

Quality Management as a Strategic Shift in Challenging Times: Evidence from Ground-Handling Enterprises

Işık Çiçek^{1,*} and Efecan Tezdoğan²

¹Department of Aviation Management, Necmettin Erbakan University, Konya, Turkey. ORCID: 0000-0003-0870-3811. Email: cicekis@yahoo.com

²Department of Aviation Management, Necmettin Erbakan University, Konya, Turkey. ORCID: 0009-0008-0300-269X. Email: efebey_99@hotmail.com

*Corresponding author: cicekis@yahoo.com



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Abstract

This study aims to examine and comparatively evaluate the quality management practices of three Turkish companies holding A-class ground handling service licenses. In response to increasing air transport demand and sectoral liberalization, the research investigates how structured quality management systems contribute to operational reliability, continuous improvement, and sustainable competitive advantage within airport ground handling operations. In the study, adopting a qualitative research design, the data were analyzed using the Maxqda 24.11 program. The findings indicate that A-class ground handling firms uniformly emphasize total quality management (TQM) in their vision-mission frameworks, supported by strong top management commitment and cultural institutionalization of quality. Maintenance and safety dominate technical priorities. However, firms diverge in strategic positioning, operational control architecture, and leveraging quality as a financial and competitive instrument. Managers in high-reliability aviation services should integrate TQM with digital governance to strengthen safety, sustainability, and competitive positioning. The study proposes hybrid high-reliability TQM model integrating digital governance frameworks.

Keywords: quality management; airline; ground-handling; airport; enterprises

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1. Introduction

With the acceleration of technological developments, the service sector, especially in the field of air transportation, has gained strategic importance. In this context, ground services are one of the key elements that ensure the safe, efficient, and uninterrupted execution of airport operations (Ertek & Taşcı, 2025). Ground services encompass a wide range of responsibilities, including passenger and baggage handling, aircraft maintenance activities, and cargo operations, and the effective management of these processes is critically important for operational success and sustainable customer satisfaction (Yelken & Kucuk Yilmaz, 2025). Rising passenger expectations and intense competition have made quality management an indispensable strategic tool in the ground handling sector.

Providing quality service has a direct impact on customer loyalty and the competitiveness of airports (Szabo et al., 2021). Therefore, the provision of consistent, reliable, and high-standard services is considered a strategic necessity in the aviation sector (Bor & Muthoni, 2025). Standards established by the International Air Transport Association (IATA) and the International Civil Aviation Organization (ICAO) provide the fundamental framework for ensuring quality and safety for ground handling companies. Compliance with these standards enhances customer confidence and fosters a culture of operational excellence and quality within the business. Quality management in ground services encompasses multidimensional objectives such as increasing

customer satisfaction, reducing costs, and standardizing operational processes (Türeli et al., 2019). To achieve these goals, process improvement efforts, systematic analysis of customer feedback, employee training, and the integration of technological innovations are widely used. These practices not only enhance service quality but also strengthen safety, reliability, and a customer-focused operational approach.

Technological advancements have become an integral component of quality management in ground services. Automated check-in systems, baggage tracking technologies, and real-time operational monitoring applications optimize processes, reduce error rates, and enhance the effectiveness of service delivery (Wang & Pham, 2020). The timely execution of services, particularly the performance of scheduled departures and arrivals, ranks among the key indicators reflecting the effectiveness of quality management systems. The adoption of a culture of continuous improvement encourages all employees, from top management to field personnel, to actively participate in quality processes (Musa & Isha, 2021). International quality standards, especially quality management systems like ISO 9001, guide aviation ground handling businesses and contribute to raising the level of safety and quality in civil aviation. However, the effectiveness of quality management practices may vary according to the national cultural values of the countries; these values directly influence leadership style, employee participation, and process standardization (Lagrosen, 2002; Vecchi & Brennan, 2009; Vecchi & Brennan, 2011). In the Turkish literature, it is observed that studies on quality management in ground handling companies are limited (Akın & Günay, 2015; Hatipoğlu et al., 2025). This study aims to examine the current state of quality management practices in ground handling companies operating in Turkey, and to identify the challenges faced and improvement opportunities. Additionally, the study offers a unique contribution to the literature as the first inductive qualitative research that comparatively examines Class A ground handling companies.

The study begins with an explanation of legal regulations and administrative responsibilities, followed by the presentation of quality management concepts and the theoretical framework, then covers methodology and findings, and in the conclusion section, it offers practical implications and suggestions for future research.

2. Literature Review

2.1. Duties and Responsibilities of Ground Handling

Air transportation is a holistic system consisting of aircraft used for passenger, cargo, and freight transport, along with the infrastructure, suppliers, and operational components that support these activities (Karavavuz & Gerece, 2025). The safe and efficient operation of the system depends on the coordinated functioning of these elements. In this context, airport ground handling companies stand out as highly organized and institutionalized structures due to their sectoral frameworks. Ground handling activities in Turkey are regulated by the General Directorate of Civil Aviation (SHGM) under SHY-22, prepared based on Article 44 of the Turkish Civil Aviation Law No. 2920 (Erdoğan, 2019). At the international level, ground services encompass all ground operations except air traffic services (ICAO, 2000).

Ground services consist of activities directly related to the aircraft and processes concerning passenger, baggage, and cargo traffic. Aircraft cleaning, energy supply, and loading-unloading operations are aircraft-focused; passenger transfer, traffic management, and terminal processes are traffic-based services. Airline companies can provide these services in-house or procure them from independent firms thru outsourcing (Fuhr, 2007). Relationships are conducted within the framework of the Standard Ground Handling Agreement prepared based on SHY-22 (SHGM, Art. 4; Erdoğan, 2019). According to IATA's classification, ground services are categorized under eight main headings. Under SHY-22, organizations operate with A, B, and C group licenses, and A group companies can use subcontractors for support services (SHY-22, Art. 5; SHGM, Art. 3).

2.2. Quality Management

In a highly competitive environment, businesses are focused on achieving sustainable superiority in their products and services (Musa & Isha, 2021). Especially in manufacturing businesses, recognizing the decisive role of superior quality in creating competitive advantage, are developing methods to ensure the provision of

high-quality products and services (Ma et al., 2025). Quality, although defined as the absence of defects, the degree of excellence, or the capacity to meet customer expectations, is perceived in different ways by stakeholders in the supply chain (Shewfelt, 1999). In the literature, quality is considered as the ability of a product or service to meet customer needs and expectations.

In the design phase, quality is associated with meeting customer requirements and compliance with technical-legal standards; in production, "compliance with specifications" is considered the primary criterion. In the service sector, however, quality requires flexible presentations that adapt to changing needs. Deming defined quality as a customer-focused strategic approach, and this understanding has been internationally accepted (Aggarwal et al., 2019). The historical development of quality consists of the stages of inspection, quality control, quality assurance, and total quality. Quality assurance is a set of planned and systematic activities that ensure products or services meet specified requirements (Chikha & Skorupski, 2022). Total quality management (TQM) is a management philosophy that is based on customer satisfaction, involves the participation of all units, and emphasizes preventing errors and continuous improvement (Ehigie and McAndrew, 2005). Today, quality is considered one of the fundamental tools for sustainable competition.

2.2.1. Quality Management Tools

The tools and techniques used within the framework of TQM contribute to businesses in achieving strategic goals such as increasing customer satisfaction, providing cost advantages, enhancing employee satisfaction, improving financial performance, and developing market share (Senvar & Akburak, 2019). These tools are preferred based on perceived benefits and usage effectiveness. The Just-In-Time (JIT)/Kanban system is a material management approach aimed at ensuring that the necessary materials are available at the right time and place, based on the zero-inventory concept. First implemented by Toyota, this system organizes the production flow using Kanban cards. Benchmarking is a technique that involves analyzing better practices and adapting them to the organization, supporting continuous improvement. Quality circles, on the other hand, are small working groups voluntarily formed to solve quality and productivity problems; their effectiveness depends on equipment support, communication, and motivation (Padrón & Guimaranas, 2019).

The 5S (Sort, Set in Order, Shine, Standardize, Sustain) practice aims to reduce errors and workplace accidents by organizing the work environment. Poka-Yoke is based on identifying points with a high probability of error and developing preventive mechanisms. Quality function deployment (QFD) aims to systematically reflect customer expectations in products and services (Guinta and Praizler, 1993). While Six Sigma reduces error rates thru statistical analyzes, Total productive maintenance (TPM) aims to increase equipment efficiency (Kılıç and Ayvaz, 2016; Çiçek and Şapaloğlu, 2023). Lean production, on the other hand, is based on the principles of eliminating waste and continuous improvement (Ağın, 2020; Karam et al., 2018).

2.2.2. Certification of Quality Systems

Published by ISO in 1987, the ISO 9000 quality assurance standards provide a framework for organizations to certify their quality management systems and fulfill their commercial obligations. The standard envisions the establishment of a quality management and quality assurance system as a management model that guides the achievement of total quality understanding and provides advantages in production and process control (Aleksandrov et al., 2022). The ISO 9000 series is a holistic model for establishing new systems and evaluating existing ones; it aims to integrate quality into production and ensure its continuity. Certification demonstrates a quality system with international validity. With ISO 9001:2000, the approach has transformed into a comprehensive management system.

2.2.3. Examples of Some Quality Standards

ISO 9001 establishes the framework for implementing and sustaining a quality management system. ISO 14001 provides guidance for managing and improving environmental performance, while ISO 45001 sets requirements for enhancing occupational health and safety practices. ISO 27001 defines standards for protecting information assets through an information security management system. Hazard Analysis and

Critical Control Points (HACCP) ensures systematic identification and control of food safety hazards in production processes. AS9100 specifies quality management system requirements tailored to the aerospace and defense industries, addressing sector-specific regulatory and operational demands.

2.3. Quality Management in Aviation Sector

Civil aviation is an increasingly complex strategic sector, and the intense interaction among stakeholders necessitates quality management (Mansouri et al., 2026). Quality management is a holistic approach based on standards and systematic processes aimed at ensuring safe, efficient, and sustainable air transportation (İnce, 2008). Systems like ISO 9001 support the standardization and continuous improvement of processes. Audits and SMS applications enable the identification of risks and the resolution of security vulnerabilities; training and certification enhance employee competence (Uysal and Aydemir, 2014). Maintenance, risk management, and feedback mechanisms enhance quality performance (Kiracı & Bayrak, 2014; Mehra & Ranganathan, 2008).

2.3.1. Application of ISO 9001 Standard in Civil Aviation

The implementation of ISO 9001 in civil aviation begins with the determination of the scope of the quality management system; the organization must clarify which processes fall within the scope of the standard (Ugboro and Obeng, 2000). After the ISO 9001-compliant system is established, the certification process is initiated thru audits conducted by independent organizations. The standard is based on TQM principles and continuous improvement; regular review of processes and monitoring of performance are necessary (Marion et al., 2022). ISO 9001:2015 mandates the identification and control of risks by adopting a risk-based thinking approach. Document and record control, employee training, measurement of customer satisfaction, internal audits, and corrective actions are the fundamental elements of the system. ISO 9001 provides a framework for the establishment of a quality management system and compliance with international standards. In Turkey, the SHGM implements a quality management system under SHT 121.23 in accordance with ICAO regulations. In addition to the ICAO framework, the AS9100 standard, which certifies the quality of products and components, is an adaptation of the ISO 9001 requirements for the aviation sector.

2.3.2. Integrated Management System and Quality in Civil Aviation

The civil aviation sector has a multidimensional and regulation-based structure subject to high levels of safety and quality requirements. In this context, integrated management systems (IMS) offer a holistic management approach that supports airlines, airports, and related organizations in complying with international standards in areas such as quality, safety, environment, and occupational health. IMS practices contribute to the provision of safe, effective, and sustainable services in the industry. In civil aviation, quality and IMS play a critical role in enhancing organizational effectiveness, reducing risks, increasing customer satisfaction, and supporting long-term success. These systems integrate international standards such as ISO 9001, ISO 14001, and ISO 45001 under a single framework, allowing businesses to manage their processes in a more systematic and efficient manner (Boymul and Özeltürkay, 2017). Among the key components of the IMS are safety and quality management, regulatory compliance and certification, risk management, and continuous improvement. Aviation businesses can effectively manage operational risks by identifying them thru the IMS, and they can increase their efficiency by regularly reviewing their processes. Additionally, the management of stakeholder relationships, employee training, and the development of competencies provide significant gains in terms of establishing a safety culture. In addition, the dimensions of environmental sustainability and social responsibility are also addressed within the scope of the IMS; efforts are supported to reduce environmental impacts and integrate social responsibilities into processes. In this respect, the IMS serves as a strategic management tool for civil aviation enterprises.

2.3.3. A Combination of Safety and Quality

The integrated approach to security and quality plays a critical role in the sustainable success of organizations in all sectors, especially in civil aviation. This integration offers multifaceted benefits such as the provision of reliable and quality service, the establishment of customer trust, the maintenance of business continuity, and

the achievement of a competitive advantage (Uysal, 2013). Security and quality practices enhance customer satisfaction, strengthen corporate trust, and also contribute to the early identification and effective management of risks. However, this approach supports long-term customer loyalty by enhancing the reputation and brand value of organizations (Cua et al., 2001; Boymul and Özeltürkay, 2017). Achieving operational excellence, reducing errors, and efficiently utilizing resources are also among the important outcomes of safety and quality standards. Additionally, these systems that enhance employee safety and motivation facilitate compliance with legal regulations and promote a culture of continuous improvement (Das et al., 2008; Boymul and Özeltürkay, 2017). The integration of safety and quality forms a fundamental structure for organizations to achieve long-term and sustainable success.

2.3.4. Aviation Safety and Compliance with Civil Aviation Authorities

Aviation safety, one of the fundamental components of civil aviation, encompasses a whole set of regulatory standards and procedures. Civil aviation authorities are institutions that establish safety standards and oversee their implementation in order to ensure safety and order in the sector. In this context, the authorities aim to develop safety standards in accordance with international norms, ensuring that airline operators, airports, and other aviation organizations conduct safe operations (Uysal, 2013).

At the international level, ICAO sets global aviation standards, while IATA specifically develops implementation standards for airlines (Boymul and Özeltürkay, 2017). Ensuring safety requires effective collaboration with authorities responsible for regulation, licensing, and inspection processes (Das et al., 2008). In this context, regular safety inspections are conducted, and areas for improvement are identified. Personnel training and certification processes ensure that employees possess the necessary knowledge and competencies. Additionally, aviation businesses are obligated to obtain the necessary licenses and certifications for safe operations. Emergency planning and preparedness for risks are integral components of safety. Since aviation safety has a global nature, international cooperation and coordination play a critical role in enhancing safety levels (Cua et al., 2001; Boymul and Özeltürkay, 2017; Çiçek, 2024).

2.4. Quality Management in Ground-Handling Service

Airport ground handling companies are highly organized structures due to their corporate frameworks within the transportation sector. The multidimensional nature of ground handling operations necessitates a comprehensive evaluation of quality management practices. Since the aviation sector operates continuously, shift work is essential. Passenger services personnel manage the entire process from the passenger's entry into the airport to boarding the plane and exiting after arrival, and compliance with quality standards is of critical importance (İslamoğlu and Yıldırım, 2014).

Ground handling companies are organizations that provide services to airlines, and increasing customer expectations have made service quality a strategic element. The competitive strength of airlines depends on ground services that provide short turnaround times and high service performance (Karakavuz & Gerede, 2025). Especially at passenger contact points, the attitudes and behaviors of the staff directly affect the airline's corporate image.

The effective management of qualified human resources and correct managerial decisions in corporate structures enhance organizational value through quality management. Superior performance in passenger operations, baggage services, and maintenance activities strengthens customer trust and satisfaction, thereby supporting loyalty (Hatipoğlu et al., 2025). The literature emphasizes that quality management is not limited to internal processes but is a fundamental determinant of sustainable competition (Sakdaar, 2024).

3. Methods

The study examined three businesses licensed as Group A (full-service) ground handling service providers by the General Directorate of Civil Aviation in Türkiye: TGS, Havaş, and Çelebi. These companies were selected

because they represent the leading operators in Turkey’s airport ground handling sector, providing comprehensive services including passenger handling, ramp operations, and cargo management.

In the study, a qualitative research method has been adopted. The research design is a "case study." Case study is a methodological approach that involves an in-depth examination of a limited system using multiple data collection methods to gather systematic information about how that system operates and functions. According to Creswell (2007), a case study is a qualitative research approach in which the researcher in-depth examines one or several bounded cases over time using multiple data collection tools (observations, interviews, audiovisual materials, documents, reports), identifying the cases and case-related themes. A case study is a method in which a single case or event is examined in depth over time, data is collected systematically, and what happens in the real environment is observed. Case studies, unlike experimental studies, do not make comparisons; they seek to explore. The researcher tries to define the categories of events and behaviors instead of testing hypotheses or proving relationships. In real life, the use of case studies to explain, describe, and explore events that involve interventions too complex to be explained by experimental or survey methods and are assumed to have causal connections distinguishes it from other studies (Yin, 1984).

An examination was conducted on the quality management approaches adopted by three Class A ground handling companies based on the information shared on their official websites and their activity reports. The data obtained from the document review were subjected to code-category-theme analysis, and an inductive approach was used to reveal how the quality management understanding adopted in the aviation ground services sector is implemented. Maxqda 24.11 software was utilized in the analysis of the data.

4. Results

Based on the airline quality management literature (Gardner, 2004; Sadık, 2018; Blistanova & Irpakova, 2021; Sakdaar, 2024; Rodrigues & Junior, 2025), the study evaluated 16 key criteria to assess the quality management practices of the three ground handling firms under review. These criteria cover strategic, technical, and organizational aspects of quality management, including TQM, maintenance practices, management commitment, employee participation, and integration of quality into corporate culture. The analysis revealed that all three firms consistently emphasize TQM in their vision and mission statements and maintain robust technical and organizational practices, including periodic maintenance, quality subunits, and continuous improvement processes. While firms are aligned in most practices, minor differences were observed in employee participation, use of quality awards, and the degree to which quality is embedded in corporate culture. The criteria and corresponding observations across the firms are summarized in Table 1.

Table 1. Criteria for examining quality management practices in ground handling firms.

No	Quality Management Criterion	Description / Indicators	Observed in Firms (TGS / Havaş / Çelebi)
1	Emphasis on TQM in Vision & Mission	Presence of TQM references in official statements	Yes / Yes / Yes
2	Periodic Maintenance	Pre-flight, daily, weekly, A/B/C, major checks	Implemented / Implemented / Implemented
3	Membership in Quality Associations	ISO, IATA, or other quality associations	Yes / Yes / Yes
4	Quality Awards	Recognitions or certifications received	Yes / No / Yes
5	Quality Subunits	Dedicated quality departments or teams	Yes / Yes / Yes
6	Reduction in Production Costs	Evidence of cost control measures	Observed / Observed / Observed
7	Expected Profit Increase	Minor expected increase in margins	Observed / Observed / Observed
8	Customer Satisfaction	Feedback, surveys, KPIs	High / Moderate / High
9	Quality Assurance Standards	ISO 9001, IATA, internal standards	Yes / Yes / Yes
10	Top Management Support	Involvement in quality initiatives	Strong / Strong / Strong
11	Continuous Improvement	Reduction in errors, cost decreases	Observed / Observed / Observed
12	Teamwork Importance	Collaboration emphasis	High / High / High
13	Priority of Quality	Quality as key operational focus	Yes / Yes / Yes
14	Employee Participation	In decision-making & goal monitoring	Moderate / High / Moderate
15	Quality as Business Strategy	Strategic alignment of quality	Yes / Yes / Yes
16	Integration into Corporate Culture	Cultural institutionalization of quality	Strong / Strong / Moderate

4.1. Analyzing Firm “TGS”

Maxqda outputs are seen in Table 2 and Figure 1, 2, and 3. The tables list words that appear four or more times. According to Figure 1, subunits related to quality in the organizational structure, understanding quality as a fundamental strategy for business management, Top management's support for the quality concept, emphasis on TQM in vision and mission statements, and quality becoming a part of the corporate culture are expressed at most in the quality text for firm TGS. According to Figure 2, 3 and Table 2, the words that appear most frequently in the text are maintenance, quality, and management.

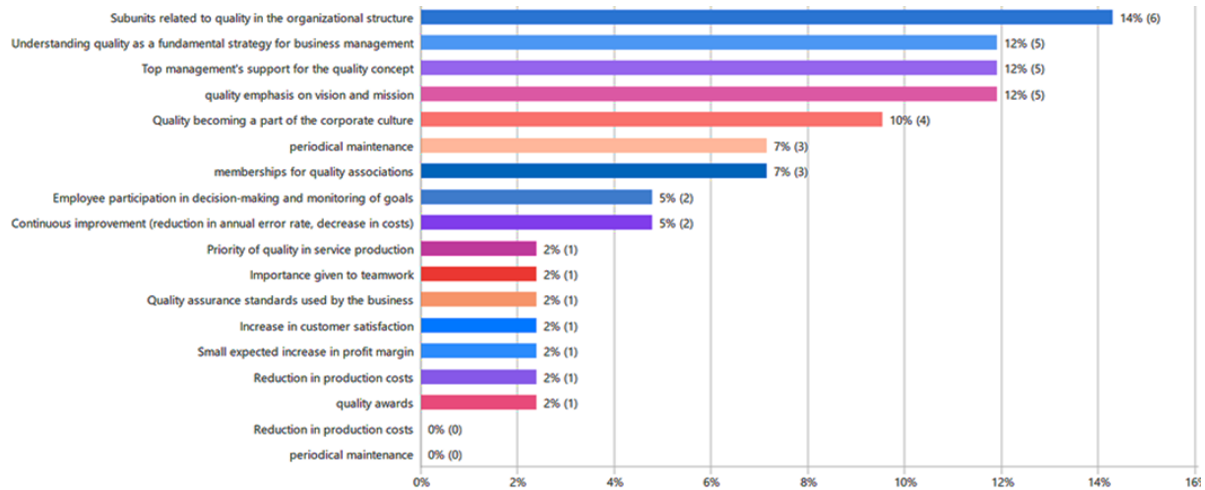


Figure 1. Weight of code statements throughout the text of firm TGS.

Source: Maxqda 24.11 output.

Table 2. Word frequencies in the quality text for Firm “TGS”.

Words	Frequency	Percentage	Degree
maintenance	22	2.44	2
quality	18	2.00	3
management	11	1.22	7
ISO	8	0.89	12
service	8	0.89	12
unit	8	0.89	12
customer	7	0.78	15
ISAGO	7	0.78	15
systems	7	0.78	15
hours	6	0.67	18
operational	6	0.67	18
safety	5	0.56	22
support	5	0.56	22
technical	5	0.56	22
TS	5	0.56	22
continuous	4	0.44	27
culture	4	0.44	27
digital	4	0.44	27
excellence	4	0.44	27
ground	4	0.44	27
IATA	4	0.44	27
optimization	4	0.44	27
organizational	4	0.44	27
performance	4	0.44	27
planning	4	0.44	27
process	4	0.44	27
reduction	4	0.44	27
resource	4	0.44	27
telemetry	4	0.44	27

Source: Maxqda 24.11 output.

4.3. Analyzing Firm “ÇELEBİ”

According to Figure 7, emphasis on TQM in vision and mission statements, understanding quality as a fundamental strategy for business management are expressed at most in the quality text for firm ÇELEBİ. According to Figure 8, 9 and Table 4 the words that appear most frequently in the text are quality, management, maintenance, and service.

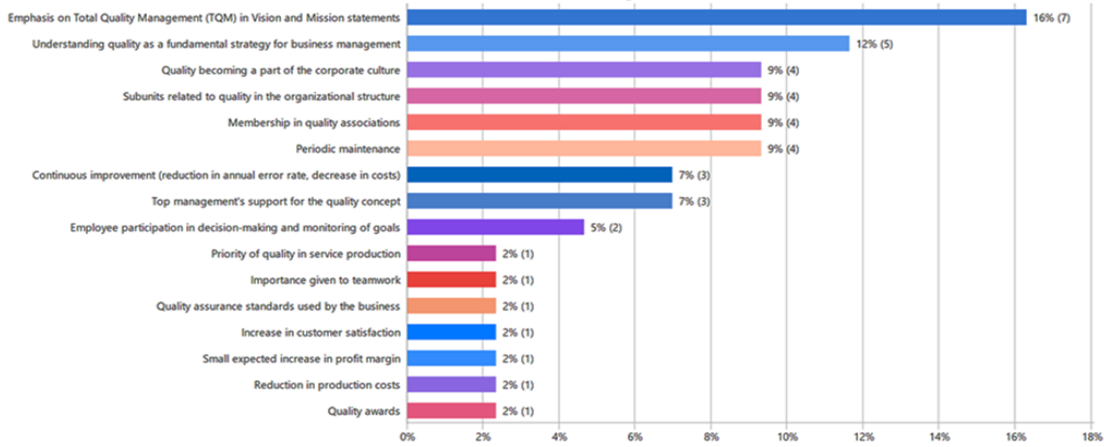


Figure 7. Weight of code statements throughout the text for firm ÇELEBİ.

Source: Maxqda 24.11 output.

Table 4. Word frequencies in the quality text for firm ÇELEBİ.

Word	Frequency	Percentage	Degree
quality	33	2.98	2
management	18	1.62	3
maintenance	17	1.53	4
service	11	0.99	10
operational	10	0.90	12
customer	9	0.81	13
ISO	9	0.81	13
systems	9	0.81	13
continuous	7	0.63	19
culture	7	0.63	19
performance	7	0.63	19
safety	7	0.63	19
standards	7	0.63	19
employee	6	0.54	24
excellence	6	0.54	24
global	6	0.54	24
IATA	6	0.54	24
unit	6	0.54	24
environmental	5	0.45	30
innovation	5	0.45	30
isago	5	0.45	30
mission	5	0.45	30
monitoring	5	0.45	30
reduction	5	0.45	30
satisfaction	5	0.45	30
audit	4	0.36	38
awards	4	0.36	38
certification	4	0.36	38
efficiency	4	0.36	38
GSE	4	0.36	38
improvement	4	0.36	38
international	4	0.36	38
occupational	4	0.36	38
periodic	4	0.36	38
standardization	4	0.36	38
strategic	4	0.36	38
support	4	0.36	38
training	4	0.36	38

operational efficiency and predictive risk mitigation. These differences reflect each firm's strategic interpretation of technology as a facilitator of quality.

5.1.3. Institutionalization of Quality Culture

Each company demonstrates a robust cultural approach to quality. Shared cultural themes include a zero-error mindset, a Just Culture for non-punitive reporting, interdisciplinary collaboration, and academic partnerships for skills development. Distinctions exist in their cultural priorities: TGS institutionalizes perfectionism through auditing excellence, Çelebi integrates global identity and brand transformation into its quality culture, and Havaş empowers employees with a safety-first mindset and operational stop authority. Consequently, TGS emphasizes audit legitimacy, Çelebi prioritizes international coherence, and Havaş fosters safety sovereignty at the employee level.

5.1.4. Employee Participation and Governance

All firms employ systems to encourage participation, including recommendation platforms, KPI dashboards, digital performance oversight, and clear target dissemination. Yet, their approaches differ: TGS prioritizes operational briefings and audit alignment, Çelebi combines international online platforms with executive town halls, and Havaş leverages its H-Idea program for participatory governance.

5.1.5. Quality as a Financial and Competitive Instrument

All three firms reject the notion that quality is inherently expensive. They treat quality as a system to mitigate latent costs—such as aircraft damage, delays, or mishandled baggage—while stabilizing profitability and differentiating their services. Strategic narratives diverge: TGS views quality as a measure of operational reliability for Turkish Airlines and international carriers, Çelebi positions quality as a competency for international service export, and Havaş focuses on cost prevention and enhancing EBITDA margins.

5.2. Cross-Firm Qualitative Analysis

5.2.1. Strategic Quality Orientation

All three companies embed quality into core strategy rather than confining it to compliance departments. TGS applies a compliance-oriented excellence framework using ISAGO as legitimacy capital. Çelebi adopts a globalization strategy emphasizing standardization, whereas Havaş implements a preventive efficiency model grounded in cost rationalization. This highlights three distinct quality approaches in ground handling: Audit-Focused Excellence (TGS), Global Standardization Strategy (Çelebi), and Risk-Optimized Efficiency (Havaş).

5.2.2. Technological Embeddedness of Quality

Digitalization underpins quality operations across all firms. Telemetry systems reduce aircraft damage, predictive maintenance minimizes operational interruptions, KPI dashboards enhance transparency, and paperless processes improve traceability. Technology functions as a structural enforcer of quality discipline, reducing reliance on discretionary human compliance.

5.2.3. Cultural Internalization and Organizational Identity

Each organization institutionalizes quality through formal training, policies supporting a Just Culture, collective incentive systems, and disseminated safety narratives. However, the symbolic anchors of cultural authority differ: TGS emphasizes audit success, Çelebi prioritizes global brand identity, and Havaş emphasizes safety empowerment and operational stop authority. These differences suggest that quality culture can be validated through multiple mechanisms: audit legitimacy, organizational identification, or safety sovereignty.

5.2.4. Preventive Governance and Risk Logic

A consistent cross-firm pattern is the shift from reactive correction to preventive governance. Firms employ predictive maintenance, collision-avoidance sensors, lean process reconfiguration, and digital monitoring. Prevention is viewed as a mechanism to safeguard profitability, confirming the relevance of cost-of-poor-quality principles in aviation service management.

5.3. Implications, Limitations and Future Research Directions

The findings demonstrate that TQM is deeply embedded in vision and mission statements, supported by top management, and integrated into corporate culture. Maintenance and safety dominate technical priorities. Differences among firms emerge in strategic positioning, maintenance and operational control architecture, cultural institutionalization, and the use of quality as a financial and competitive instrument. Conversely, firms share a similar understanding of technology-driven quality and preventive governance. These insights illustrate characteristics of high-reliability service businesses in aviation, where TQM principles are combined with digital governance frameworks to align safety, sustainability, and financial performance. Formal training and certification regimes are increasingly leveraged as strategic market signals, rather than mere compliance mechanisms. This study analyzed three Group A ground handling companies in Türkiye. It assumes that all quality management practices are accurately and fully reflected in publicly available documents and websites. As such, the study may not capture unreported or informal practices, and the small sample size limits generalizability.

Future studies should explore the impact of AI, predictive safety systems, and advanced technologies on ground handling quality. A mixed-methods approach combining document analysis with quantitative performance indicators—such as safety events, audit scores, or operational KPIs—would strengthen validity. Longitudinal research could investigate causal relationships between quality targets and contracted airline service times. Additional research could evaluate the effectiveness of tools such as Six Sigma, Lean, 5S, and Poka-Yoke in ground handling, and examine the role of employee engagement in sustaining high-quality standards. Comparative analyses between TQM and BPR frameworks, as well as the influence of ground handling quality practices on airline performance, are also recommended.

6. Conclusion

This study investigated the quality management practices of three full-service ground handling firms in Türkiye, highlighting how TQM is embedded in their strategic, technical, and cultural operations. All firms demonstrate strong top management commitment, institutionalize quality as part of corporate culture, and prioritize maintenance and safety as core technical elements. Differences among the firms emerge in their strategic positioning of quality, maintenance and operational control architectures, the institutionalization of quality culture, and the use of quality as a financial and competitive tool. TGS emphasizes audit-focused operational excellence, Çelebi focuses on global standardization and customer-centric integration, while Havaş highlights preventive risk management and operational efficiency. Across firms, digital technologies and preventive governance are leveraged to reduce errors, optimize operations, and support high-reliability performance. The findings indicate that quality management in aviation ground handling functions as both a strategic and operational enabler, integrating safety, sustainability, and financial performance. Formal training programs and certification regimes are increasingly utilized not merely for compliance, but as strategic market signals to enhance competitive advantage. This study contributes a comparative framework for understanding how TQM and digital governance intersect in high-reliability service contexts, providing insights for both scholars and practitioners aiming to improve operational reliability and organizational performance in the aviation sector.

Author Contributions:

Conceptualization: Işık Çiçek, EfcanTezdoğan.

Data curation: Işık Çiçek, EfcanTezdoğan.

Formal analysis: Işık Çiçek.
Funding acquisition: Işık Çiçek, Efecan Tezdoğan.
Investigation: Işık Çiçek.
Methodology: Işık Çiçek.
Project administration: Işık Çiçek.
Resources: Işık Çiçek.
Software: Işık Çiçek.
Visualization: Işık Çiçek.
Writing – original draft: Işık Çiçek.
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