is also uniformed with the assumption that certifications are adopted as internal resources that allow to improve learning and capabilities corresponding to the main lines of the Resource Based View (Barney, 1991). The spider diagrams clearly underline how firms agree on the perception of higher standardization and traceability as operational benefits derived from the standards implementation while cost reduction effects are perceived less strongly. This suggest that organizations view operational gains as being rooted in process control rather than in economic returns.

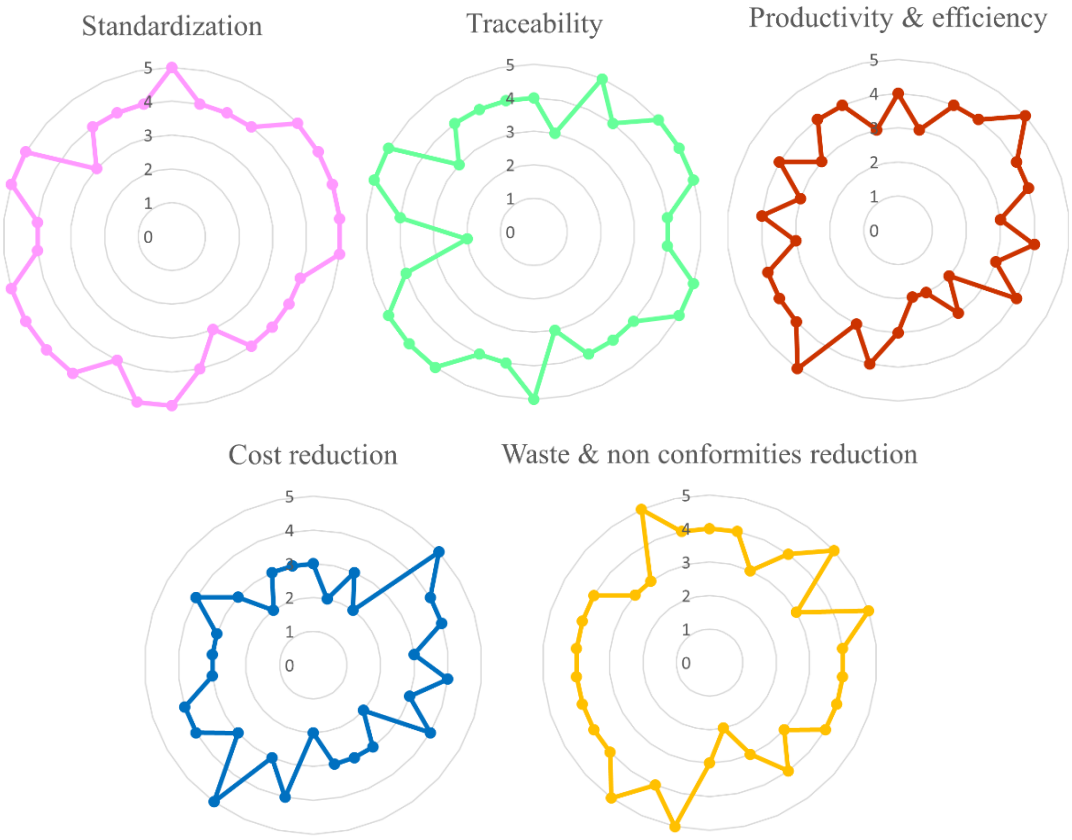


Figure 4.6: Spider graphs Operational benefits items, entire sample

4.2.4 Organizational benefits

Being the ISO 9001 and ISO 14001 standards that define guidelines about how to implement efficiently the management systems inside the companies and how to organize the internal activities, the evaluation of the perceived organizational benefits is mandatory. Different variables are considered also in this case which concern management systems and human capital, especially communication enhancement, cooperation and participation, better activities organization, improvements in understanding and defining objectives and finally networking. As shown in Table 4.4, firms value the organizational variables in a moderate-high way; the highest scores are recorded by objectives improvement and cooperation and participation while networking and communication register the lowest. Cai & Jun, 2018 define that ISO standards facilitate the internalization of learning routines and managerial discipline aligned with the presented results, as objectives improvement and cooperation and participation variables are the most perceived ones, reinforcing the assumption that with a management systems implementation goals definition and achievement are more clear and easier to obtain. Cronbach's alpha for this construct is relatively modest (α = 0,700), borderline with the acceptance value but still we can condense the variables and consider them as Organizational Benefits.

Table 4.4: Descriptive statistics and Cronbach's alpha of Organizational benefits

	Mean	Median	STD
Communication	3,833	4,000	0,592
Cooperation and participation	3,933	4,000	0,640
Activities organization	3,867	4,000	0,776
Objectives improvement	4,033	4,000	0,615
Networking	3,433	4,000	0,679
Cronbach's alpha		0,700	

As it is displayed in the spider chart, the perception of organizational benefits stands in internal communication improvements, clearer responsibilities and higher involvement.

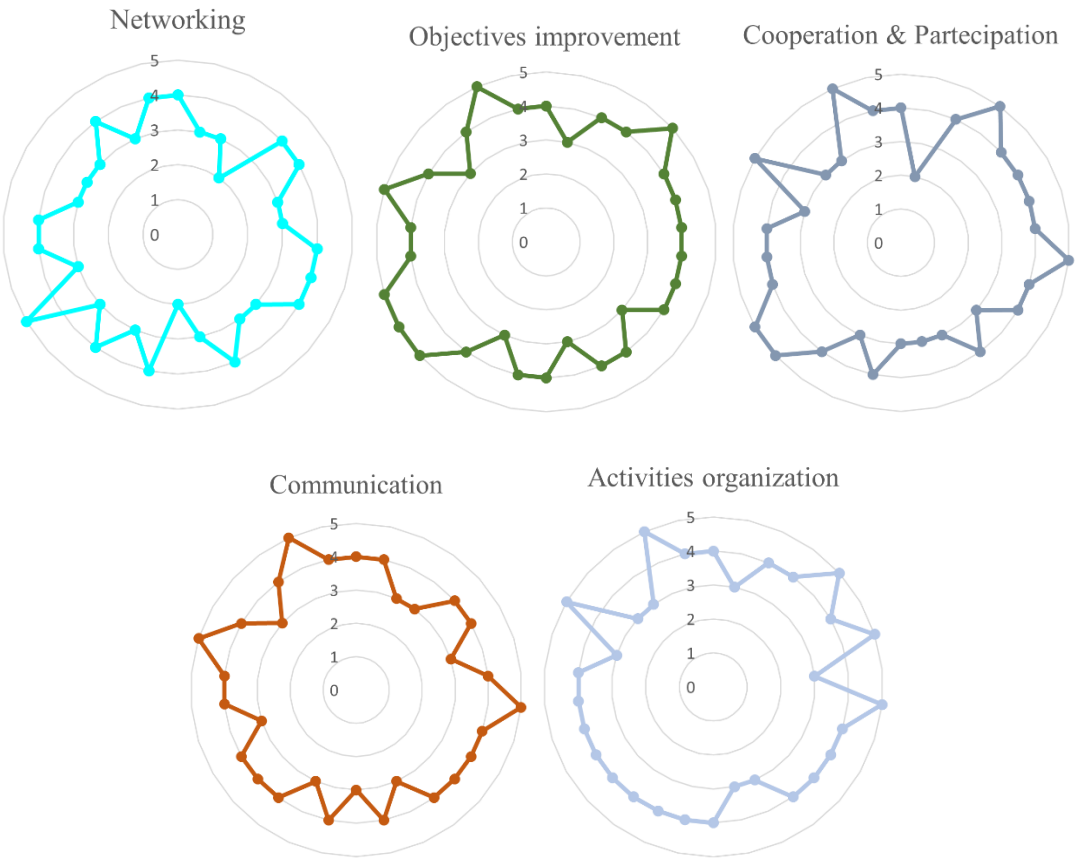


Figure 4.7: Spider graphs Operational benefits items, entire sample

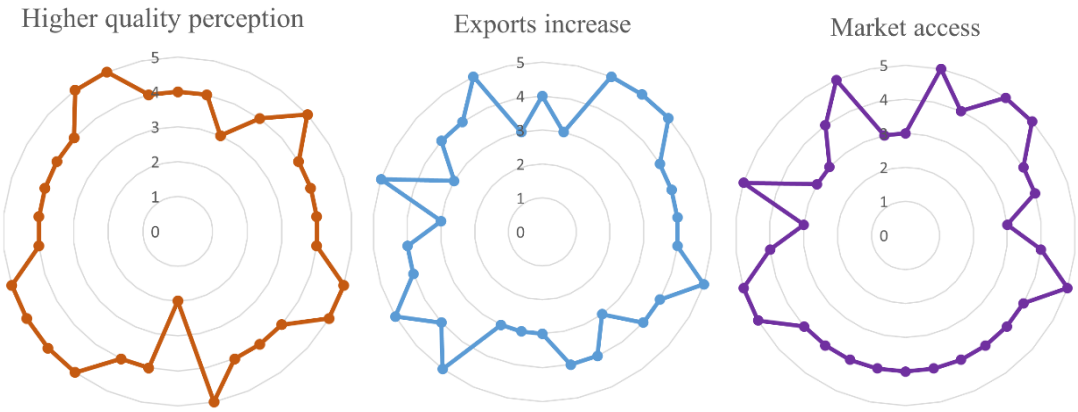
4.2.5 External benefits

Since benefits that firms would like to be perceived are mirrored in the motivations to undertake the certification process, the external benefits identified are closely connected with the external motives. The variables considered as main external benefits are brand image, market access, customer loyalty, export increase, reputation, higher quality perception. Table 4.5 shows the corresponding descriptive statistics and the Cronbach's alpha, strongly confirming the possibility to merge all the variables as a single construct External Benefits ($\alpha = 0{,}8302$).

Table 4.5: Descriptive statistics and Cronbach's alpha of External benefits

	Mean	Median	STD
Brand image	4,033	4,000	0,765
Market access	4,067	4,000	0,691
Customer loyalty	3,800	4,000	0,761
Exports increase	4,000	4,000	0,743
Reputation	4,167	4,000	0,747
Higher quality perception	4,233	4,000	0,697
Cronbach's alpha		0,8302	

The results indicate that the dominant perceived external benefits relate to the ability to transmit higher quality perception to the stakeholders, alongside reputation and market access. These findings suggest that firms often adopt certifications for their signalling value, used as legitimacy and signalling tool which increase reputation and trust, especially among firms exposed to international markets or retailer driven standards as is supported also by Ullah (2020) and Giacomarra et al., (2016). As it is illustrated in the following diagrams, the perception of the different external benefits results almost homogeneous; nevertheless, communicating a higher quality to consumers emerges as the strongest perceived benefits.



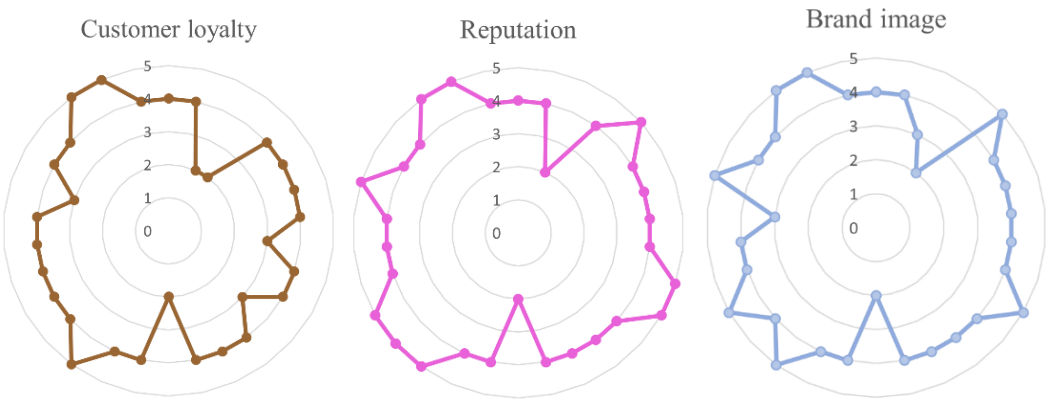


Figure 4.4: Spider graphs Organizational benefits items, entire sample

Considering all the results, the evidence that emerges is that certification is valued by firms primarily as management tools that strengthen organizational structure and enhance operational reliability while the payoffs arise indirectly. Regarding this, certifications are used as both internal resources that determines capability accumulation and learning, aligning with the RBV, but they are also exploited to increase market and reputational credibility in the industry facilitating economic opportunities and determining legitimacy and conformity advantages as defined by the Signalling and Institutional Theory.

4.2.6 Difficulties

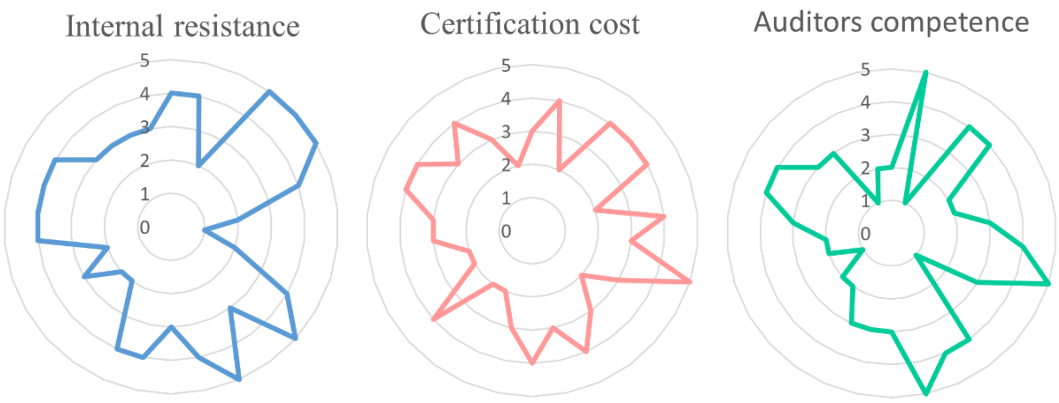
The variables that are considered as main possible barriers in the certification process are bureaucracy, absence of governmental agencies support, certification bodies slowness, certifications costs, training absence, internal resistance and auditor competence, reported in Table 4.6. Despite the variety of constraints, the reliability defined by Cronbach's alpha is satisfactory ($\alpha = 0.742$), which confirms the possibility to merge all the variables into a single construct and trait them as "Difficulties". Comparing the mean values of difficulties with those of benefits, it is evident that, despite their existence and relevance, the perceived difficulties are slightly lower, but this do not determine that companies do not have to face obstacles during certification and subsequent implementation. The certification's guidelines application requires some structural and behavioural changes and employees may perceive the standards

as control mechanisms, while their engagement is crucial for the successful implementation of certification requirements (Cai & Jun, 2018; E. L. Psomas & Fotopoulos, 2010). This dynamic is reflected in internal resistance variable score which is the second ranked one just below the bureaucracy variable. High score for bureaucracy relates to the administrative burden associated to certifications. In fact, firms frequently perceive ISO standards as heavily formalized and documentation-intensive, determining a gap between formal compliance and substantive improvement (Boiral, 2011). Similarly, Sampaio et al. (2012) sustains that while procedural rigor determines traceability and standardization, it can divert managerial attention from innovation and operational focus if not properly integrated into daily routines. In this view certifications are perceived as resource-intensive and administrative demanding process.

Table 4.6: Descriptive statistics and Cronbach's alpha of Difficulties

	Mean	Median	STD
Bureaucracy	3,566	4,000	0,774
Governmental agencies support absence	3,133	3,000	0,937
Certification bodies slowness	2,533	4,000	0,776
Certification cost	3,166	3,000	0,874
Training absence	3,200	3,000	0,887
Internal resistance	3,433	3,000	1,104
Auditor competence	2,900	3,000	1,213
Cronbach's alpha		0,7422	

The spider diagrams below allow to visualize better the distribution of firms answers seeing a high heteorgeinity in the perception of auditors competence and certification cost.



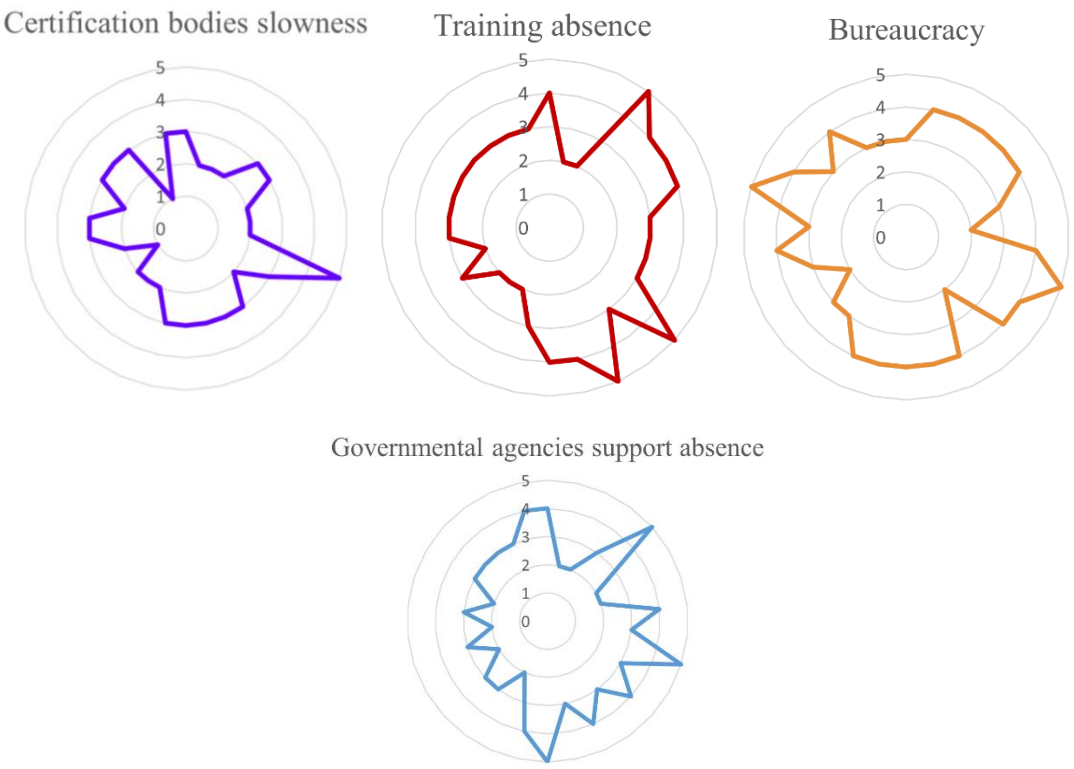


Figure 4.5: Spider graphs Difficulties items, entire sample

4.3 Archetype analysis

As was mentioned in the previous chapter, the overall analysis conducted is centred and based on three main theories that drive and characterize the enterprise environment namely the Resource Based View, Signalling Theory and Institutional Theories. The analysis presented in the following section is almost entirely performed using the framework of the cited theories which provides distinct but interrelated explanation about the mechanisms for which companies pursue certifications. Using these theoretical lenses, we explore the research hypothesis H1 which sustains the complexity and multidimensionality of the deepest and most hidden motivational orientations that pushes toward standards' adoption, from the willingness to achieve efficiency, to gain legitimacy and enhance reputation. This aspect highlines how certification mechanism is not driven by a single rationality but by a multitude of drivers and this theoretical triangulation validates the multi-dimensional analysis of firm motivations, perception and behaviour. This is reflected in the archetypes' formation discussed in the Methodology chapter. Table 4.7 reports the main

characteristics of each of them, the underlying motivations and the number of firms grouped under the same class.

Table 4.7: Description of archetypes features and number of firms in each group

Archetype	Motivational orientation and theory	Strategic behaviour	Key characteristics	Perceived outcomes	Nr
Operational Excellence Seekers	Internal (efficiency, process optimization, productivity) RBV	Certifications used to formalize routines and enhance efficiency	Internal system focus, quality control, managerial commitment, operational discipline	Higher operational and organizational benefits, efficiency gains, process optimizations	6
Market Conformists	External (customer pressure, legitimacy, reputation, market access) Signalling and Institutional theory	Certifications adopted to maintain market legitimacy and fulfil customer and retailer demand	External validation focus, reputation maintenance, supply chain requirements, competitiveness	Reputational benefits and market access, higher external benefits	10
Excellence Conformists	Hybrid	Certifications embedded in excellence and innovation models	Internal improvement and market recognition focus, multiple certifications integration, dynamic learning	Highest internal and external benefits, sustainable competitive advantage	14

The findings from the content analysis of managers answers about which are the primary reasons to adopt certification and the subsequent classification of firms under archetypes, confirm the complexity of the motivational mechanisms. It emerges that multiple parameters are taken into consideration and in most of cases several mixed orientations, both internal and external, drive toward the standards. Each archetype embodies a distinct balance between these mechanisms validating the H1 hypothesis demonstrating that certification adoption is not a purely-compliance process but a strategically differentiating mechanism shaped by the motivational orientation associated to the different theoretical approaches which lead to different expectations in terms of potential achieved outcomes. So based on what firms want to gain they are triggered by different factors.

Firms grouped in the same archetype show similar patterns in the motivations for certification adoption derived from the content analysis and sustained also by the

quantitative analysis of the close answers, as will be reported later, revealing that certification adoption in the agrifood sector is not monolithic but shaped by diverse managerial rationales and institutional contexts. These archetypes provide the analytical foundation for the following quantitative comparison exploring motivations orientation, perceived benefits and difficulties and economic performance. For the quantitative analysis and comparison, the already defined constructs for which Cronbach's alpha for reliability and consistency has been calculated, are used to investigate archetypes internal and external motives, operational, organizational and external benefits and perceived difficulties. For the comparison of these constructs across the three archetypes Kruskall-Wallis tests is applied, a non-parametric test used to verify whether there is statistically significant difference. This analysis is conducted at firm-level, this means that the values used to perform the tests are the composite scores (the average values of the variables for each construct) computed for each firm; the possibility to use firm-level values for each construct has been validated in the previous part computing Cronbach's alpha. So, all the following analysis won't be at item-level but at firm-level. On the same line also the medians and the standards deviation are referred to the mean values of firm's construct quantifying the dispersion of the construct among firms and archetypes; this logic is present in multiple cross-firm analysis in quality management research (Heras-Saizarbitoria & Boiral, 2013; D. Kafetzopoulos et al., 2013; Wiengarten et al., 2017).

4.3.1 Archetypes' internal and external motivation

The analysis conducted, supported by the Kruskal-Wallis test, reveals that the archetype formation derived from the content analysis is strongly supported by the quantitative outcomes concerning internal and external motivations toward certifications derived from the analysis of the Likert scales questions. The statistical results indicate that internal motives differ significantly across the three archetypes ($p = 0,028$) while external motives do not show statistically significant difference ($p = 0,294$) at 95% significant interval across groups. This suggests that internal motivations can be considered as a distinctive factor underlying the archetype configuration, whereas external motives play a more homogeneous role. In other words, although all firms recognize the importance of external pressures and perceive

them in their decisions, what effectively distinguishes them is the extent to which certification is pursued as an internally driven process improvement rather than a response to external expectations. This emerges clearly if we look at the boxplots and table reported below.

Table 4.8: Descriptive statistics and Kruskall-Wallis test comparing archetypes' Internal and External motives

	Internal Motives			External Motives		
	Operational Excellence Seekers	Market Conformists	Excellence Conformists	Operational Excellence Seekers	Market Conformists	Excellence Conformists
Mean	4,033	3,520	4,200	3,806	3,883	4,155
Median	4,200	3,700	4,400	3,667	4,000	4,083
STD	0,446	0,483	0,623	0,352	0,377	0,405
p-value		**0,028***			0,294	

*p-value < 0,05 written in bolt

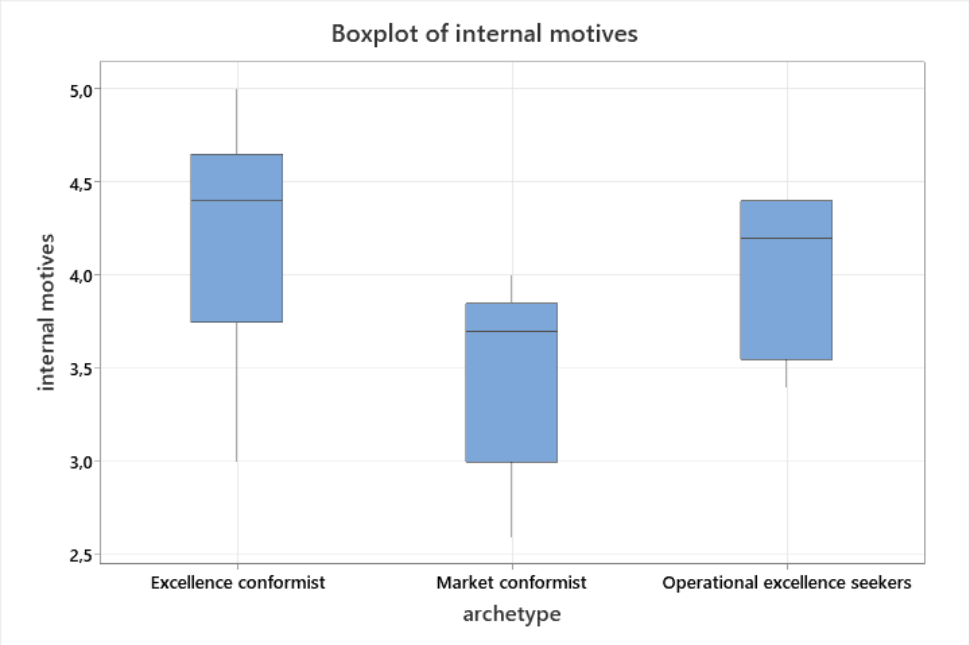


Figure 4.6: Boxplot of Internal motives archetypes comparison

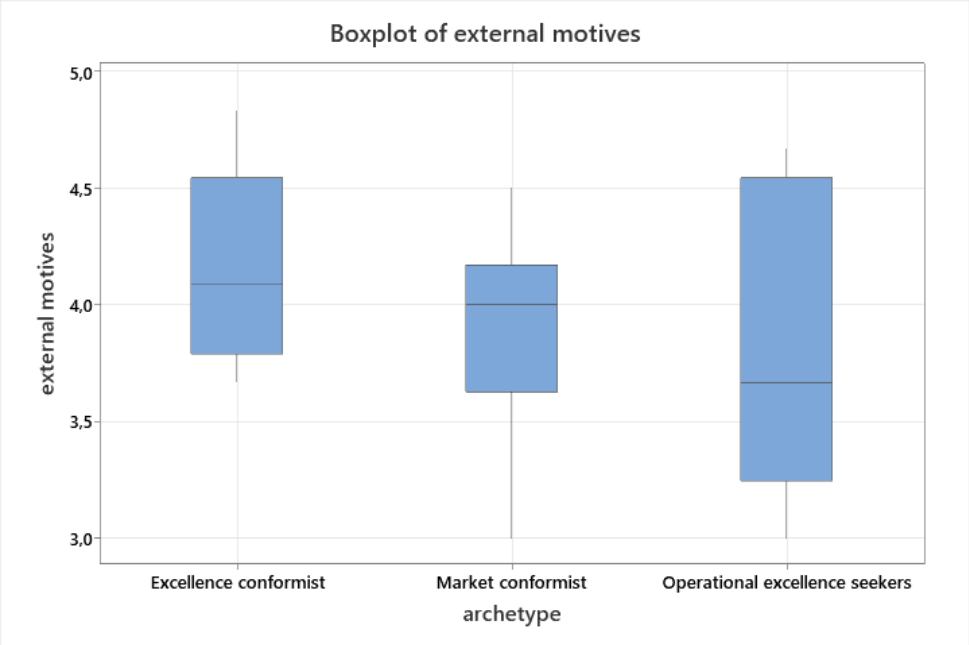


Figure 4.7: Boxplot of External motives archetypes comparison

The boxplot for internal motives clearly demonstrates the divergence among archetypes. Operational Excellence Seekers display a median of 4,200 suggesting a strong focus on process improvement and efficiency while Market Conformists register a lower median (3,700) and a wider interquartile range, highlighting greater heterogeneity in their responses and weaker internal engagement with certification objectives. Conversely, Excellence Conformists show the highest median (4,400) and tighter cluster, revealing stronger internal drivers and more consistent commitment to certification principles' internalization demonstrating a uniformly high orientation to process-based improvement and learning. The two clusters driven by internal motives approach certifications as a way to enhance efficiency and operational reliability.

On the other hand, the boxplot for external motives reveals a more uniform distribution of responses across archetypes; moreover, the median values (Operational Excellence Seekers = 3,667, Market Conformists = 4,000, Excellence Conformists = 4,083) suggest a slightly degree of homogeneity and that internal pressures are perceived as universally relevant.

Focusing only on the comparison between the pure archetypes, Operational Excellence Seekers (internal, process-driven focus) and Market Conformists (externally market

oriented) archetypes, it is evident that the Operational Excellence Seekers display higher median values for internal motivations, adopting certifications mainly for efficiency-related purposes, such as waste reduction, process control and productivity. Heras-Saizarbitoria & Boiral (2013) define these firms as organizations that perceive certifications as tools for rationalizing operations and improving performance. The qualitative evidence from the open question responses further supports this interpretation. Managers answering: "What motivated you to pursue the certification path?" emphasize the importance of process management and control, as reflected in the following statements:

- *"The necessity to implement properly established management systems that are useful to handle the processes"* which underlines the process focus and the willingness to improve them to pursue efficiency and productivity gains.
- *"The production requirements that determine the need to have a robust controlling and monitoring system, stable and repeatable"* that reflect a focus on operational stability and control routines.

Firms engaged in certification adoption to pursue internal improvement and process optimization tend to use standards as capability building mechanisms (Boiral, 2011; E. Psomas & Antony, 2017). Consistently with the RBV these firms put their attention on the development of unique and inimitable organizational resources, structured routines, to create a sustainable advantage. The advantage, therefore, doesn't arise from the certification itself but from the possibility and ability to formalize and standardize processes, thus creating and transferring knowledge across the organization.

On the other hand, Market Conformists exhibit higher values for external motivations aiming to meet customer expectations and expand market opportunities. Recurrent answers are:

- *"Certification adoption to meet the clients and market requests"*;
- "*Possibility to enter new markets and get new customers";*
- *"to increase business opportunities and internationalization".*

All these quotes reflect a duality in certifications' adoption, substantive and symbolic adoption, where firms approaching certifications as a managerial learning process

internalize better the principle creating organizational capabilities trying to obtain a continuous improvement while, firms adopting certifications due to institutional pressures or consumer demand focus on external validation and competitive opportunities.

The quantitative results confirm that firms' classification into the three different archetypes is coherent and empirically supported. Among the three archetypes, Excellence Conformists, the hybrid one, demonstrates the highest overall level of internal motivation, guided by a willingness to internalize standards rather than merely adopt them for symbolic legitimacy (Boiral, 2011; E. Psomas & Antony, 2017). This archetype aligns with Boiral & Amara (2009) who claim that firms leverage certification to stimulate innovation, organizational integration and continuous improvement using the standards as an infrastructure for organizational learning to clarify responsibilities, structure the processes and monitor performance. This behaviour is consistent with Wiengarten et al. (2017) findings, who has observed that in case of integrated management systems firms embed certifications in a long-term excellence model.

The relatively homogeneous mean values for external motivations demonstrate how external legitimacy pressures, however, are widely shared across the three archetypes. Even though Market Excellence register the highest medians within the non-hybrid groups, the different remains modest. This supports the assumptions of the Institutional Theory which defines that companies operating in the same sector face similar coercive, mimetic and normative pressures and in this specific case of food sector, companies deal with strong retail requirements, consumer expectations and regulatory obligations (Casadesús & Karapetrovic, 2005; Henson & Humphrey, n.d.) explaining why the difference is not so evident. Similarly, from the Signalling theory perspective, this uniformity is also expected as internal motives remain important yet undifferentiating. As suggested by McClure (2009) and Ullah (2020), certifications are exploited as a costly and credible signals of quality and reliability, therefore all three archetypes recognize certifications as strategic tools for communicating legitimacy and trustworthiness.

Taken together, these findings demonstrate that internal and external motives are not mutually exclusive but complementary. External pressures often trigger certifications adoption, but internal commitment determines whether the standards can become a source of improvement or remain a compliance mechanism. The significant difference among archetypes regarding internal motives demonstrate that what effectively distinguishes firms is the ability to translate external expectations into internal learning processes. This interpretation aligns with Delmas & Toffel (2008) and Yang et al. (2024) conclusions, that describe the coexistence of multiple institutional logics such as efficiency, legitimacy, reputation features embodied by the Excellence Conformists archetype which defines a hybrid orientation that transforms certifications from market constraints into strategic tool for differentiation and continuous improvement.

The *H1 hypothesis* is therefore supported by both qualitative content analysis of managers' narratives and by this detailed, quantitative analysis of internal and external motivations. These findings identify distinct motivational orientations to achieve efficiency, legitimacy and reputation, which drive firms to implement certification and that allow for their classification into the three archetypes. Overall, certification adoption mechanism is strongly influenced by the willingness to achieve the above-mentioned gains being a heterogeneous phenomenon characterized by the coexistence of mixed rationales and multidimensional nature. This confirms the hypothesis that firms' certifications orientation is rooted in their distinct motivational configuration rather than compliance alone.

In summary, firms are guided by a multitude of motivation and logics; while external motives represent a shared contextual driver, internal motives constitute the true discriminating factor, distinguishing the nature of the three archetypes. Certifications yield substantial and lasting possible benefits when external compliance is coupled with internal drivers for excellence, learning and innovation.

4.3.2 Archetypes perceived benefits

Having established the main motivations that guide toward the certifications' adoption and defined the consistency of the archetypes' formation, this section will examine the core part of the study, namely the perceived benefits reported by the participating firms

to the survey, grouped into the three archetypes. The following discussion deepens the archetype analysis by examining how different orientations toward certifications, internal, external or hybrid, translate into perceived benefits. By comparing the three archetypes across the operational, organizational and external dimensions it becomes possible to define whether and how the motivational logic is reflected into concrete perceived results testing additionally the consistency of the archetypes formation and validating the hypothesis H2 which argues that internally-driven firms perceive greater operational and organizational benefits against external-oriented firms that focused more on external outcomes.

Results from the Kruskall-Wallis tests reveal statistically significant differences among the three archetypes in terms of operational (p = 0,020) and organizational benefits (p = 0,10), whereas there is not a significant difference in terms of external benefits (p = 0,131). This suggests that, while firms in the different groups perceive similar market and reputation outcomes, the internal gains in terms of efficiency and organizational capabilities depends on the motivational configuration behind the certification adoption.

Table 4.9: Descriptive statistics and Kruskall-Wallis test comparing archetypes' perceived benefits

	Operational Benefits			Organizational Benefits			External Benefits		
	OES	MC	EC	OES	MC	EC	OES	MC	EC
Mean	3,900	3,360	4,186	3,667	3,540	4,086	3,833	3,867	4,274
Median	3,800	3,300	4,183	3,800	3,600	4,000	3,833	3,833	4,167
STD	0,352	0,375	0,523	0,372	0,389	0,374	0,730	0,399	0,783
p-value		**0,020**			**0,010**			0,131	

*p-value < 0,05 written in bolt

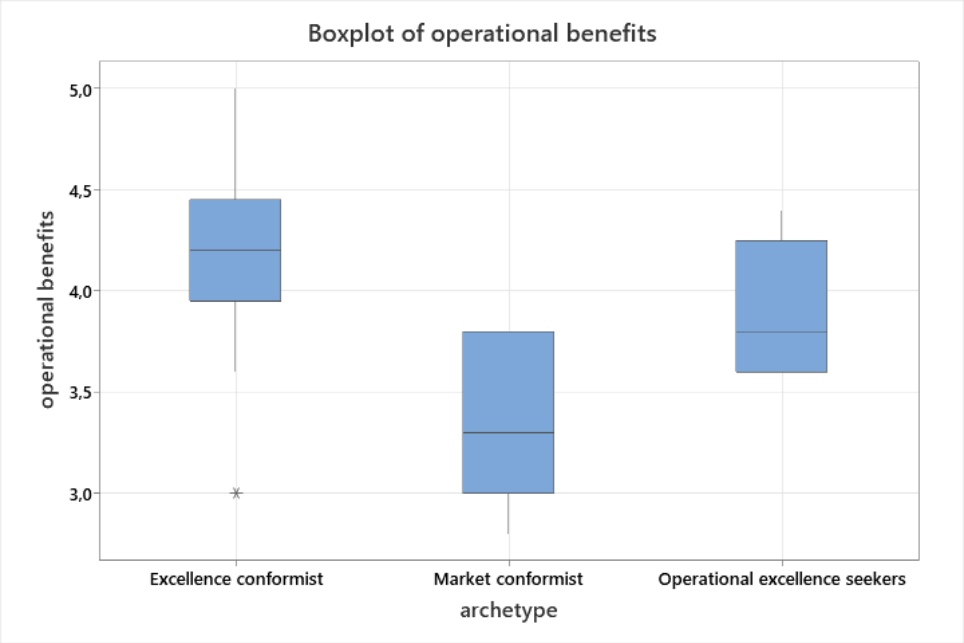


Figure 4.8: Boxplot Operational benefits archetypes comparison

By observing the boxplots and the quantitative results in the table, the hybrid Excellence Conformists archetype registers the higher score in terms of operational benefits. However, comparing just the two independent groups of Operational Excellence Seekers and Market Conformists the empirical findings provide strong support for the H2 hypothesis. Internally driven firms exhibit higher median values for operational benefits (3,800) than those guided by external drivers (3,300) confirming that the archetype formation is supported by the numerical findings and reinforcing the assumption that firms that approach certifications as internal learning or process improvement tool achieve more tangible efficiency gains than those motivated by external requirements. This is in line with the RBV and the PBV which underline how management systems create higher value when they are internalized as organizational routines and the standards are embedded in the organizational culture and in daily operations (Barney,1991; Heras-Saizarbitoria & Boiral, 2013; Teece, 2018). D. Kafetzopoulos et al. (2013) and Cai & Jun (2018) report that firms applying the ISO standards to structure and improve internal processes report more gains in quality control, defect reduction and productivity explaining the higher operational benefits of Operational Excellence Seekers and Excellence Conformists archetypes. In contrast,

Market Conformists report lower perceived operational outcomes aligned with a more symbolic adoption (Boiral,2011) focusing on an external legitimacy implementation of the certification rather than internal improvement. Same concept is also sustained by Delmas & Montes-Sancho (2011) who similarly observe that in this case the focus shifts more to compliance rather than learning and efficiency motives.

Some differences emerge also within the internally driven groups which could be explained by the fact that Operational Excellence Seekers tend to relate their improvements effort to production and control mechanisms emphasizing less the strategical integration or innovation whereas the Excellence Conformists, the hybrid group, leverage certifications to obtain organizational alignment, integrating operational improvements with innovation and using them also from a strategical standpoint reflecting what is defined as "integrated management systems" where synergies between quality, safety, and sustainability standards optimize the performance holistically. However, these two archetypes suggest stronger and more homogeneous internal improvements displaying closer median values and tighter interquartile ranges against the Market Conformists that shows lower median and wider dispersion indicating more heterogeneous and limited benefits.

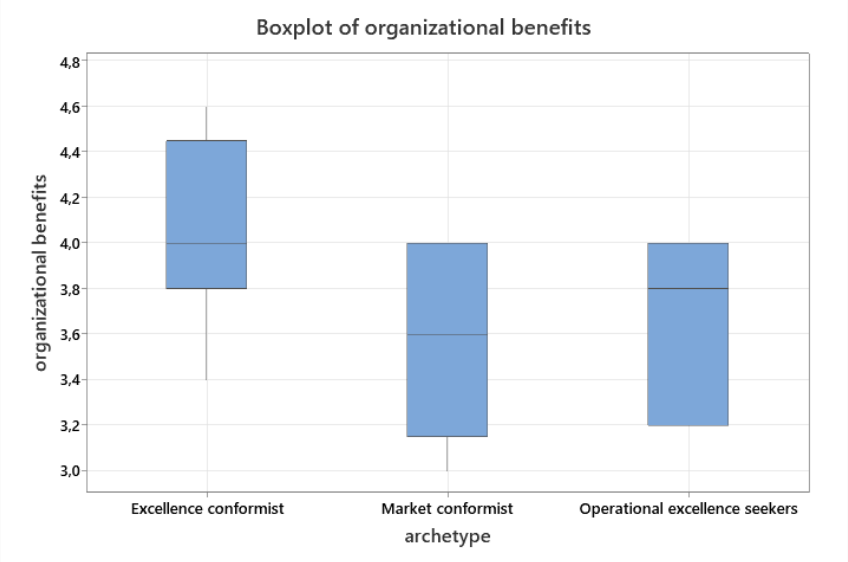


Figure 4.9:Boxplot Operational benefits archetypes comparison

A similar pattern is observed also for organizational benefits, where the Kruskall-Wallis test shows statistically significant difference across the archetypes ($p = 0{,}010$). As for the other constructs analysed, the hybrid archetype displays the highest median

value (4,000) followed by the Operational Excellence Seekers (3,800) and Market Conformists (3,600). Organizational benefits relate to managerial structure, internal communication, documentation and human resources training and formation, dimensions reflecting the degree of internalization of the standards. For this reason, firms belonging to Operational Excellence Seekers and to Excellence Conformists archetypes register the highest median values due to their attention on learning and formalization mechanisms arising from their internal orientation towards the accreditation process (Teece, 2018). Enterprises that focus on organizational learning develop long lasting capabilities exploiting audits, trainings and continuous improvement cycles which turn into learning opportunities (Boiral & Amara, 2009). By adopting a proactive approach to ISO certifications and effectively implementing the standards firms can report stronger organizational cohesion and communication that determines a higher employees' satisfaction.

Conversely, Market Conformists, that focuses mainly on external aspects, experience slightly weaker organizational improvements as they tend to decouple the formal certification system and the actual managerial practices being focused on meeting customer or regulatory demands (Delmas & Toffel, 2008), possessing the symbolic structures of a certified system but with a possible lower internal engagement. However, contradictory results are reported by Nair & Prajogo (2009) that found that even market-oriented adopters of ISO 9001, in that case, report more evident organizational benefits especially for formalization and documentation since certifications introduce basic management discipline and then the internal organizational outcomes arise.

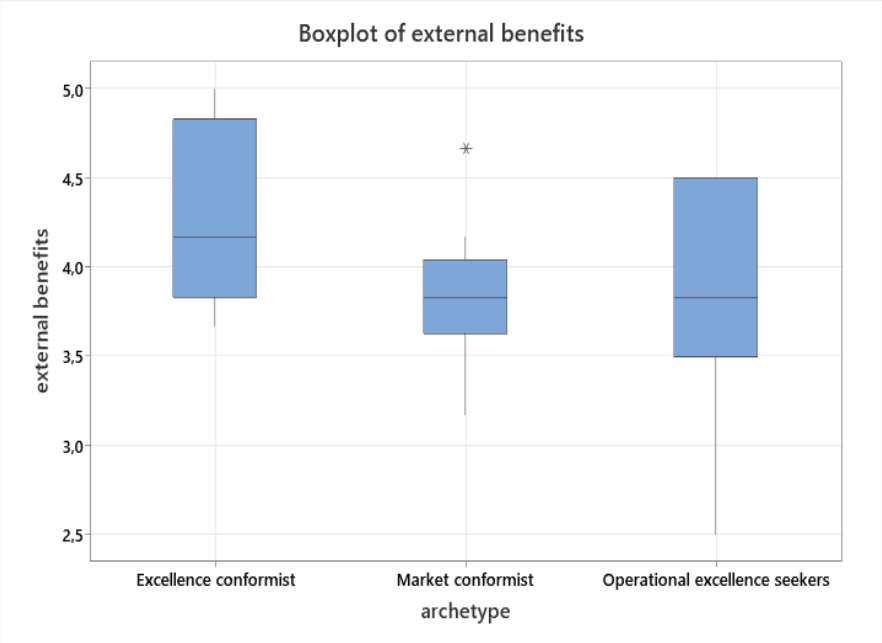


Figure 4.10: Boxplot External benefits archetypes comparison

Unlike operational and organizational benefits results, external benefits such as reputation enhancement, customer satisfaction, market access, display no statistically significant difference between the three archetypes (p = 0,131). The boxplot shows relatively uniform distributions underlining the general perception that certification adoption improves the external outcomes acting as a legitimacy and reliability tool exploited by enterprises, aligning with the Institutional Theory. Mature sectors, such as the food one, are characterized by normative expectations imposed by the supply chain actors and regulators making certifications a precondition for competitive participation; firms must uniformize with these requirements adopting certifications not primary to stand out but to conform. Casadesús & Karapetrovic (2005) and Henson & Humphrey underline how global retailers have institutionalized standards like BRC, IFS as entry barriers. Complementary explanation is given by the Signalling theory that underlines the use of the certification as a way to reduce information asymmetries and spread a sense of higher quality to the external stakeholders.

The absence of significant difference discloses a critical insight: when all competing firms are certified the certification itself losses its differentiating power in the market, consistent with Boiral (2011) findings, that argues that when a standard becomes

institutionalized its symbolic value gets exhausted diminishing the ability to bring competitive advantage and the real distinction shifts to how firms internalize the standards to improve the internal processes thus internal motivations determine whether the legitimacy translates into operational and organizational excellence.

What clearly emerges from these findings is a strong support of the *H2* hypothesis which sustains that internal driven companies face higher benefits from an operational and organizational point of view. This is proven by the statistically significant difference obtained by applying the Kruskall-Wallis test, while there is no significant difference between external benefits. Firms focused on learning, process control and improvement achieve higher tangible internal gains; thus, internal motivations differentiate performance outcome. It emerges that there is a close relationship between the motivations that drive companies to the certifications' adoption and the perceive benefits they report. To further investigate the relationship between motivations and perceived benefits a correlation analysis is conducted. Due to the limited sample size, the correlation performed is not the Pearson but the Spearman one, a non-parametric measure which does not require a linear relationship between data and normality which evaluates the ranks (Statistics by Jim, 2024).

Using the film-level composite scores, the Spearman correlation is performed to confirm or contradict the assumption that internal driven companies perceived higher operational benefits while the external guided ones reflect more external benefits; further it is also examined which of the two categories perceive more the difficulties arising from the certification process.

Below it is reported a correlogram of internal and external motives, operational, organizational and external benefits and difficulties. The correlogram reveal at a glance that internal motives strongly and positively correlate with operational benefits (ρ = 0,882) and organizational benefits (ρ = 0,642) while external motives correlate mostly with external benefits ρ = 0,625); in both cases perceived difficulties show limited association and of no relevance.

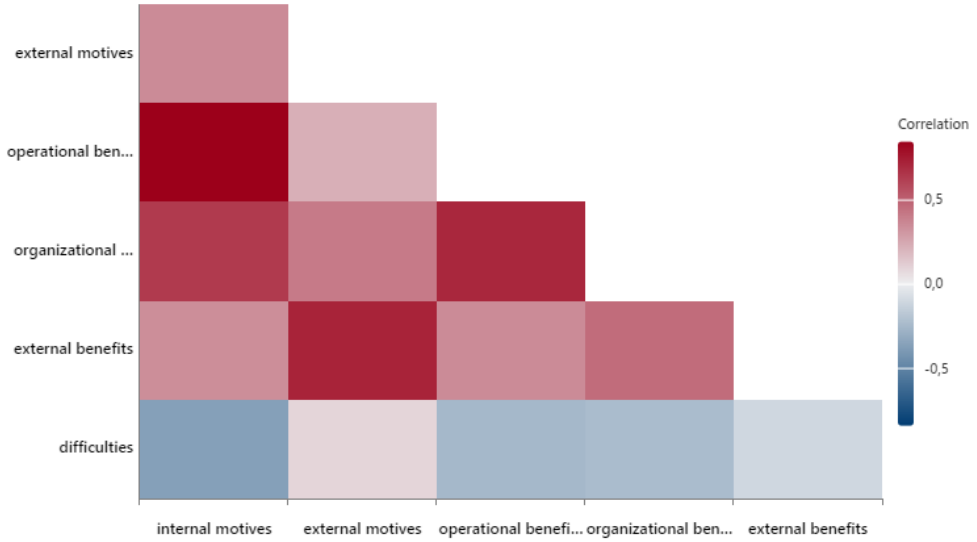


Figure 4.11: Correlogram between constructs

Table 4.10: Correlation between the different constructs

	Internal motives	External motives	Operational benefits	Organizational benefits	External benefits
External motives	0,397				
Operational benefits	0,882	0,223			
Organizational benefits	0,624	0,379	0,726		
External benefits	0,313	0,625	0,311	0,341	
Difficulties	-0,302	0,072	-0,250	-0,197	-0,087

These findings are coherently aligned with the already mentioned assumptions; internally oriented firms, reflecting the Resource Based View and the dynamic capabilities concepts, adopt certifications with the aim to gain improvement, process discipline and learning, reporting higher process-level and organizational outcomes which result from the substantive internalization of the standards that become routines and learning infrastructures rather than mere paperwork (Barney, 1991; D. Kafetzopoulos et al., 2013; Boiral & Amara, 2009). The perceived difficulties are insignificant; being improvement-oriented, firms tend to reframe burdens such as documentation and audits as part of the improvement cycle and not just perceiving them as bureaucratic costs. On the other side, external motives block sustained the

Institutional and Signalling perspectives; firms emphasizing customer satisfaction, market access and reputation perceive stronger external payoffs mainly in terms of recognition and access to markets underlying firms' necessity to gain legitimacy as a consequence of the coercive and normative pressures present in the sector, sending credible signal to the external environment trying to enhance trust and commercial opportunities without guaranteeing internal change (Delmas & Montes-Sancho, 2011; McClure, 2009; Ullah, 2020). The modest tie to organizational benefits suggests that external pressures can also catalyse some formalization.

The correlation analysis therefore displays the strong relationship between internal motives and internal benefits underlining the capability building mechanism behind the certification adoption central of the Operational Excellence Seekers archetype and Excellence Conformists and the connection between external motives and benefits confirming the legitimacy and signalling payoffs present in the Market Conformists archetype. These finding strongly sustained the defined *H2 Hypothesis*. The hybrid group, by overlapping the interests, tends to perform better across the different dimensions uniting internalization with credible signal and institutional fit.

4.3.3 Difficulties

The final construct to be examined concerns how firms within the three archetypes perceive the difficulties associated with the certification process, thereby providing a more holistic view of firms' certification experience. While motivations capture the main drivers and benefits explain outcomes, perceived difficulties underline the main barriers that can be met during the process and the standards' implementation.

Table 4.11: Descriptive statistics and Kruskall-Wallis test comparing archetypes' Difficulties

	Difficulties		
	Operational Excellence Seekers	Market Conformists	Excellence Conformists
Mean	3,262	3,057	3,133
Median	3,357	3,071	3,071
STD	0,355	0,411	0,783
p-value		0,706	

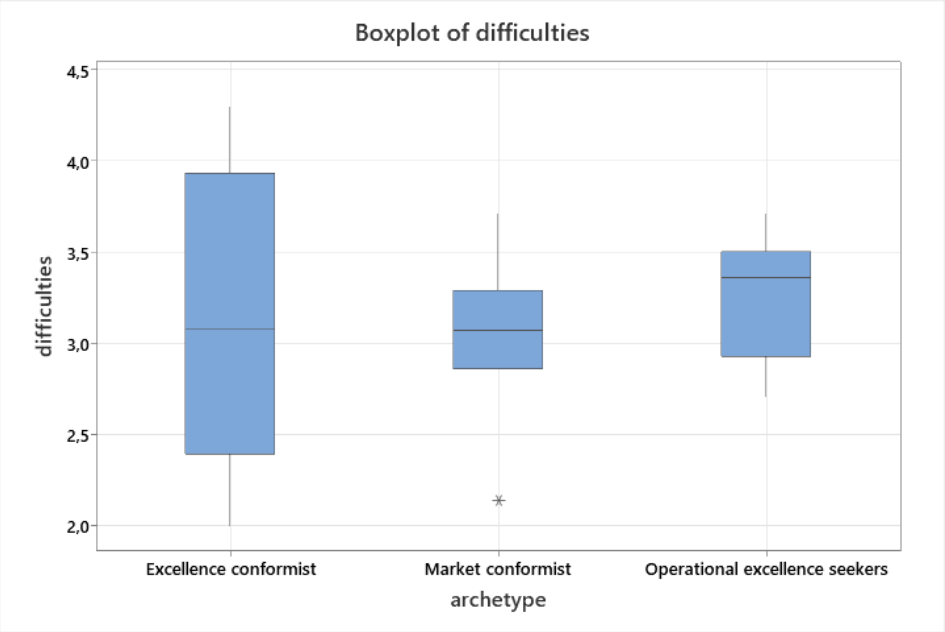


Figure 4.12: Boxplot Difficulties archetypes comparison

Results from the Kruskall-Wallis test show that there is not statistically significant difference between the three archetypes in terms of perceived difficulties (p = 0,706) indicating that firms face similar challenges in the certification adoption and maintenance. The three archetypes display quite similar median values visible also in the boxplot underlining how difficulties are broadly shared and structurally embedded in the agrifood context rather than connected to motivational orientation. Only the Operational Excellence Seekers reach a slightly higher value and this can be associated to the structural nature of difficulties such as documentation burden, costs, employees resistance and complexity of the standards, issues which are recognized also by Boiral (2011), Heras-Saizarbitoria & Boiral (2013) and E. Psomas & Antony (2017) as, independently of the motivational orientation, firms have to dedicate resources, time and expertise. As Boiral & Amara (2009) note, even when certifications are used as learning tools their effective implementation still determines considerable administrative load. Studies such as Wiengarten et al. (2017) found that firms integrating multiple management systems often perceive the certification process as more streamlined and manageable, since shared procedures reduce redundancy and enhance coordination. In contrast Nair & Prajogo, (2009) reported that the perceived difficulty of certification tends to converge across firms over time, as experience accumulates and management systems mature.

The difference between firms stands in the way they face these difficulties: internally motivated firms see these challenges as part of their continuous improvement process while market driven companies perceive them more as externally imposed obligations. This quite uniformity across the three archetypes supports the idea that certifications in the agrifood sector have become a mature and institutionalized practice where companies face similar constraints and challenges; Boiral (2011) reports that certifications remain both a bureaucratic exercise and a learning infrastructure.

4.3.4 Archetypes economic performance

To complement the previous archetype analysis and better understand how motivational orientations and certifications strategies translate into tangible performance outcomes, in the following lines it will be assessed the impact on economic indicators, comparing the three archetypes. With respect to the motivations and perceived benefits, the economic analysis results more nuanced. By applying the Kruskall-Wallis test to the main financial indicators (revenues, EBITDA, operating income, profitability margins and growth rates) what emerges is that there is no statistically significant difference among the three groups at 5% significant level, but some trends are noteworthy.

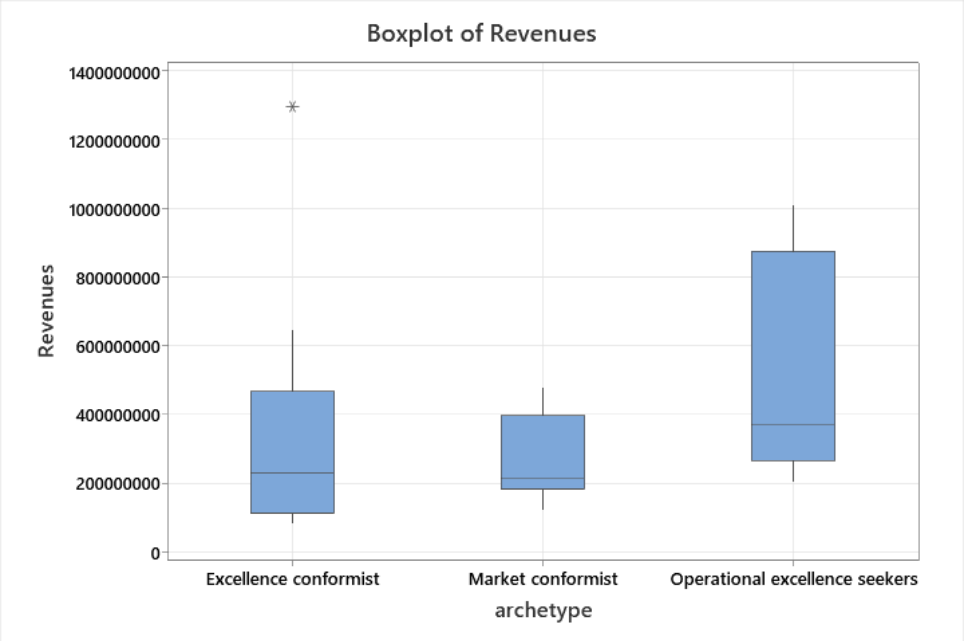


Figure 4.13:Boxplot of Revenues archetypes comparison

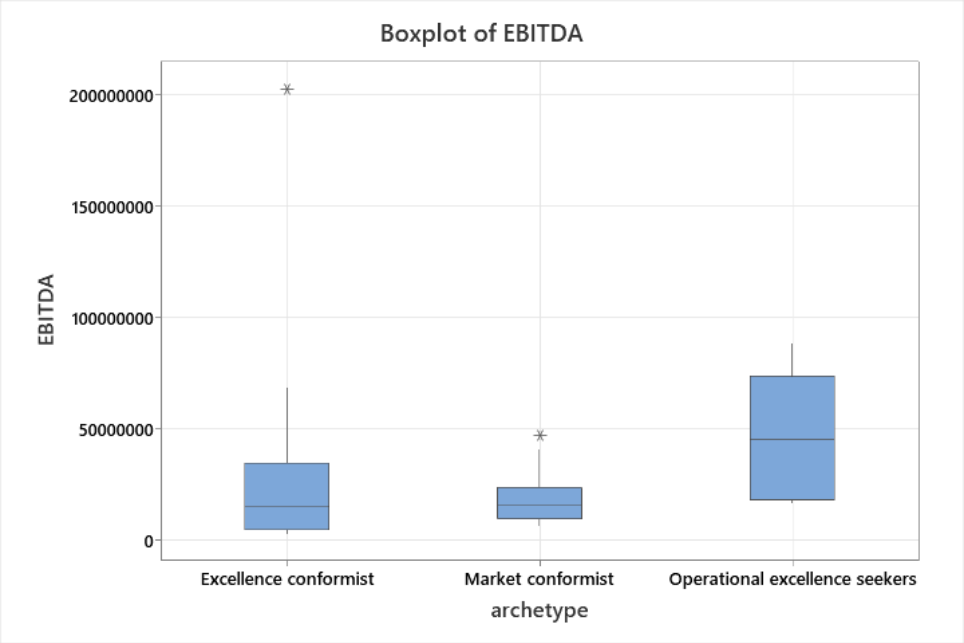


Figure 4.14: Boxplot of EBITDA archetypes comparison

Descriptive results indicate that Operational Excellence Seekers exhibit higher median values across most performance indicators such as revenues (~€374 million), EBITDA (~ €45,5 million) and operating income (~ €20,5 million) compared to Excellence conformist and Market Conformists that show lower medians. These difference, even if the statistically significant difference is not proven, suggest that firms adopting a more integrated and improvement-oriented approach to certification tend to achieve superior operational profitability.

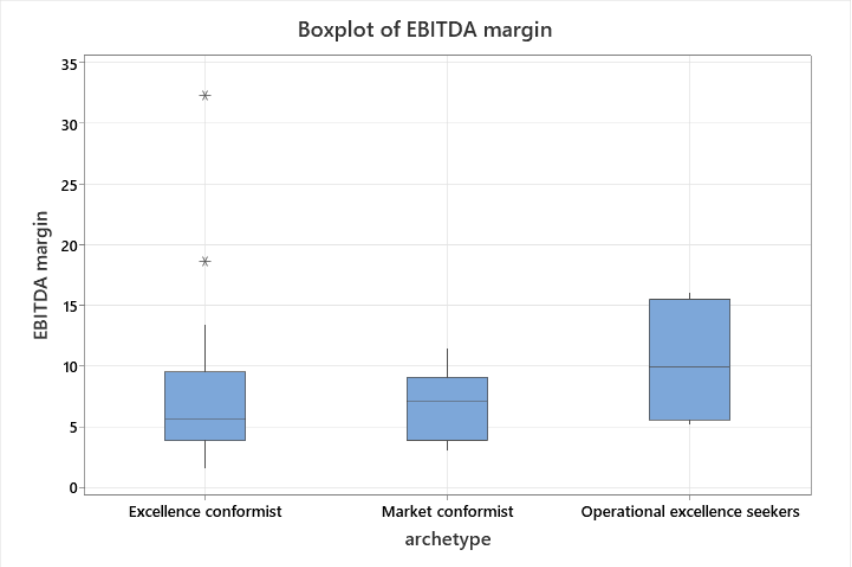


Figure 4.15: Boxplot of EBITDA margin archetypes comparison

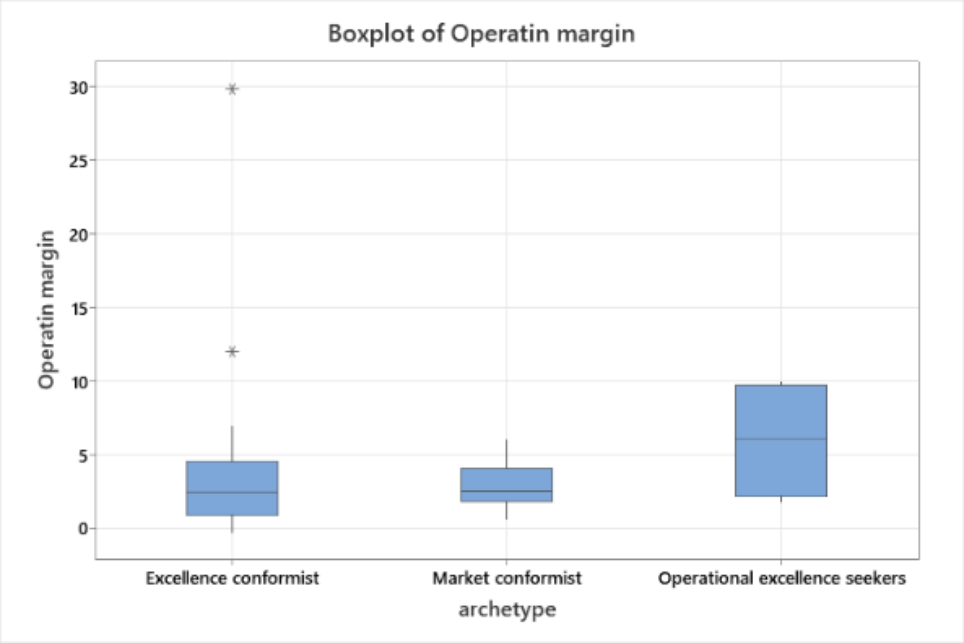


Figure 4.16: Boxplot Operating margin archetypes comparison

The same pattern appears also in case of the profitability ratios, Operational Excellence Seekers display higher median values for EBITDA margin (9,94%) and operating margin (6,15%) with respect to the others two archetypes whose medians range remain between 2-7% ; similar tendencies are observed also in case of efficiency measures such as EBITDA per employee (€ 61 060) and revenues per employee (€ 824 899) and in case of the growth indicators (CAGR for revenues, EBITDA and operating income)

where the more dynamic performance is performed by the firms with stronger management systems and continuous improvement orientation.

The absence of statistically significant difference across the three archetypes may reflect the maturity and institutionalization of certification practices in the agri-food sector. As suggested by Heras-Saizarbitoria & Boiral (2013) once certifications, such as ISO standards, become widespread their ability to determine differentiation in economic terms tends to diminish; they become just industry norms or a form of qualifiers rather than winners. Furthermore, Boiral & Amara (2009) observe that internally motivated firms may not immediately convert certifications into financial gains unless internalization is coupled with an active process of innovation and optimizations; for this reason, especially the Excellence Conformists, may be more bureaucratic and compliance-oriented, focusing on maintaining system conformity rather than economic outputs. On the other side, Market Conformists may face limited economic returns; they generate reputational legitimacy and few financial improvements as reported by Corbett et al. (2005). However, some studies note that there can be observed a positive association between certifications and performance. The studies of Corbett et al. (2005) and Martínez-Costa & Martínez-Lorente (2007) report higher profitability and sales growth among the ISO certified firms especially when certifications are part of a broader total quality management system; however, Heras-Saizarbitoria & Boiral, (2013) note that financial impact often can remain marginal, especially in sectors with coercive pressures rather than genuine internalization, considering that in this context performance benefits cannot be absorbed by the costs of maintaining compliance which neutralize the financial effects. So, firms in the food sector, despite facing organizational and operational improvements from certifications, these benefits do not translate directly into economic advantages in the short term.

In conclusion, Operational Excellence Seekers, guided by internal motivations, translate better certifications into process efficiency and cost management reduction as supported by E. Psomas & Antony (2017) who link internalized quality to improved productivity and defect reduction which may determine cost reductions. Although Excellence Conformists are also guided by internal motives, they may suffer from formalized inertia, overemphasizing procedural compliance rather than strategic

exploitation of the system; this tendency is defined as a ceremonial adoption by Boiral (2011). On the other hand, Market Conformists, being externally motivated, show limited economic performance supporting DiMaggio & Powell (1987) notion on institutional isomorphism, firms adopting certification for legitimacy reasons without substantive gains imitating the industry behaviour.

Overall, certifications can serve as a platform for performance improvements when embedded within broader culture of continuous improvement and strategic alignment and their impact depends on implementation context, firm capabilities and integration depth.

The results arising from the archetype analysis provide a comprehensive understanding on how certification mechanisms are strongly influenced by motivational configurations which shape firms' behaviour and perceptions. Taken into consideration the whole picture, the evidence suggests that while certification adoption has become a pervasive and institutionalized practice, the organizational meaning and impact vary according to firm's strategic intent, internal capabilities and depth of system integration.

What arises from the different considerations and analysis about the motivational dimension is that internal drivers, connected with process efficiency, continuous improvement and control, results the most distinctive feature of the three archetypes demonstrated through the significant variation from the statistical test conducted which emphasizes that certifications can be used either as capability-building mechanism in line with the RBV or as a symbolic compliance tool in relation to the Institutional theory. By contrast, the external motives are more homogeneous underlying that firms operating in the same context face similar coercive and normative pressures from customers, retailers and regulators. While the perceived operational, organizational and external benefits findings are closely connected with what we would expect to obtain by considering the motivation mechanism, the results for economic performance introduce an important note of realism. Even if the statistical tests do not prove significant difference among archetypes, the descriptive trends show better financial and efficiency indicators for the internal driven firms. This outcome is in line with broader empirical literature which present the mixed evidence

of the financial impact of certification: some firms that better internalize the ISO standards perceive improvements in profitability and growth while others find limited or negligible effects once certifications become institutionalized.

The findings suggest that certification adoption is not a guarantee of superior performance but more a strategic framework whose effectiveness depends on the internalization and integration degree and on the main motivations' nature. Regarding this, the next paragraph will explore more concrete behaviour and practices adopted by firms as consequence of the certification adoption.

4.3.5 Strategic behaviour and organizational responses to certification

To expand our analysis and provide a contextual framework for the previous quantitative results, this section will provide some further evaluations deepening more into the strategical side of the firms analysed focusing on some categorical variables such as internal changes applied by enterprises and eventual implementation of new technologies as a consequence of the standards' adoption. These aspects give valuable contextual insights into how different motivational and archetype orientations translate into organizational practices. By analysing the multiple-choice responses, we can understand how firms translate certification into concrete managerial and strategic practices; together with the motivational and benefits constructs these findings underlying the organizational responses to the certification process determining a behavioural validation of the archetypes defined and reflecting also the three main theoretical lenses adopted in this study.

Internal changes: the internal changes considered in the questionnaire, that we want to verify if they come as a consequence of standards adoption, are the following: *internal procedures improvements, new technology's introduction, personnel training, business practices* and *new resources.* These dimensions are strongly in line with all requirements that certification implementation determines. Across the three archetypes considered, certifications emerge as an important determinant for organizational and process restructuring, although the depth and

breadth of internal changes vary among groups. The frequency analysis reveals the following patterns across archetypes:

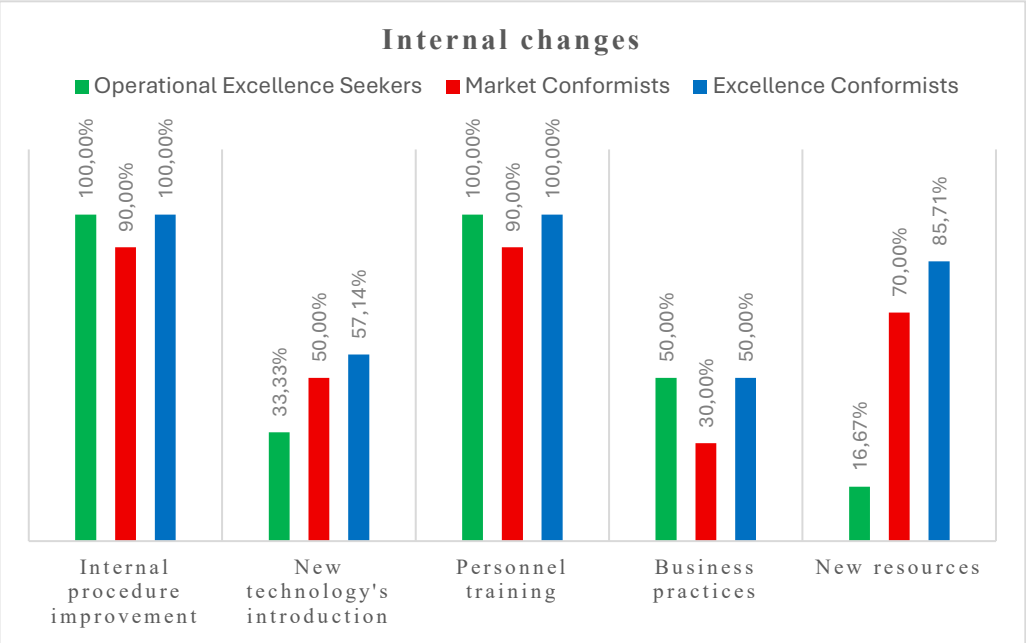


Figure 4.17: Archetypes' adoption of Internal changes

What emerges is that 100% of the companies under the Operational Excellence Seekers group implement internal procedure improvement and put their attention on the personnel training while the 50% mention changes to business practices and the 33,3% adopt new technologies to exploit better the standards guidelines while the introduction of new resources is pursue only by the 16,7%. Also, Market Conformists focuses on procedure improvement and personnel training (90%), putting more attention on new resource introduction (70%) and new technologies adoption (50%) while just 30% changes the business practices. On the other hand, the Excellence Conformists exhibit the broadest change in training the personnel (100%) and improve the internal procedures (100%), focusing more on new resource adoption (85,7) concentrating also on new technologies introduction (57,1) and business practices (50%). Across all archetypes, learning mechanisms (training) and process formalization (procedures) are the main internal changes implemented by the enterprises as a part of the standards' internalization consistent with the RBV and the dynamic capabilities (Barney, 1991,Teece, 2018); the Excellence Conformists show the widest behavioural footprint. Their adoption of multiple internal changes

dimensions is consistent with its hybrid nature and stronger orientation to adopt integrated management systems, leveraging complementarities across quality, food safety and sustainability standards (Wiengarten et al., 2017). Market Conformists, despite their externally driven orientation, exhibits high levels of training and procedural improvements, suggesting that even compliance-oriented enterprises still introduce basic managerial discipline (Nair & Prajogo, 2009).

New technologies and process quality: firms participating in the survey have been asked if certifications implementation stimulate the adoption of new technologies. Responses across the three archetypes show a clear consensus that certifications determine an incentive to innovation and new technology's introduction mainly to enhance efficiency and productivity, including better system monitoring, automation, more robust data collection and product traceability.

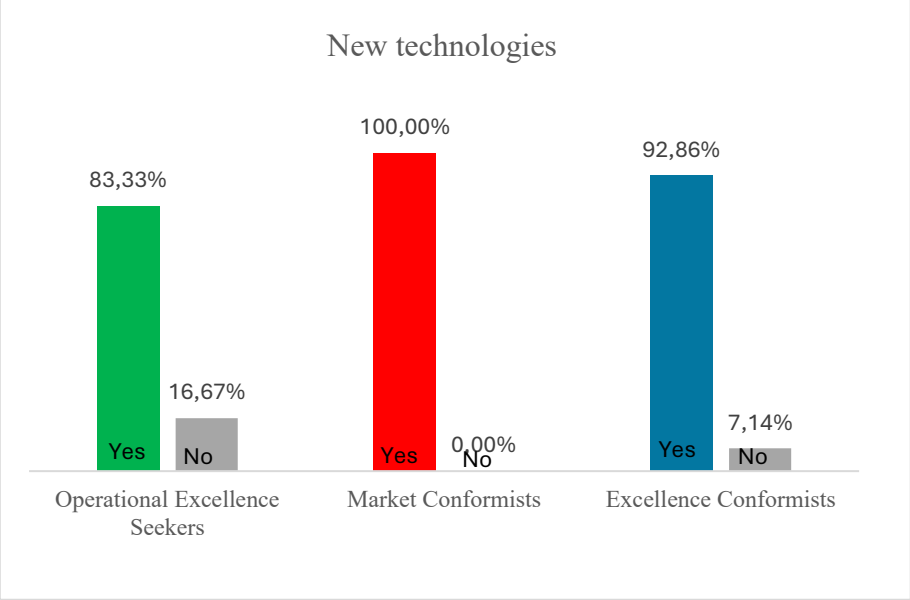


Figure 4.18: Archetypes comparison of New technologies adoption

This technology widespread supports the learning-infrastructure role of standards as mentioned by Boiral & Amara (2009), being innovation a way to accumulate operational knowledge and capabilities and an instrument that can determined higher productivity and internal improvements. Unlike internal changes patterns differ across the archetypes, in this case there is no more a clear distinction. This suggests that technological needs and benefits are broadly share regardless motivational orientations. The need to implement new technologies may possibly reflect sector

pressures toward modernization and digitalization; in fact, as it shown in the Figure 4.22, Market Conformists display the highest percentage possibility due to the fact that to remain competitive and align with the competitor modernization and innovation play a crucial role.

4.4 Industry economic performance

The evaluation of motivational drivers provided valuable insights into the underlying logic that drive companies toward the certification process, highlighting how archetypes differ in their degree of internalization and strategic engagement. However, understanding why certifications are adopted and the associated perceptions describe only partially if standards adoption and implementation translate effectively into measurable and tangible performance outcomes. Certifications are not merely symbolic compliance indicators, but they can influence some financial trajectories. To address the tangible impact of these orientations and moving from the perceptual sphere of motivation to the more objective domain, the following part will examine the relationship between the economic indicators and the type of certification, focusing on the whole sample such that to investigate the differences in the agrifood sector despite the limited size. However, if we consider that the participants in this study are well positioned and powerful companies in the industry what emerges from their analysis could be generalized also to other realities. Through this analysis we are going to prove or reject the *H3* hypothesis, verifying if effectively certification adoption translates into superior economic performance.

For the economic performance evaluation, the following three scenarios are considered:

1. Firms possessing ISO 9001 vs firms without ISO 9001
2. Firms possessing ISO 14001 vs firms without ISO 14001
3. Integrated firms vs non integrated

(Integrated firms are defined those ones possessing both ISO 9001 and ISO 14001 and BRC or IFS).

Considering the first scenario, so classifying firms based on the fact they possess or not ISO 9001, we obtain the first group (having the certification) composed by 16 firms and the remaining 14 without the ISO 9001 certification in their portfolio.

Table 4.12: Economic indicators comparison between ISO 9001 certified and non ISO 9001 certified firms through median values and Mann-Whitney test

	Median ISO 9001	**Median no ISO 9001**	**P-value***
Revenues	311 636 080	254 958 311	0,708
EBITDA	16 580 912	16 502 656	0,835
Operating Income	4 409 444	7 845 696	0,678
Revenues/Employees	721 693	629 312	0,693
EBITDA/Employees	47 897	37 688	0,633
EBITDA margin	6,375 %	6,645 %	0,803
Operating margin	2,215 %	2,750 %	0,561
CAGR Revenues	5,935 %	5,495 %	0,934
CAGR EBITDA	7,395 %	6,955 %	0,934
CAGR Operating	9,955 %	7,255 %	0,547

*p-value < 0,05 written in bolt

**(95% significance interval)

To see if there is statistically difference between the economic indicators of these two groups, the Mann-Whitney test is applied for the comparison. What emerges from the results is that there is absence of statistically significant performance for ISO 9001 certified firms. This leads to the rejection of the *H3* hypothesis, contradicting the idea that certification implementation, in this case ISO 9001, can contribute to financial raise. The finding aligns with the mixed results reported in the literature; some studies identify positive but indirect effects of certification adoption which tend to be manifested through operational efficiency and process quality rather than direct profitability gains. This result is supported by Sampaio et al. (2012) that sustain how ISO 9001 rarely produces immediate financial improvements, instead benefits emerge from a good implementation of the standard; also D. Kafetzopoulos et al., (2013) demonstrated that in this sector certifications are more correlated with higher product quality and process reliability which then contributes to better competitive advantage but not necessarily determining short term profit growth. This underlines how certification acts as an enabler of efficiency but not a source of direct profit.

The tests conducted for the different economic parameters do not prove our hypothesis, since none of the economic indicators demonstrate statistically significant difference at 0,05 level. Focusing only on the descriptive statistics results we can see how, both in case of the nominal values and ratios of the economic indicators, firms possessing the ISO 9001 show slightly higher results. Median values for revenues, EBITDA and operating income report higher values for those companies that are certified even if the p-values exceeds 0,05 across all variables. Similar situation is shown also for EBITDA margin, operating margin and the growth indicators for which p-values aren't significant as well. This underlines how the ISO 9001 certification alone does not produce statistically distinguishable improvements in financial performance, consistent with the literature that suggests how certification impact companies firstly through process improvement and efficiency gains (D. Kafetzopoulos et al., 2013; Sampaio et al., 2012). By just considering the median values it results that ISO 9001 determines superior productivity for enterprises, but certification alone is not decisive for higher productivity as the tests demonstrate and as Martínez-Costa & Martínez-Lorente (2007) sustain, defining that the degree of internalization is more relevant. Regarding this, Boiral (2011) suggests that firms adopting the standard as a strategic management tool by embedding continuous improvement and employee involvement could realize higher productivity rather than adopting it just for external legitimacy.

Considering the second scenario, firms possessing ISO 14001 (22 out of 30 firms) and firms without ISO 14001 (8 out 30 firms), the findings are slightly different.

Table 4.13: Economic indicators comparison between ISO 14001 certified and non ISO 14001 certified firms through median values and Mann-Whitney test

	Median ISO 14001	**Median no ISO 14001**	**P-value****
Revenues	231 960 019	296 887 742	0,656
EBITDA	16 871 915	13 446 249	0,181
Operating Income	8 730 717	5 789 459	0,386
Revenues/Employees	599 455	818 773	0,197
EBITDA/Employees	41 327	40 684	0,558
EBITDA margin	7,472 %	4,900 %	0,140
Operating margin	2,971 %	2,364 %	0,251
CAGR Revenues	5,170 %	6,354 %	0,360
CAGR EBITDA	4,030 %	10,876 %	**0,023***

CAGR	**Operating income**	2,777 %	19,460 %	**0,009***

*p-value < 0,05 written in bolt

**(95% significance interval)

By analysing the Mann-Whitney results we can identify statistically significant difference in two growth-related indicators: EBITDA CAGR (p = 0,023) and Operating income CAGR (p = 0,009) but in the opposite way we would imagine; in fact, in both cases ISO 14001 certifies firms demonstrates lower growth rates in the period considered while for the other variables the difference is not statistically significant, always p > 0,1. This result is completely contradicting the initial hypothesis, but similar findings are also reported in previous studies. The negative growth differentials are consistent with the findings by Treacy et al. (2019) who sustains that the environmental managements systems initially determine an improvement in cost efficiency and productivity but over time, due to maintenance costs and compliance complexity, it leads to diminishing returns. Other studies in the sector (Djekic et al., 2014; Giacomarra et al., 2016), emphasize that ISO 14001 rarely determines direct profitability increases especially in the short run needing the implementation of process redesign, monitoring, training that consequently reduce margins requiring significant investments; but, on the other side, it enhances resource efficiency, waste reduction and corporate image. This pattern is consistent with DiMaggio & Powell, (1983) and Yang et al. (2024) considering that firms often adopt environmental certifications as a market and regulatory pressure response using them as legitimacy tools. The consequence is that economic benefits arise only when firms integrate EMS into their core operational logics having a substantive implementation (Boiral, 2011).

Focusing only on the median values, we can observe that the certified firms perceive higher Operating income and EBITDA and their margin are slightly higher. These results are also present if we look at the productivity measure; we can observe that firms implementing environmental management system may correlate with slightly better resource productivity and profitability per employee even if there is no

statistically significant difference. Treacy et al. (2019) and Djekic et al. (2014) note that the initial costs may offset the efficiency benefits in the short term.

The third scenario evaluated is the integrated (12 firms) vs non-integrated firms (18). With this analysis we want to examine if the adoption of multiple certifications and of an integrated management system has direct consequences on firms' performance.

Table 4.14: Economic indicators comparison between Integrated and non-Integrated firms through median values and Mann-Whitney test

	Median Integrated	**Median not Integrated**	**P-value****
Revenues	400 711 829	221 856 300	0,066
EBITDA	29 873 942	14 245 577	**0,019***
Operating Income	14 112 660	6 254 958	0,122
Revenues/Employees	728 398	547 988	0,385
EBITDA/Employees	58 800	30 542	0,122
EBITDA margin	8,905 %	5,903 %	0,133
Operating margin	3,495 %	2,454 %	0,300
CAGR Revenues	5,347 %	5,928 %	0,485
CAGR EBITDA	2,833 %	7,754 %	0,212
CAGR Operating income	2,430 %	13,027%	0,300

*p-value < 0,05 written in bolt

**(95% significance interval)

Again, the Mann-Whitney test does not report statistically significant differences but median values suggest that firms with integrated management systems perform better in terms of profitability and margins: median values for revenues and EBITDA for integrated firms show quite high differences (respectively 400M euro vs 221M euros and 29M euros against 14M euros); also the margins, Operating margin and EBITDA margin maintain the same trend reporting 3,5% vs 2,5% and 8,9% vs 5,9% even if the p-values remain above 0,1. Same situation is also present for the CAGR indicators that show no significant differences, thought integrated firms exhibit more stable growth.

Statistically significance is recorded only in case of EBITDA (p = 0,019) proving that integrated firms do not only report higher median values, but they effectively achieve better performance. Despite the result of the statistical test do not support the hypothesis, considering the small sample size and its variability, the direction of the

medians supports the hypothesis that certified, especially integrated firms, yield better overall performance given the process harmonization, efficiency and synergies. This pattern is aligned with Wiengarten et al. (2017) findings that defined how multi-certification improve both operational and financial performance attributable to complementary effects between quality, environmental and safety management systems. Also, Giacomarra et al. (2016) define higher productivity among multi certified firms in the agrifood industry, supporting integration as capability-building mechanism. Integrated firms face also higher medians for revenues per employees (728 398) and EBITDA per employees (58 800) with respect to non-integrated ones (547 988 and 30 542 respectively). This suggests that integrated companies may be characterized by higher efficiency in resource utilization even if the differences are not statistically significant ($p = 0{,}385$ and $p = 0{,}122$) and this may be reconducted to sample variability. Previous empirical studies underline ambiguous or context-dependent effects of certifications and integration on firm efficiency. Martínez-Costa & Martínez-Lorente (2007) and Psomas & Fotopoulos (2010) report that integrated systems often improve internal process control and reduce inefficiencies but the translation into tangible financial gains depends on organizational maturity and implementation depth; also, Sampaio et al. (2012) underline that is more probable to note benefits in productivity when integration is deeply internalized. Integrated systems show higher median in productivity indicators, but the evidence doesn't support a robust causal relationship.

All Mann-Whitney tests that have been conducted underline that certifications, in isolation, do not guarantee superior short term financial outcomes; however, in case of integrated systems, due to potential synergistic benefits, a consistent positive direction can be found. The higher performance can be derived from the certifications' ability to send credible signals of quality and reliability to stakeholders like customers, financiers and regulators. Ullah (2020) argues that certified firms enjoy better formal financing access and equity capital as certifications reduce information asymmetries. These statistical results reinforce the conceptual understanding that quality and sustainability certifications influence firms' performance through an indirect, dynamic and context-dependent mechanism, what Sampaio et al. (2012) defines as "myth vs reality" of certifications' payoffs. What emerges is that ISO 9001 contributes to the

internal efficiency but there is the necessity of time to translate these benefits into profitability; ISO 14001 makes firms incurring in short term costs but improves long-term legitimacy and process optimization while integrated systems yield synergistic benefits. In this sense, aligning with the international studies, what transpire from this analysis is that certifications do no act as direct financial levers but more as capability building and signalling mechanism.

In conclusion, the empirical results provide limited evidence, and they do not support the *H3* hypothesis in a statistically significant way. While some descriptive differences emerge the Mann Whitney tests applied to the three scenarios do not give statistically significant results expect for the EBITDA and Operating CAGR in ISO 14001 and non ISO 14001 comparison, in contrast with what we would intuitively think that is that certified firms perceive higher gains, and the EBITDA values for the integrated and non integrated.

Chapter 5

CONCLUSIONS

This study has investigated how quality and sustainability certifications impact the business performance in the Italian agrifood sector, with particular attention to the motivational mechanisms that determine certifications adoption. By adopting both qualitative and quantitative approaches, the research provides a comprehensive understanding on the certification processes going from the motivational drivers to the perceived impacts and the associated changes and difficulties of ISO 9001, ISO14001, BRC and IFS which influence firms' strategic behaviour.

This analysis was conducted on primary data collected through a semi-structured questionnaire answered by a sample of 30 large Italians firms operating in the food industry. The survey investigated motivational mechanisms, perceived benefits, difficulties and managerial orientations. The qualitative content analysis of the open question on which are the main motivations to adopt certifications led to identify different motivational logics toward the accreditation process determining the categorization of the firms into 3 archetypes: Operational Excellence Seekers driven by internal motives and seeking process improvement, efficiency and operational benefits, Market Conformists externally driven focusing on customer requests and satisfaction, market access, reputation and legitimacy and Operational Conformists driven by both internal and external motives. The quantitative analysis allowed to identify the underlining patterns of the three archetypes, examining how the different perceived benefits (operational, organizational and external) and difficulties differ among the three clusters and so identifying the link between motivations that determined the certifications adoption and the expected and perceived outcomes. From the statistical tests it emerged that internal motives constitute the differentiating element among the three clusters while external motives did not result in statistically significant difference. In fact, internal motivations such as process improvement,

standardization, continuous improvement are the most influential drivers towards the accreditation process and firms adopting certifications led by improvement orientation perceive higher operational and organizational benefits supporting the hypothesis that motivations influence the perceived outcomes. On the other side, externally motivated firms, that adopt certifications mainly for market requirements compliance, exhibit more symbolic adoption patterns focusing on compliance rather than transformation. Additionally, in comparison to the perceived benefits, difficulties displayed a lower impact even if companies have to face their burden. The research confirms that certification adoption is a complex, multi-dimensional mechanism defined by the interaction between efficiency, legitimacy and reputation logics, technical or regulatory process. Considering the theoretical lenses through which certifications adoption have been interpreted, namely the Resource Based View, Institutional Theory and Signalling Theory, certifications simultaneously act as resources and capabilities that improve process control, organizational learning and continuous improvement, institutional mechanisms that ensure legitimacy and alignment with norms, and signals to communicate reliability and trust to external stakeholders. Operational Excellence Seekers, Market Conformists, Excellence Conformists archetypes demonstrate the different certification approaches and the distinct strategic motivational mechanisms: internally oriented firms look for efficiency and control, externally oriented ones pursue legitimacy while hybrid firms integrated both dimensions to achieve long term excellence. While the motivational mechanism and perceived benefits are proven by the empirical findings, the financial performance assessment is still not clear, aligning with the debate in literature; while certifications may enhance process reliability, reputation and trust, direct economic performance remain less evident highlighting the presence of non-financial mediators such as operational efficiency, organizational cohesion on financial gains.

The study confirms that certifications act as technical tools, institutional mechanisms and reputation signals. Certifications value does not stand in the mere certification possession but rather in the companies' ability to internalize and embed standards into their organizational culture and managerial routines, functioning as enablers of performance enhancement as they create structured frameworks for operational

discipline, organizational learning and their effectiveness depends on managerial commitment.

5.1 Managerial implications

It emerges that firms should go beyond compliance and leverage certifications as a tool for organizational learning and differentiation. Regarding this, the study underlines the link between motivations and benefits established through the theoretical lenses. External oriented firms embody the Institutional theory features by adopting certifications to gain legitimacy and market access benefits and exploiting the signal value pursuing reputation and credibility while internal driven companies align with the RBV and dynamic capabilities concepts seeking operational and organizational benefits. These aspects are highlighted by the new classification of firms in archetypes according to their motivational orientations toward certification. By doing so, we introduce the hybrid logic that shapes firms' certification mechanism as both internal and external driven, as it is demonstrated by the majority of firms. Those motives reflect the expected gains firms want to achieve. In this sense, it is confirmed that operational and organizational gains precede economic outcomes; standards implementation does not translate in concrete economic performance.

These results can be of relevance for managers to understand better certifications dynamics. Firms that want to achieve operational and organizational benefits should avoid use certifications as mere compliance and symbolic tools, focusing on the efficient internalization of the standards and the integration of the guidelines into the organizational culture by following continuous improvement programs, training employees and aligning production and quality strategies. Managers seeking external benefits may recognize that certification adoption only for compliance purposes leads to reputational outcomes but with limited internal benefits. Further, certification can serve as a lever to support environmental and quality performance that can led firms to higher competitive advantage in the market.

5.2 Study contributions, limitations and future directions

The present study provides some insights about the relationship between certifications and firms performance in the food sector but it is characterized by several limitations, as well. These limitations do not limit the validity of the findings, but they help

contextualize some choices adopted during the study and the interpretation of the available information, highlighting opportunities for future research.

The data analysis has been performed by adopting a mixed-methods approach, which represents both a strength and a challenge. The qualitative content analysis enriches the study and allows the classification of the companies into the three archetypes. Operational Excellence Seekers, Market Conformists and Excellence Conformists, in accordance with their motivational orientation. The coding process and the subsequent archetypes formation is based on the three established theories, Resource-Based View, Institutional theory and Signalling theory. Despite some studies interpret certifications by connecting them to some features of these theories, they do not systematically explain and link motivational configurations to the perceived outcomes through the theoretical frameworks. This choice adopted in the study can represent a new interesting direction for the evaluation of the results by integrating them according to the three theoretical lenses and creating the motivation-based archetypes which allows to understand how different motivational configurations influence the benefits perceived from certification adoption. Through these theoretical lenses the study enriches the current knowledge demonstrating empirically that the different motivational orientations are associated with different perceived benefits, and their integration explains the outcomes perceived heterogeneity developing a multi-theoretical explanation of hoe certification motives are related to the outcomes. On the other side, this choice is not supported by other studies, so its correctness remains not granted in previous studies.

The content analysis outcome defines a novel motivation-based archetype classification, supported by the theoretical background. Against most studies that classify motivations just in internal and external, this approach allows the hybrid configuration existence, defining that firms are moved by multiple drivers, both internal and external, concerning certifications adoption underlining a more realistic organizational dynamic. Further, the archetypes derived empirically from data allows to position firms within a clearer context which can provide strategies to manage better certifications' mechanisms. However, the coding process that has le to the archetypes definition inevitably involves a degree of interpretative judgement; even if the categories have been derived from the analysis of the theoretical frameworks,

subjectivity is not excluded in the association between quotes and codes. As mentioned by Hsieh & Shannon (2005) qualitative validity depends on transparency and theoretical grounding.

The main limitation of this study stands in the limitedness of the sample size; 30 items is an appropriate number for exploratory research but inevitably weak in statistical generalizability. Regarding this, it was necessary to use non-parametric tests (Mann-Whitney and Kruskall-Wallis). Despite they ensure robustness, they constrain the possibility to detect more nuanced interactions, and the non-statistical significance of tests could be related to the fact that the volume of data analysed is too small. This limitation is consistent with some prior research on the topic, where access to comparable data remain challenging (Boiral, 2011; E. Psomas & Antony, 2017). To better explore this subject and to obtain more in-depth results, future studies should find more powerful strategies to get in touch with the managers of the firms in the sector, expanding the sample scope and being able to catch more information that could be better exploited in a statistical way.

Moreover, this study focuses on the perceived impact of certifications, this means that, except from the economic indicators, the values used for the analysis, also the quantitative ones of the Likert scales, belong to personal judgements. Using self-reported survey data introduces potential subjectivity since managers may emphasize formal compliance or symbolic adoption due to social desirability bias, limitation already reported in some research (Boiral & Amara, 2009). The inclusion of the financial parameters partially mitigates these concerns, but the response subjectivity remains. In addition, even if the use of financial indicators allows to link certifications behaviour to measurable dimensions, they are influenced by multiple exogeneous factors that should be account for such as market volatility, supply chain integration, market growth that can determine different margin comparability outcomes. Even if relative measures are used to mitigate this effect and multi-year averages are used to reflect a more stable economic pattern but not accounting for temporal lags between certification implementation and performance realization, the economic output must be considered inherent to this study and not taken as a general proxy. In this sense future studies should use panel data approaches or propensity score matching to isolate certifications' effects from broader firm-level heterogeneity alongside longitudinal

research to track firms over time, assessing learning curve of certification internalization.

To have a higher robustness and reliability of the results of the content analysis, it should be examined a larger sample of Italian firms operating in the sector. In this case, computer-assisted text analysis can be suited to ensures higher robustness of archetype classification or the construction of proper mathematical clusters. This theoretical framework used for the interpretation of information enables a multidimensional analysis of certification behaviour but introducing conceptual complexity; even if this triangulation reflects the multifaceted nature of certifications the boundaries between internal capability building and external legitimacy mechanism can be blurred.

The presented limitations are not merely methodological constraints but also avenues for theoretical and empirical enrichment. Future studies on the topic should expand the sample size and the temporal depth presenting integrated theoretical lens that bridged internal resources and external legitimacy. The present study aims to understand certifications not as static label but as dynamic mechanisms that shape organizational learning and performance in the agrifood sector (Helfat et al., 2023).

In conclusion, certifications in the food sector represent dynamic instruments of governance and competitiveness. They may foster efficiency, legitimacy and reputation, cornerstones of sustainable business performance, when embedded in the organizations' strategy together with managerial commitment. This study underlines that the true value of certifications lies not in the certification itself but in the organizational transformation they enable, contributing to managerial practice in the evolution of quality and sustainability management. The certification value depends on why firms pursue it and how deeply they integrate the standards.

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Table of Figures

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Acronyms

ISO	International Organization for Standardization
QMS	Quality Management System
TQM	Total Quality Management System
EMS	Environmental Management System
PDCA	Plan-Check-Do-Act
IFS	International Featured Standards
BRCGS	British Retail Consortium Global Standards
FSSC	Food Safety System Certification
HACCP	Hazard Analysis and Critical Control Points
MS	Management System
SDG	Sustainable Development Goals
RBV	Resource Based View
PBV	Practice Based View
EBIT	Earnings Before Interest and Taxes
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
CAGR	Compound Annual Growth Rate

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Appendix

Questionnaire

Questionario:impatto certificazioni di qualità e sostenibilità sulle perfomance aziendali

Il presente questionario rientra nell'ambito della mia ricerca del progetto di tesi che si propone di esplorare come l'adozione delle certificazioni possa influenzare diversi aspetti delle perfomance aziendali, quali operativa, finanziaria, crescita, considerando anche le principali motivazioni e di icoltà.

Sezione 1: Informazioni Generali

Analisi dei principali motivi e determinanti che portano all'adozione delle certificazioni.

1.1 Cosa vi ha spinto a intraprendere il percorso di certificazione?

……

1.2 Considerando i principali motivi per cui vengono adottate le certificazioni, esprimere il grado di accordo su una scala da 1 a 5(1 fortemente in disaccordo, 2 in disaccordo, 3 né in accordo né in disaccordo, 4 in accordo, 5 fortemente in accordo) con le seguenti affermazioni relative ai motivi: - interni

Motivo	1	2	3	4	5
Efficienza produttiva	□	□	□	□	□
Miglioramento qualità	□	□	□	□	□
Incremento vendite	□	□	□	□	□
Miglioramento pratiche operative	□	□	□	□	□
Maggiore trasparenza	□	□	□	□	□

- esterni

Motivo	1	2	3	4	5
Richiesta cliente	□	□	□	□	□
Miglioramento reputazione	□	□	□	□	□
Market share e competitività	□	□	□	□	□
Incremento esportazioni	□	□	□	□	□

Customer satisfaction	□	□	□	□	□
Pressioni da enti governativi	□	□	□	□	□

1.3 Quanto è durato mediamente il processo di ottenimento delle certificazioni?

……

1.4 Quali caratteristiche aziendali si ritiene influenzino di più il processo di ottenimento delle certificazioni?

□ Dimensione (in termini di impiegati)

□ Fatturato

□ Maturità nel settore

□ Stabilimento in business centers

□ Capacità di crescita

□ Livello di R&D

□ Settore

□ Altro (specificare)……

1.5 Che tipo di auditing avete effettuato?

□ Intero

□ Esterno (terze parti)

□ Consumatore

1.6 Ritenete che l'auditor abbia avuto un impatto significativo sull'ottenimento della certificazione?

□ Si

□ No

□ In che modo?.....

Sezione 2: Benefici e difficoltà

Analisi dei possibili benefici che si possono ottenere dalle certificazioni (operativi, organizzativi, finanziari, esterni) e le di icoltà riscontrare nel processo di certificazione.

2.1 Esprimere il grado di accordo con le seguenti a ermazioni relative ai benefici operativi ottenuti grazie alle certificazioni adottate:

Benefici	1	2	3	4	5
Riduzione sprechi e non conformità	□	□	□	□	□
Riduzione costi	□	□	□	□	□
Sistematizzazione/ standardizzazione	□	□	□	□	□
Tracciabilità e visibilità	□	□	□	□	□
Produttività ed effcienza	□	□	□	□	□

2.2 Esprimere il grado di accordo con le seguenti affermazioni relative ai benefici organizzativi ottenuti grazie alle certificazioni adottate:

Benefici	1	2	3	4	5
Comunicazione	□	□	□	□	□
Organizzazione attività	□	□	□	□	□
Miglioramento obiettivi da raggiungere	□	□	□	□	□
Miglioramento cooperazione e partecipazione	□	□	□	□	□
Networking	□	□	□	□	□

2.3 Le certificazioni hanno avuto un impatto sulle performance finanziarie?

□ Si

□ No

2.4Considerando i possibili benefici esterni che le certificazioni possono avere, definire quanto si è d'accordo con i seguenti:

Benefici	1	2	3	4	5
Brand image	□	□	□	□	□
Fedeltà consumatore	□	□	□	□	□
Market access e riduzione barriere	□	□	□	□	□
Aumento esportazioni	□	□	□	□	□
Percezione di una maggiore qualità	□	□	□	□	□
Reputazione	□	□	□	□	□

2.5Esprimere il grado con cui si concorda con le seguenti a ermazioni relative alle di icoltà riscontrate nell'adozione e implementazione delle certificazioni:

Difficoltà	1	2	3	4	5
Burocrazia	□	□	□	□	□
Assenza sostegno enti legislativi	□	□	□	□	□
Lentezza enti certificanti	□	□	□	□	□
Costo certificazioni	□	□	□	□	□
Mancanza formazione	□	□	□	□	□
Resistenza interna	□	□	□	□	□
Competenza auditors	□	□	□	□	□

2.6 Ritenete che il costo della certificazione sia eccessivo rispetto ai benefici ottenuti?

- ☐ Si
- ☐ No
- ☐ Perché?.....

2.7 Il possesso delle certificazioni facilita l'internazionalizzazione della vostra azienda?

- ☐ Si
- ☐ No
- ☐ In che modo

……

2.8 Come comunicate ai consumatori il possesso delle certificazioni?

.....

Sezione 3: Approfondimento

Analisi più dettagliata di alcuni impatti che le certificazioni possono avere, loro conseguenze e pratiche adottate.

3.1 Le certificazioni hanno incentivato l'adozione di nuove tecnologie o il miglioramento della qualità dei processi?

- ☐ Si
- ☐ No

3.2 Quali cambiamenti avete effettuato per garantire gli standard richiesti?

- ☐ Miglioramento delle procedure interne
- ☐ Introduzione di nuove tecnologie
- ☐ Formazione del personale
- ☐ Business practices
- ☐ Nuove risorse
- ☐ Altro

3.3 Come integrate la sostenibilità nella vostra strategia aziendale?

- ☐ Uso di materie prime sostenibili
- ☐ Riduzione degli sprechi
- ☐ Efficientamento energetico

- ☐ Riduzione emissioni
- ☐ Impegno sociale nella comunità
- ☐ Sicurezza e diritti dei dipendenti
- ☐ Green design, green manufacturing, green transportation

3.4 Quali sono i principali motivi per adottare certificazioni di food safety?

- ☐ Richiesta del consumatore
- ☐ Fornire safe food
- ☐ Aumentare competitività nel mercato locale ed estero
- ☐ Innovazione
- ☐ altro

3.5Le certificazioni hanno ridotto le asimmetrie informative e i transaction costs?

- ☐ Si
- ☐ No
- ☐ Se si, che e etti sono stati rilevati?.....

3.6Le certificazioni sono adottate per trasmettere un senso di maggiore qualità ai consumatori sfruttando il loro signaling value?

- ☐ Si
- ☐ No
- ☐ Se si, che conseguenze ci sono state?.....

3.7Le certificazioni hanno migliorato l'accesso ai finanziamenti?

- ☐ Si
- ☐ No
- ☐ In che modo?.....

Ai sensi e per gli etti degli artt. 13 e 23 del D. L.gs. n. 196/2003, acconsento al trattamento dei dati personali secondo le modalità e nei limiti di cui all'informativa allegata