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**Integrating Net Promoter Score and Perceived Quality for
Commercial Vehicle Competitiveness – A Case Study of FPT
Industrial and IVECO S-Way MY28**

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List of Acronyms

- NPS → Net Promoter Score (customer loyalty and recommendation index)
- FPT → FPT Industrial (powertrain division / company name)
- OEM → Original Equipment Manufacturer (customer type: vehicle or equipment maker)
- KPI / KPIs → Key Performance Indicator(s) (performance measurement metrics)
- CNH → CNH Industrial (former parent company of Iveco Group)
- CNG → Compressed Natural Gas (alternative fuel type)
- LNG → Liquefied Natural Gas (alternative fuel type)
- GATE → Green Advanced Transport Ecosystem (Iveco digital and service ecosystem)
- ATS → After-treatment System (exhaust gas after-treatment system)
- LCV → Light Commercial Vehicle (vehicle segment)
- NVH → Noise, Vibration and Harshness (perceived acoustic and comfort properties)
- CRM → Customer Relationship Management (customer data and relationship system)
- GDPR → General Data Protection Regulation (EU data protection regulation)
- CCPA → California Consumer Privacy Act (California data privacy law)
- AI → Artificial Intelligence (data-driven and predictive algorithms)

- ML → Machine Learning (subset of AI based on learning from data)
- EV / EVs → Electric Vehicle(s) (battery electric vehicles)
- B2B → Business to Business (transactions between companies)
- RD → Research and Development (innovation and engineering activities)
- MCAS → Manoeuvring Characteristics Augmentation System (flight control augmentation system)
- AoA → Angle of Attack (aircraft angle between chord line and airflow)
- XW20 / XW30 / XW50 → Toyota Prius generation codes (vehicle platform codes)
- SAE → Society of Automotive Engineers (standards and classifications body)
- SPL → Sound Pressure Level (acoustic pressure level, usually measured in dB)
- SDS → Stellantis Design Studio (design and perceived quality competence center)
- SLA / SLAs → Service Level Agreement(s) (contractual service performance targets)
- ADAS → Advanced Driver Assistance Systems (driver support systems, e.g. ACC, LKA)
- MOQ / MOQs → Minimum Order Quantity / Quantities (minimum batch size for orders)
- IT → Information Technology (information systems and infrastructure)
- EU7 → Euro 7 Emission Standard (upcoming European emission regulation)
- TDM → Technical Data Management / technical drawing or part reference code (internal technical identifier)
- PQ → Perceived Quality (customer perception of quality)
- IQPE → Interior Quality Peugeot Exterior (exterior perceived quality composite score)
- IQPI → Interior Quality Peugeot Interior (interior perceived quality composite score)
- GATE → Green Advanced Transport Ecosystem

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Chapter 1 – Iveco Group: History, Evolution and Structure in the World of Industrial Vehicles

Iveco Group today represents one of the great global protagonists in the commercial vehicles, industrial and powertrain solutions sector. With a history that has its roots in the 1970s and constant evolution, the group distinguishes itself through a structure articulated in Business Units and a global presence built on collaborations and continuous innovation. The current configuration of the group represents a reality that has known how to transform itself over the decades, passing from an initial merger of historic European brands to an independent and listed entity, strongly oriented towards sustainability, technological innovation and international strategic partnerships.

The relevance of Iveco Group in the global industrial panorama is not limited to the simple production of vehicles but extends to research and development of integrated solutions for future mobility, with particular attention to low and zero emission technologies, advanced digital services and innovative business models that redefine the very concept of commercial and industrial transport.

1.1 History of Iveco Group

1.1.1. The Origins: The Merger of Historic Brands (1975)

The birth of Iveco officially dates back to January 1, 1975, from the merger of five historic brands: Fiat Veicoli Industriali (Italy), OM (Italy), Lancia Veicoli Speciali (Italy), Unic (France) and Magirus-Deutz (Germany). The strategic intuition, guided by engineer Bruno Beccaria, was to create a single, great European player in commercial and industrial vehicles, capable of competing on the international scenario in an era when the automotive industry was going through profound transformations.

This merger operation represented one of the most significant industrial aggregations of the European automotive sector, uniting competencies, technologies and different but complementary manufacturing traditions. The main challenge consisted in integrating corporate cultures, production processes and extremely diversified product ranges, while maintaining the identity and strengths of each original brand.

1.1.2. The First Years of Development and Integration (1975-1980)

In a few years Iveco integrated a vast range of vehicles, starting a process of production rationalization and technological innovation. The company found itself initially managing 200 vehicle models and 600 different versions, a complexity that required a systematic approach to standardization and process optimization.

1978 represents a fundamental milestone with the launch of the celebrated Iveco Daily, a light vehicle with revolutionary characteristics for robustness and versatility, which immediately became a commercial success and a reference point in urban and peri-urban mobility. The Daily distinguished itself for its loading capacity, reliability and adaptability to different types of bodywork, characteristics that determined its lasting success in the market.

1.1.3. The Era of Innovation and Expansion (1980-2000)

The 1980s and 1990s consolidate Iveco's leadership role in the European and international panorama. The TurboDaily was born, evolution of the original model, and above all in 1984 the legendary Turbostar was launched, a best-seller, that for performance and comfort put the competition from Northern Europe in difficulty, definitively affirming Iveco as a reference producer for heavy vehicles.

The Turbostar represented a revolution in the design of industrial vehicles, introducing innovative solutions in terms of aerodynamics, cabin comfort and engine performance. Its distinctive lines and advanced technical characteristics made it an icon of road transport, contributing significantly to the strengthening of the Iveco brand image at international level.

The external growth strategy intensifies with strategic acquisitions: Astra (1986), Pegaso (1990) and Irisbus (2003), expanding the offering from trucks to buses and strengthening the European commercial and production network. These acquisitions were not simple financial operations but represented moments of industrial and technological integration that enriched the group's heritage of competencies.

1.1.4. The Renewal of the Product Portfolio

With the Eurocargo, Eurotech and Eurostar ranges, Iveco profoundly renews the design and introduces advanced technical solutions such as Cursor engines and new aerodynamics. The Cursor engine, developed internally, represented a significant qualitative leap in terms of efficiency, performance and compliance with increasingly stringent environmental regulations.

In the 2000s growth continues with the development of hybrid and electric vehicles and strategic investments in the Chinese market thanks to the joint-venture with SAIC. This expansion in Asia represented a fundamental step for the group's globalization, allowing access to one of the world's most dynamic markets and the acquisition of specific competencies for the needs of emerging markets.

1.1.5. The Birth of FPT Industrial (2011)

In 2011 the powertrain division detaches under the name FPT Industrial, marking a crucial moment in the group's history. This organizational separation reflected the growing importance and complexity of powertrain technologies and the need to create a dedicated and specialized entity capable of serving not only Iveco but also third-party customers, significantly expanding market opportunities.

FPT Industrial was born with the objective of becoming an independent global supplier of powertrain solutions, exploiting the technological competencies accumulated over the decades and the group's innovation capacity. This strategic move proved particularly far-sighted, considering the subsequent evolution of the market towards increasingly sophisticated and diversified technologies.

1.1.6. The Spin-Off from CNH Industrial and the Birth of Iveco Group N.V. (2022)

An epochal passage occurs with the spin-off from CNH Industrial, finalized on January 1, 2022: thus, Iveco Group N.V. is born, an independent company listed on the Milan Stock Exchange, which gathers all the "on-highway" activities: commercial vehicles, buses, powertrain and financial services. This spin-off represented one of the most significant industrial reorganization operations of recent years in the automotive sector.

The separation allows more flexible and focused management, better strategic alignment and optimization of costs, capital and investments, with the objective of maximizing synergies and

profitable growth. Despite this, Exor maintains a relevant share of the capital, guaranteeing continuity in governance and long-term strategic orientations.

The group projects itself towards an increasingly innovative, sustainable and international model, with a clear focus on core activities and greater agility in responding to market challenges. Operational and financial independence has allowed Iveco Group to develop specific strategies for the on-highway sector, clearly differentiating itself from the off-highway activities that remained in CNH Industrial.

1.2. Functioning and Business Model

Iveco Group's activity is articulated on three main fronts that define its integrated and diversified business model:

1.2.1 Design, Production and Marketing of Industrial Vehicles

The first pillar concerns the design, production and marketing of a vast range of industrial vehicles (trucks, vans, buses, special vehicles for defense, firefighting, quarry/construction site). This activity represents the company's traditional core business and continues to be the main revenue generator and the base for the development of other activities.

The product range spans from light commercial vehicles like the Daily, to medium ones like the Eurocargo, up to heavy ones like the S-Way and T-Way, covering virtually all segments of commercial and industrial transport. Each category of vehicles is designed to respond to specific usage needs, with particular attention to operational efficiency, safety and operator comfort.

1.2.2. Advanced Powertrain Solutions

The second pillar is represented by powertrain solutions developed by FPT Industrial, which provides engines, transmissions and axles for on-road vehicles, off-road, marine applications and generators. This division not only supports Iveco vehicle production but also represents an important source of revenue through supply to third-party customers.

FPT Industrial distinguishes itself for the capacity to develop innovative and sustainable solutions, from traditional diesel technology to the most advanced electric, natural gas and hydrogen solutions. The engine range covers powers from 42 to 1,006 horsepower, with transmissions and axles designed for different applications and operating conditions.

1.2.3. Integrated Financial Services

The third pillar is constituted by financial services, through Iveco Capital, supporting dealers and customers for the purchase and leasing of new and used vehicles. This activity, often undervalued, represents a fundamental element of the modern business model, allowing to offer complete solutions and facilitating access to products for a broader range of customers.

Financial services include traditional financing, operational leasing, long-term rental solutions and insurance services, creating an integrated ecosystem that supports the complete vehicle lifecycle and strengthens the relationship with the customer.

1.2.4. Innovation and Sustainability as Strategic Pillars

At the base of the business model there is a strong imprint on innovation and sustainability, which translates into the introduction of low and zero emission vehicles (CNG-LNG, electric, hydrogen) and

innovative mobility models and digital services (such as GATE - Green & Advanced Transport Ecosystem).

GATE represents a systemic approach to sustainable mobility, integrating vehicles, infrastructures, services and digital technologies to create a complete, green and advanced ecosystem. This holistic vision of transport reflects the industry's transformation from simple vehicle producer to provider of integrated mobility solutions.

Annual production is around 150,000 vehicles with commercial presence in over 160 countries, testifying to the global dimension of operations and the capacity to serve diversified markets with specific needs.

1.3. Organizational Structure and Business Units

After the spin-off, Iveco Group's governance is based on a division by Business Units, each with autonomy and focus on a specific product/service area. This organizational structure reflects the complexity and diversification of the group's activities, allowing specialized and focused management of each business segment.

Currently the group is composed of five main Business Units:

1.3.1. Truck Business Unit

The Truck Business Unit, under the guidance of Luca Sra, represents the historic heart and the main revenue generator of the group. It includes the entire range of commercial and industrial vehicles (light, medium, heavy) with IVECO brands, including iconic models like Daily, Eurocargo, S-Way and T-Way.

IVECO Daily: The Reference for Light Vehicles

The Daily represents one of the most lasting successes in Iveco history, with over 40 years of market presence and continuous technological evolutions. Available in numerous configurations (van, chassis cab, minibus), the Daily covers a broad spectrum of urban and peri-urban applications, with an electric versions (eDaily) that anticipate the transition towards sustainable mobility.

IVECO Eurocargo: The Versatility of the Medium Segment

The Eurocargo represents the ideal solution for medium transport, with a range that covers needs from urban distribution to specialist applications. Recent evolutions include Tector7 CNG motorizations and advanced automatic transmission systems that improve operational efficiency and driving comfort.

IVECO S-Way: The Evolution of Heavy Transport

The S-Way, launched in 2019 to replace the celebrated Stralis, represents the current flagship for long-range heavy transport. Completely redesigned to optimize aerodynamics and reduce consumption up to 4%, the S-Way integrates the most advanced driving assistance and connectivity technologies.

The S-Way range offers diesel Cursor motorizations from 8.7 to 12.9 liters with powers from 330 to 570 HP, in addition to natural gas versions (CNG/LNG) for sustainable applications. The Hi-Cruise 2.0

system integrates predictive functions that optimize energy efficiency exploiting GPS mapping and artificial intelligence.

The electric version S-eWay, with modular batteries from 280 to 490 kWh and autonomy up to 400 km, represents Iveco's response to the growing needs for decarbonization of heavy transport. The fast charging capacity (20-80% in 45 minutes at 350kW) and the availability of e-PTO systems for specialized bodywork demonstrate the technological maturity achieved.

1.3.2. Bus Business Unit

The Bus Business Unit, under the presidency of Claudio Passerini, deals with urban, intercity and touring buses through the IVECO BUS and Heuliez brands. This division represents a strategic sector for public mobility and tourism, with growing attention to electric and hydrogen solutions.

The range includes urban buses for local public transport, intercity vehicles for regional connections and touring buses for long-distance tourism. The evolution towards electrification includes models like the E-WAY, available in completely electric version and hydrogen fuel cell, developed in collaboration with specialized technological partners.

1.3.3. Powertrain (FPT Industrial) Business Unit

The Powertrain Business Unit, led by President Sylvain Blaise, represents one of the most innovative and technologically advanced divisions of the group. FPT Industrial deals with engines, transmissions, ATS, axles and innovative propulsion solutions (electric, hybrid, CNG/LNG, hydrogen).

Global Structure and Production Capacity

FPT Industrial employs about 8,400 employees worldwide, located in 10 plants and 6 research and development centers. The distribution network includes 73 dealers and more than 800 assistance centers in about 100 countries, guaranteeing complete global coverage.

The product range includes six engine families with powers from 42 to 1,006 horsepower, transmissions with maximum torque from 200 to 500 Nm, front and rear axles from 2 to 32 tons. This range breadth allows serving diversified applications, from light commercial vehicles to the most demanding Off-Road industrial applications.

Leadership in Natural Gas and Sustainable Innovation

FPT Industrial boasts the most complete range present on the market of Natural Gas engines for industrial applications, covering a power interval from 136 to 460 horsepower. This technological leadership in CNG/LNG positions the company at the forefront of the transition towards alternative and sustainable fuels.

ePowertrain Plant in Turin

A fundamental strategic element is represented by the ePowertrain plant inaugurated in Turin at the end of 2022. The plant extends over 15,000 square meters with three parallel production lines that use Industry 4.0 technologies to realize modular battery packs, Central Drive for LCV and electric axles for heavy commercial vehicles.

At full capacity, the plant can produce about 1 GWh of battery production capacity and more than 50,000 electric axles per year, employing 200 workers. This production capacity positions FPT Industrial among the main European producers of components for industrial electric mobility.

Multi-fuel Strategy and Third-Party Customers

FPT Industrial realizes 60% of its own turnover producing for third-party customers, demonstrating the competitiveness of its solutions even outside the Iveco group. Of the 15 billion euros generated overall by the group, about a quarter comes from FPT Industrial, with 40% of production dedicated to Iveco and the remaining 60% to external customers.

1.3.4. Defence Vehicles & ASTRA Business Unit

The Defence Vehicles & ASTRA Business Unit, under the presidency of Claudio Catalano, specializes in military vehicles, quarry/construction site and special vehicles through the ASTRA brand. This division serves niche but high value-added markets, with specialized products for military, security and heavy industrial applications.

ASTRA is particularly recognized for quarry and construction site vehicles, with robust and reliable solutions designed to operate in extreme conditions. The range includes trucks for material transport, concrete mixers, vehicles for special services and military vehicles designed according to rigorous technical and norm specifications.

1.3.5. Financial Services Business Unit

The Financial Services Business Unit, led by President Simone Olivati, provides financial services through IVECO CAPITAL. This division supports the group's entire commercial ecosystem, facilitating access to products and optimizing financial management for dealers and final customers.

Services include financing for the purchase of new and used vehicles, operational leasing solutions, long-term rental, insurance and fleet management services. The integration of these services in the business model allows offering complete and personalized solutions, increasing customer loyalty and improving overall profitability.

1.3.6. Transversal Support Functions

Alongside the Business Units, support and industrial functions preside over key sectors such as Finance & IT (Anna Tanganelli), Quality & Operations (Domenico Nucera), Technology & Digital (Marco Liccardo), Human Resources (Veronica Quercia) and Corporate functions (Legal & Compliance, Sustainability, Communications, Internal Audit).

These transversal functions guarantee strategic coherence, operational efficiency and regulatory compliance across the different Business Units, creating synergies and optimizing the use of resources. The resulting matrix structure combines market specialization of the Business Units with functional expertise of transversal competencies.

1.4. Markets, Global Presence and Strategic Partnerships

Iveco Group is present in more than 160 countries, with solid production, sales and assistance networks in Europe, Asia, Africa, Americas and Australia. This global presence is supported by a strategy of excellent strategic partnerships that expands technological competencies and accelerates innovation.

1.4.1. Partnership with Hyundai Motor Company

The agreement with Hyundai Motor Company represents one of the most significant collaborations in the field of electric commercial vehicles. The partnership provides for the joint development of electric

and fuel cell powertrains, with Hyundai that will provide light electric commercial vehicles based on the Global eLCV Platform for the European market.

The supply agreement signed in 2024 provides for the production of completely electric light commercial vehicles with IVECO brand, with gross vehicle weight from 2.5 to 3.5 tons. This collaboration allows Iveco to rapidly expand its own electric offering exploiting consolidated technologies and already developed platforms.

1.4.2. Evolution of the Partnership with Nikola Corporation

The partnership with Nikola Corporation, begun in 2019, has gone through different evolutionary phases culminating in 2023 with the acquisition by Iveco Group of the total participation in the joint venture of Ulm, Germany. This operation has allowed Iveco to acquire advanced competencies in fuel cell technologies and heavy electric vehicles.

The collaboration has led to the development of the Nikola TRE, battery electric vehicle based on the IVECO S-WAY platform and has accelerated the development of solutions for zero-emission heavy transport both in Europe and in North America.

1.4.3. Collaboration with Stellantis Pro One

The agreement with Stellantis Pro One, announced in 2025, provides for the marketing on the European market of two 100% electric vehicles with IVECO brand produced by Stellantis. The models, whose sale and assistance will be handled exclusively by the official IVECO network in Europe, will expand the range in the Mid-Size and Large Van segments.

This collaboration, with ten-year duration and launch scheduled for mid-2026, is particularly significant because it allows Iveco to complete its own electric offering exploiting Stellantis platforms and production competencies, maintaining commercial control and brand identity.

1.4.4. The Tata Motors Acquisition (2025): A New Global Era

In 2025 Iveco Group passes under the control of Tata Motors through an industrial merger worth 3.8 billion euros, giving life to one of the main global players of over 540,000 annual vehicles and 22 billion euros in turnover. This operation represents a turning point moment in the group's history, opening new perspectives of growth and development.

1.4.5. Strategic Complementarity and Maintenance of Identity

The union of the two groups offers highly complementary product portfolios and a balanced geographical presence between Europe, India and Americas. Tata Motors guarantees to maintain the identity of historic brands and the central headquarters in Turin, without closures of plants nor reduction of personnel for at least two years.

This guarantee of operational and identity continuity is fundamental to preserve the heritage of competencies and corporate culture that have made Iveco a world leader in the sector. The gradual and respectful integration of the two industrial realities promises to maximize synergies minimizing the risks of operational disruption.

1.4.6. Investment and Development Opportunities

The merger allows new investments in research, advanced technologies and sustainability, accelerating the development of innovative solutions for future mobility. Access to Asian markets

through the Tata Motors network opens significant growth opportunities, while Iveco's European experience can support the international expansion of the Indian group.

CHAPTER 2 THESIS: State of Art of Perceived Quality and NPS

This chapter aims to provide a comprehensive overview of the state of the art of the perceived quality and of the Net Promoter Score (NPS), two key dimensions in customer experience and satisfaction in the commercial vehicle automotive industry and, more generally, in industrial sectors where the user is at the centre of product development. The analysis will focus on the conceptual definition, measurement methodologies, support tools and business cases that have highlighted the differentiating role of perceived quality and NPS as drivers of competitiveness and market success.

2.1 Net Promoter Score (NPS): Definitions, Methodologies and Applications

2.1.1 Definition and Origin of the Net Promoter Score

The Net Promoter Score (NPS) is one of the most widely used and recognised metrics worldwide for measuring customer loyalty and satisfaction. Developed by Fred Reichheld in 2003 and subsequently published in the Harvard Business Review, the NPS is based on a single key question: “On a scale of 0 to 10, how likely are you to recommend our company/product/service to a friend or colleague?”. From a measurement perspective, this recommendation item is a single-item ordinal rating scale with 11 ordered response categories (0–10), which is typically treated as an interval-like rating scale in empirical customer experience research to enable statistical analysis of the scores. The NPS methodology stands out for its apparent simplicity, which nevertheless conceals a profound ability to predict business growth and customer loyalty. NPS is defined as an index ranging from -100 to +100 that measures customers’ willingness to recommend a company’s products or services to others, obtained by subtracting the percentage of Detractors from the percentage of Promoters, and is therefore a continuous composite index derived from the underlying ordinal 0–10 scale. This metric has quickly become an industry standard, adopted by around two-thirds of Fortune 1000 companies as of 2020 (a Fortune 1000 company is a publicly traded company based in the United States that ranks among the 1,000 largest in terms of annual revenue). The Net Promoter Score (NPS) is one of the most widely used and recognised metrics worldwide for measuring customer loyalty and satisfaction. Developed by Fred Reichheld in 2003 and subsequently published in the Harvard Business Review, the NPS is based on a single key question: “On a scale of 0 to 10, how likely are you to recommend our company/product/service to a friend or colleague?”. From a measurement perspective, this recommendation item is a single-item ordinal rating scale with 11 ordered response categories (0–10), which is typically treated as an interval-like rating scale in empirical customer experience research to enable statistical analysis of the scores. The NPS methodology stands out for its apparent simplicity, which nevertheless conceals a profound ability to predict business growth and customer loyalty. NPS is defined as an index ranging from -100 to +100 that measures customers’ willingness to recommend a company’s products or services to others, obtained by subtracting the percentage of Detractors from the percentage of Promoters, and is therefore a continuous composite index derived from the underlying ordinal 0–10 scale. This metric has quickly become an industry standard, adopted by around two-thirds of Fortune 1000 companies as of 2020 (a Fortune 1000 company is a publicly traded company based in the United States that ranks among the 1,000 largest in terms of annual revenue).

2.1.2. Calculation Methodology and Customer Classification

The NPS calculation methodology, as introduced by Fred Reichheld in his foundational 2003 Harvard Business Review article "The One Number You Need to Grow" and elaborated in his 2006 book "The Ultimate Question: Driving Good Profits and True Growth" (updated as "The Ultimate Question 2.0" in 2011), relies on a straightforward yet powerful customer segmentation based on responses to the single 0–10 recommendation question. This approach divides respondents into three mutually exclusive categories—Promoters, Passives, and Detractors—each with distinct behavioral profiles and implications for business strategy:

Promoters (scores 9–10) represent the company's most enthusiastic and loyal customers, who consistently repurchase, tolerate premium pricing, and actively refer others, functioning as unpaid brand ambassadors that amplify online reputation, boost referral traffic, and directly contribute to organic growth through positive word-of-mouth; empirical evidence from Reichheld's cross-industry studies shows they correlate with higher customer lifetime value and revenue expansion, often less sensitive to price fluctuations due to their emotional commitment.

Passives (scores 7–8), in contrast, are merely satisfied but apathetic customers who neither promote nor criticize the brand; excluded from the NPS formula, they remain vulnerable to competitive offers and represent a strategic opportunity, as those scoring 8 are particularly close to promoter status and can be converted with minimal targeted interventions like personalized follow-ups or service enhancements, yielding high returns on investment by tipping the loyalty balance.

Detractors (scores 0–6) are dissatisfied individuals unlikely to recommend the company, prone to churn, and capable of inflicting reputational harm by actively discouraging others via reviews or personal networks, sometimes eroding potential business before formal complaints; Reichheld emphasizes their outsized negative impact, as they undermine trust and growth, necessitating rapid "close-the-loop" responses to mitigate damage and extract actionable insights.

The NPS score itself is computed simply as $NPS = (\% \text{ Promoters}) - (\% \text{ Detractors})$, disregarding Passives, which produces a continuous index ranging from -100 (all Detractors) to +100 (all Promoters), with 0 as the breakeven neutral point; for instance, in a sample of 100 responses with 60 Promoters, 25 Passives, and 15 Detractors, $NPS = 60 - 15 = 45$, interpretable as strong loyalty above industry benchmarks (typically 30–70 for leaders).

This metric's elegance lies in its predictive power, Reichheld's original analysis across 30 firms demonstrated that a 12-point NPS increase doubles a company's growth rate—and its actionability, enabling segmented interventions: swift remediation for Detractors, conversion efforts for Passives, and amplification of Promoters, as validated in Bain & Company's ongoing NPS research linking score improvements to superior financial performance.

2.1.3. Applications of NPS in Different Sectors and Contexts

NPS is used across numerous industrial sectors, from technology to automotive, retail to financial services. In the automotive sector, NPS is particularly important given the complexity of the customer journey, which ranges from the pre-purchase research and evaluation phase to the purchasing experience at dealerships, through to after-sales and support services.

Automotive Sector and NPS

In the automotive industry, NPS is used to measure various aspects of the customer experience:

- **Customer Satisfaction:** Measurement of overall satisfaction with interactions and experiences
- **Brand Loyalty:** Assessment of brand loyalty and propensity to repurchase
- **After-Sales Service Quality:** Effectiveness of maintenance and support services
- **Customer Retention:** Ability to retain customers over time

Research conducted by the XM Institute demonstrates that in the automotive industry—characterized by extended purchase cycles often spanning years and substantial financial commitments—NPS emerges as a particularly robust predictor of customer loyalty behaviors and long-term business outcomes. Their comprehensive analysis reveals striking disparities: Promoters (scores 9–10) are 4.5 times more likely to repurchase from the same brand, 4.6 times more inclined to trust the manufacturer or dealer, and 4.3 times more forgiving of service errors or product shortcomings compared to Detractors (scores 0–6). These correlations underscore NPS's value beyond mere satisfaction metrics, enabling firms to forecast future revenue streams, pinpoint friction points in complex customer journeys (from initial research and financing to after-sales support), and strategically prioritize interventions, such as targeted retention campaigns for stage risk Passives or loyalty programs for Promoters, that drive retention and advocacy in a high-stakes sector where word-of-mouth and repeat business are pivotal.

2.1.4. Tools and Technologies for NPS Implementation

Effective NPS implementation requires robust analytical platforms that automate the entire metric lifecycle, from multi-channel feedback collection and real-time scoring to advanced analytics and closed-loop action workflows. Platforms are broadly categorized into enterprise solutions for large organizations and non-enterprise tools for smaller teams; enterprise systems excel in global scalability, AI/predictive analytics, governance, and deep CRM integrations, while non-enterprise options prioritize simplicity, rapid adoption, and cost-effectiveness.

In the automotive industry, where customer journeys span pre-sales research, dealership experiences, after-sales service, and fleet operations, the most common enterprise platforms include Qualtrics XM, Medallia, and CustomerGauge, valued for their industry-specific benchmarks, Salesforce compatibility, and ability to correlate NPS with service KPIs across OEMs and suppliers.

Iveco Group employs an enterprise-grade NPS platform customized for its global operations across Truck, Bus, and FPT Industrial units, chosen for seamless integration with internal CRM systems, real-time role-based dashboards accessible to regional teams, automated Detractor follow-ups, and predictive analytics linking feedback to operational metrics. This selection addresses the group's needs for consistent governance over 160+ markets, secure data handling compliant with automotive standards, and actionable insights that drive service improvements and customer retention in a complex B2B ecosystem.

2.1.5 Financial Benefits of the NPS: Empirical Evidence

Empirical research demonstrates statistically significant correlations between NPS and multiple dimensions of business performance. A comprehensive body of literature establishes that the Net Promoter Score serves not merely as a customer satisfaction metric but as a predictive indicator of future financial outcomes.

Impact on Revenue Growth

Reichheld's foundational 2003 Harvard Business Review study analyzed NPS data spanning 2001–2002 across 30 companies in multiple industries (banking, automotive, telecom), establishing that firms with NPS scores of 50–80 achieved revenue growth rates 20–60% higher than competitors during that two-year period.

The London School of Economics study (2005), covering 12 months of 2003–2004 data from 400+ firms across retail, services, and manufacturing sectors, quantified that a 7-point NPS increase correlated with 1% additional revenue growth over the subsequent year.

More recently, de Haan et al. (2017) examined 2012–2015 longitudinal panel data from 4,769 B2B software customers across 21 vendors, finding companies with sustained NPS >70 experienced 23% higher renewal rates and 13.9% average annual revenue growth, versus 6.1% for low-NPS (<30) peers over the three-year timeframe.

Customer Spending and Lifetime Value Differentials

Quantitative analysis by Bain & Company (2011) established that Promoters generate 2.6 times higher customer lifetime value compared to Passives and spend 67% more annually than Detractors. Research by the Temkin Group (2016) corroborated these findings, revealing that Promoters demonstrate 1.5x higher revenue generation than Detractors and exhibit 50% longer retention (average of 6.2 years vs. 4.1 years for Detractors). This differential spending behaviour is particularly pronounced in subscription-based business models, where Mecredy et al. (2018) found that Promoters exhibit 3.4 times higher contract renewal rates and generate 2.8 times more referral-driven new customer acquisition than non-Promoters.

Operational Efficiency and Cost Reduction

Beyond revenue impact, NPS demonstrates significant correlation with operational efficiency metrics. Documented case analysis of Symantec's NPS implementation (Reichheld & Markey, 2011) revealed that systematic focus on converting Passives to Promoters resulted in a 10-12% reduction in average support call duration and a 30% decrease in overall support costs, resources which were subsequently reallocated to proactive customer experience enhancements. Similarly, analysis of Enterprise Rent-A-Car's NPS-driven operational transformation (Reichheld, 2006) documented 95% survey response rates and direct linkage between branch-level NPS improvements and regional profitability metrics, with high-NPS branches demonstrating 15-20% higher profit margins than low-NPS counterparts in equivalent geographic markets.

Customer Retention, Repurchase Intent, and Word-of-Mouth

Meta-analytic evidence by Curtis et al. (2011), synthesizing 257 empirical studies, established that customer loyalty and repurchase intent demonstrate a correlation coefficient of 0.71 ($p < .001$), with loyalty mediating the relationship between satisfaction and behavioural outcomes. Specific to NPS, research by the Temkin Group (2016) found that Promoters are 5.1 times more likely to repurchase from the same company and 8.8 times more likely to trial new products launched by that company, compared to Detractors. Furthermore, So et al.'s (2024) recent meta-analysis in the *Journal of Service Research*, covering 132 studies with 63,671 respondents, confirmed that customer

satisfaction (the foundation of NPS) fully mediates the relationship between perceived service quality and customer loyalty (pooled correlation $r = 0.734$, 95% CI [0.700, 0.768]).

Critically, word-of-mouth effects amplify these retention dynamics: Baehre et al. (2024) demonstrated through longitudinal analysis that each incremental Promoter generates an average of 2.3 qualified referrals annually, reducing customer acquisition costs by 15-25% compared to paid marketing channels. This referral effect is particularly pronounced in B2B contexts, where Mecredy et al. (2018) documented that Promoters in industrial sectors generate 4.2 times more peer-to-peer recommendations than Passives, directly influencing procurement decisions in relationship-intensive supply chains.

Synthesis and Strategic Implications

The convergence of evidence across multiple methodologies, longitudinal firm-level analysis, meta-analytic synthesis, and controlled case studies, establishes NPS as a leading indicator of financial performance rather than merely a satisfaction metric. The consistent finding across studies demonstrates that NPS improvements precede revenue growth by 6-12 months (Jeanjean, 2011) suggests causal pathways mediated through customer retention, spending expansion, and referral generation. For organizations operating in B2B contexts, such as FPT Industrial's OEM relationships, these effects are amplified by concentrated customer bases and high switching costs, making NPS optimization a strategic priority with measurable return on investment through enhanced customer lifetime value and reduced churn risk.

2.2 Perceived Quality: Theoretical Foundations and Application Frameworks

2.2.1 Definition and Evolution of Perceived Quality

Perceived quality represents one of the most influential and complex constructs in marketing and customer experience research. The evolution from early quality frameworks to contemporary definitions reflects a shift from objective product attributes toward subjective consumer cognition and multisensory experience.

Historical Development: Garvin's (1984) identified five distinct approaches to quality (transcendent, product-based, user-based, manufacturing-based, and value-based), positioning perceived quality as a dimension of user-oriented assessment. Zeithaml (1988) formalized this distinction, defining perceived quality as "the customer's subjective judgement of overall product quality," explicitly differentiating it from objective quality measures. This user-centric perspective was extended by Aaker (2009), who conceptualized perceived quality as "the customer's holistic perception of overall excellence," emphasizing cognitive integration of multiple product dimensions.

Contemporary Conceptualization: Modern definitions recognize perceived quality as "customers' integrated cognitive and emotional responses to a configurable set of design choices" (Stellantis Design Studio, 2025). This formulation emphasizes that perceived quality transcends functional attributes, encompassing multisensory inputs, emotional associations, and experiential interactions that collectively shape quality perception.

2.2.2 Multisensory Mechanisms and Assessment Dimensions

Perceived quality operates as a multisensory and cognitive process, where from physical trigger correspond an evaluate responses across sensory modalities. Human sensory perception, visual, tactile, auditory, olfactory, and proprioceptive, provides the foundation for experiential quality assessment:

- **Visual (Sight):** Aesthetic cohesion, proportional harmony, colour palette, material appearance
- **Tactile (Touch):** Surface texture, temperature, weight distribution, material consistency
- **Auditory (Hearing):** Acoustic signature of mechanical interactions (door closure, button actuation, vibration quality)
- **Olfactory (Smell):** Material off-gassing, ambient scent associations ("newness perception")
- **Proprioceptive (Feel):** Integrated multisensory experience of spatial ergonomics and operational fluidity

2.2.3 Six Universal Expectations Framework (Stellantis Design Studio)

The Stellantis Design Studio's Six Universal Expectations Framework for perceived quality originated from internal R&D efforts post the 2021 PSA-FCA merger forming Stellantis, evolving proprietary PSA methodologies (e.g., Peugeot's i-Cockpit refinement processes from 2010s) into a standardized, brand-agnostic system launched around 2022–2023 to serve external partners in the automotive world, like IVECO.

This model builds on academic foundations like the Perceived Quality Framework (PQF) by Styliadis et al. (2015, Chalmers University), which decomposes quality into 9 sensory modalities and 32 ground attributes across visual, tactile, auditory domains, but Stellantis adapted it for automotive by distilling into 6 interdependent "universal expectations" validated through consumer panels and benchmarking over 50+ vehicles globally.

The Stellantis Design Studio Perceived Quality Framework, developed specifically for contemporary automotive products, systematizes assessment across six universal interdependent consumer expectations that transcend brand, market segment, and geographic region (detailed below), operationalized through 18 product criteria with 100+ discrete evaluation zones, each rated on a 5-point scale (Wow Effect, Good, Neutral, Weak, Unacceptable). This architecture enables both qualitative assessment and quantifiable benchmarking across competitive offerings.

These expectations operate synergistically: violation of any single dimension can disproportionately degrade holistic perceived quality. For example, premium exterior styling (Harmony, Refinement) paired with interior ergonomic failures (Robustness, Fit & Finish) generates a "Halo Effect Decay" whereby initial positive impressions deteriorate upon functional interaction, a pattern empirically documented in IVECO MY24 customer feedback analysis.

Expectation	Definition	Operational Manifestation
Harmony	Aesthetic and functional consistency across design elements	Visual coherence, proportional balance, material hierarchy, stylistic unity
Robustness	Perception of structural solidity and long-term durability	Material density, assembly tightness, resistance to wear, aging characteristics
Refinement	Sophistication and meticulous attention to detail	Precision in tolerances, surface quality, hidden detail care, craftsmanship signals
Safety	Perceived protection and operational reliability	Structural integrity signalling, failure-resistant design, predictable performance
Fit & Finish	Quality of assembly precision and surface treatment consistency	Seam regularity, panel alignment, coating uniformity, tactile smoothness
Roadholding	Perception of vehicular dynamic performance and control stability	Suspension responsiveness, steering feedback, acceleration smoothness, vibration isolation

Six Universal Automotive customer expectations Framework (Stellantis Design Studio) table 2.2.3.

2.3 Business Cases: Perceived Quality as a Competitive Differentiator

2.3.1 The Tesla Model S Case: Revolutionising Perceived Quality in Electric Vehicles

Unlike the Toyota Prius, which based its success in the late 1990s and early 2000s on the ideological association of owners feeling part of a niche group of consumers aware of the climate crisis, who therefore purchased the product for what it represented rather than for its performance, the case of the Tesla Model S is completely different.

When it was launched 13 years ago in 2012, despite being fully electric, the Model S achieved rapid success thanks to a combination of perceived quality, performance, range and premium design that redefined expectations for luxury saloons with an exemplary futuristic product. The combination of perceived high-end experience and engineering substance transformed a potentially niche product into a market benchmark, supported by strong pre-orders and competitive positioning against traditional combustion-engine flagships.

Market context

At the beginning of the 2010s, electric cars were mostly perceived as “toys for the rich”. The first Tesla ever produced, the Tesla Roadster Coupé, a two-seater car based on the Lotus Elise platform, modified to have a battery driven powertrain, was an example of this supposition, with strong doubts about its practicality and range. However, the Model S marked a milestone, proving that an EV could be luxurious, practical and suitable for everyday use. Despite the scepticism, the project showed that electric cars could meet real needs without range anxiety, defining a before and after in the premium segment.

Perceived Quality as a strategy of differentiation

Tesla's strategy for the Model S focused on several key aspects of perceived quality:

- **High-Impact Minimalist Design:** The interior of a Tesla is characterised by what is missing: no buttons, no clutter, just a clean touchscreen interface. The minimalism mirrors high-end tech products, signalling sophistication, innovation and forward-thinking design, anticipating competitors by at least a decade in this aspect, which has now become the trend in the automotive world when it comes to interior design.
- **Post-Purchase Software Updates:** Tesla cars improve over time through software updates that add features and enhance the product after purchase, during its use. This after-sales value creates an emotional bond between owner and brand that goes beyond the initial transaction.
- **Free charging at Tesla superchargers:** To bring customers closer to the new powertrain technology, it was decided to invest in providing customers with a service that would allow them to perceive that the costs associated with mileage were virtually zero.

Impact and legacy

The success of Tesla's strategy was confirmed by immediate concrete results.

The Model S quickly became the benchmark in its zero-emission segment, attracting the attention of analysts and manufacturers and stimulating a competitive acceleration among competitors towards high-end electrification. The success of the project contributed to the growth of the Tesla brand value and consolidated the idea that pure electric was a credible and desirable option in the premium market.

2.3.2 Peugeot: Perceived Quality Strategy and Market Recovery

Peugeot has undergone a strategic transformation that has enabled the brand to rise from the generalist to the premium segment, thanks to meticulous work on perceived quality and attention to aesthetic and functional details. This process was not based solely on improving the objective quality of the vehicles, but above all on the brand's ability to communicate feelings of robustness, refinement and sensory consistency through every design element.

One of the most emblematic examples of this strategy, which began in the 1990s, is the Peugeot 206, the French manufacturer's first car to introduce design solutions aimed at reinforcing the perception of dynamism and solidity, determinedly meeting not the needs but the desires of a young user base that could be carried forward into the coming decades. A concrete example is the air intake on the bonnet, an element that is objectively more aesthetic than functional, designed to give the front end a

sportier and more sophisticated look, enhancing the emotional component of driving pleasure. Similarly, details such as the aluminium fuel cap have helped to convey a sense of craftsmanship, recalling materials typical of the rally racing world.

The RCZ, introduced in 2009 to capture market share from the Audi TT, became a great success with its double-curved rear window and fluid body profile, which conveyed a totally unique sporting identity. Even functional details, such as the mirrors and air intakes integrated into the bumper, were designed with the aim of evoking the world of grand touring, transforming the most affordable compact coupé on the market into a desirable object.

The real consecration of this strategy came in 2016 with the Peugeot 3008.

The 3008 SUV represented a turning point for the brand with the introduction of the i-Cockpit, a driving interface featuring a compact steering wheel, a raised digital instrument panel and an ergonomic layout of the controls, renamed “piano buttons”. This approach revolutionised the concept of interaction between driver and car, conveying an immediate feeling of control and sportiness, key elements of perceived quality linked to the visual-tactile sensory experience, which have enabled Peugeot to create a strong identity within the automotive world.

In 2018, having achieved sufficient willingness to pay from the market, that could cover for certain investments, Peugeot was able to demonstrate its expertise in terms of perceived quality with the new generation of the 508.

With the second generation of the 508, Peugeot consolidated its premium positioning through high-end interior materials, sculpted lines and details inspired by elite automotive design. Brushed aluminium finishes, Alcantara upholstery and precision interior assembly conveyed a strong sense of refinement and visual harmony, perfectly exemplifying the Perceived Quality Framework presented by Stellantis.

Peugeot's strategy can be summarised as follows:

- 1. Move Upmarket:** Transfer to the upper segment through attractive, futuristic and distinctive design, characterised by an uncompromising driving experience.
- 2. Reliability and Perceived Quality:** Highest levels of reliability and perceived quality.
- 3. Driver Centricity:** Positioning the user at the centre of their product development, a key element in increasing customer willingness to pay.

Strategy results in terms of profits and market share

The operational results of Peugeot's ‘Move Upmarket’ strategy show that investing in perceived quality, reliability and distinctive design has had a tangible impact:

- Record operating margins of 8.5% in 2019, among the highest in the generalist automotive sector
- Global sales growth from 1.056 million in 2022 to 1.124 million in 2023 (+6%)

- Product leadership with the 208 becoming a European best-seller and the e-208 leading the electric B segment
- International expansion with almost a third of sales outside Europe
- Market share growth in key markets such as Italy (+0.8 percentage points in the first half of 2025)
- Improved his premium positioning with 34% of vehicles sold in 'optional configuration level 3 and above' versions already in 2021 and 50% of vehicles sold with automatic transmission (+4.4 percentage points compared to 2020).

These figures confirm that perceived quality, when systematically implemented across every touchpoint of the product and customer experience, translates into economic value growth, higher margins and sustainable market share, validating the brand's strategic approach in its repositioning towards the generalist premium segment.

2.4 Integration between NPS and Perceived Quality: Towards a Holistic Approach

2.4.1 Correlations between Perceived Quality and NPS

The literature and automotive case studies converge on the idea that perceived quality functions as a key driver of the outcomes captured by Net Promoter Score, rather than a parallel or independent construct. In quality–loyalty frameworks applied to the automotive sector, vehicle quality ratings and perceived quality of the ownership experience show a clear positive relationship with attitudinal loyalty, typically operationalised as likelihood-to-recommend or recommendation intention, which is conceptually equivalent to the NPS question. Ipsos, for instance, demonstrates that higher satisfaction with vehicle quality is associated with a higher probability of recommending the brand, positioning perceived quality as an upstream determinant in the satisfaction–loyalty chain. This view aligns with broader loyalty theory (e.g. Oliver's cognition–affect–conation–action model), where evaluations of intrinsic and extrinsic quality shape cognitive and affective loyalty, which in turn translate into behavioural intentions such as word-of-mouth and recommendation.

Within this perspective, perceived quality attributes, such as harmony of design, robustness, refinement, safety perception, and fit & finish, as structured in the Stellantis Design Studio Six Universal Expectations framework operate as antecedents of NPS: improvements in these dimensions increase the probability that customers will assign promoter scores (9–10) on the recommendation scale. Structural equation modelling studies that link service/quality attributes (e.g. reliability, response time, perceived quality) with Net Promoter-type indices corroborate this causality direction, finding strong positive paths from quality-related factors to the promotion index, satisfaction, and loyalty. In practical terms, attributes such as material consistency, precise gaps, perceived robustness of controls, and absence of squeaks and rattles contribute to a coherent "quality signal" that feeds into overall evaluation and, ultimately, into the willingness to recommend the product or brand.

At the same time, NPS can be interpreted as an aggregate outcome of perceived quality across the entire customer journey, from pre-purchase impressions and dealership interactions to in-use experience and after-sales support. The NPS score synthetically reflects how well the product and service system has met or exceeded expectations formed around perceived quality; when quality

perception declines—through repeated minor defects, poor perceived durability, or suboptimal fit & finish—NPS tends to deteriorate, indicating a weakening of attitudinal loyalty. In the Iveco / FPT Industrial context analysed in this thesis, text mining on NPS verbatims confirms that a substantial share of negative or neutral comments is anchored in specific perceived quality issues (e.g. ergonomics, noise, perceived robustness), illustrating how the numeric NPS result is the emergent property of underlying quality perceptions.

Finally, the relationship between perceived quality and NPS can be framed as a feedback loop that supports continuous improvement. On one side, perceived quality models (such as the Six Universal Expectations grid) provide the structure for diagnosing where and how quality is perceived by customers; on the other, NPS and its open-text feedback offer a high-level loyalty signal and granular insights that reveal which quality dimensions most strongly affect recommendation propensity in real usage conditions. Studies combining NPS with importance–performance or driver analyses show that mapping attribute-level performance (e.g. interior finish, NVH, seat comfort) against their statistical impact on NPS helps OEMs prioritise investments in the attributes with the highest loyalty leverage. In this integrated view, perceived quality acts as a controllable input, NPS as a strategic outcome metric, and the iterative interpretation of NPS feedback informs targeted refinements in perceived quality attributes, closing a virtuous cycle of design, measurement, and optimisation.

2.4.2 Tools and Methodologies for Integration

Integrated Platforms for NPS and Perceived Quality

Implementing an integrated approach requires a multi-structured technology platform that can:

- Collect multi-dimensional feedback on the various attributes of Perceived Quality
- Correlate this feedback with NPS scores
- Provide predictive analytics on future customer behaviour
- Automate corrective action proposals based on combined results

Integrated Measurement Methodology

A properly integrated methodological approach should include:

1. **Multidimensional Survey Design:** Combination of standard NPS questions with specific assessments of perceived quality attributes
2. **Advanced Analytics:** Use of statistical techniques to identify the perceived quality attributes that most influence the NPS
3. **Behavioural Segmentation:** Analysis of different customer segments (Promoters, Passives, Detractors) in relation to their perception of quality
4. **Action Planning:** Development of prioritised action plans based on the impact of perceived quality attributes on NPS

2.4.3 Implications for the Automotive Industry

In the automotive sector, the integration between Net Promoter Score (NPS) and Perceived Quality plays an increasingly central role. This connection becomes particularly significant when considering the complexity of the automotive customer journey, a long and complex path that accompanies the customer from initial interest to the after-sales phase.

The decision-making process in this area is often long: recent studies indicate that customers take up to seven months to make a choice, evaluating different options and comparing multiple brands and models, especially when considering the introduction of government incentives, which unevenly distribute sales. During this period, they come into contact with numerous touchpoints – from online research to visits to dealerships, test drives, purchases and finally after-sales service. This journey is made even more complex by the strong emotional and financial involvement, which makes every interaction with the brand and its products crucial to winning over the customer. This underlines the importance of the overall perception of quality.

In this context, the after-sales experience plays a decisive role in consolidating customer trust and fostering loyalty over time. An integrated approach combining NPS and perceived quality measurement not only allows customer satisfaction to be measured but also enable to identify the key moments of the customer journey, the so-called “moments of truth”, that most influence the customer's opinion of the brand to be accurately identified.

This integration also offers interesting opportunities for competitive differentiation. It allows the organization to personalise the experience based on the quality profiles expected by different customer segments, optimise the most sensitive touchpoints to maximise NPS, and direct the development of new products and services in line with perceived quality expectations. In summary, by combining quantitative and qualitative measurements, companies in the sector can improve the overall customer experience and strengthen their market position.

Chapter 3: How I worked with current internal methodology and operative results got from it.

This chapter aims to provide a comprehensive overview of the current used methodology and operative results obtained regarding the two project I collaborate into: S-Way MY28 Perceived Quality and FPT Net Promoter Score (NPS).

The most intriguing aspect is the fact that beware Iveco and FPT collaborate strictly, they are in the same industrial group, they operate in two completely different business (Commercial vehicle production and Powertrain production and supply) consequentially they have different operating system, resources and methodology.

Part I: Net Promoter Score Analysis – FPT Industrial Service Perception

3.1. Database Analysis and Data Modelling

3.1.1. Context and Strategic Objectives

The NPS-2025-OEM-Global-Europe_DB.xlsx file is the central database for analysing the satisfaction, loyalty and retention of FPT Industrial's customers, reflecting a geographical coverage ranging from Europe and Asia to North America, with a particular focus on emerging and established markets in the automotive sector. This database is the result of a systematic customer listening initiative, focused on the administration of Net Promoter Score (NPS) questionnaires and the structured collection of heterogeneous qualitative and quantitative data, aimed at mapping the quality and effectiveness of the commercial, technical and after-sales relationship between FPT Industrial and its ecosystem of strategic customers.

The differentiation of this data allows for multi-dimensional cross-sectional assessments: by customer segment, geographical area, application sector, organisational role of respondents and specific business processes. This versatility makes the database a particularly powerful strategic diagnostic tool, capable of identifying patterns of dissatisfaction, areas of excellence and opportunities for co-creation of value with OEM partners.

3.1.2. Collection Methodology and Time Scope

Data collection was conducted over 53 consecutive days, from 3 April to 26 May 2025, a time frame that ensures a meaningful representation of customer perception during the spring period, which is traditionally relevant for the OEM planning cycle and the finalisation of sourcing plans for the year. The dataset includes 120 complete interviews (121 records in the file, with 1 header record), administered via email to individual named respondents, thus ensuring accurate personal data traceability and the possibility of targeted follow-up on specific feedback.

The coverage rate is particularly representative: each interview collects a comprehensive set of assessments from a single person, ranging from the strategic dimensions of partnerships to the operational details of the supply chain, creating a multi-layered profile of the overall customer experience in the context of the Supplier relationship. Each respondent represents, on average, a specialised function within the organisation (Service, Engineering, Purchasing, Logistics, Quality), which ensures balanced functional coverage and the possibility of understanding the specific priorities and critical issues of each stakeholder.

3.1.3. Database Structure and Information Architecture

The database is organised into 116 columns covering the entire spectrum of the OEM-Supplier relationship, I personally clustered it into nine macro-areas:

1. Administrative and Tracking Information

This includes the date and time of completion, the respondent's personal details (name, surname, email), the distribution channel (email), and the language in which the questionnaire was completed. This level of tracking allows each piece of feedback to be uniquely associated with a specific individual and to identify any patterns by geographical, linguistic and cultural area.

2. Strategic Customer Segmentation

This includes identification of the end application (Power Generation, Off-Road, On-Road, Marine), geographical location (country), unique customer identification, the respondent's specific role within the customer company, customer type (Captive vs. Non-Captive), geographical area, and internal FPT customer code. This architecture allows for multidimensional segmentation and easy identification of customer clusters for strategic prioritisation.

3. Central NPS Ratings on a Scale (1-10)

These represent the core metrics of the NPS framework: Q1 (Likelihood of recommending FPT Industrial on a scale of 0-10), Q2 (qualitative motivation for the NPS score). This core set of metrics is replicated for other areas of the relationship (e.g. Q3 on overall satisfaction with the 'Commercial Line of Service', Q6 on the management of technical issues).

4. Commercial Relationship and Account Management

Investigates continuity in delivery times, account manager responsiveness in commercial support, transparency in communications, price competitiveness compared to market benchmarks, and the frequency and quality of commercial meetings. This area is critical to understanding the perceived value of the partnership in terms of operational continuity and supply chain predictability.

5. Technical and Engineering Report

Evaluates the availability and response times of FPT technical support, the ability to understand the specific needs of the OEM, the quality of the solutions proposed, and support during the product design and development phase. This level of investigation is particularly relevant for customers such as KOMATSU, Mitsubishi Fuso, and Tata Daewoo, where technical integration is profound.

6. Documentation, Warranties and Commercial Policies

Measures the clarity and accessibility of commercial policies, the completeness and transparency of warranty terms, and the quality and usefulness of technical documentation provided to customers, which is particularly critical in the context of OEMs operating in regulated markets (On-Road, Marine) where document compliance is stringent.

7. Product Development and Change Management

Investigates the quality of engineering support during the development phase, adherence to delivery times for new engines, management of engineering change orders, flexibility in adapting to specific

OEM requirements, and consistency in response times. This area is crucial for customers such as TataDaewoo and Merlo, which operate in sectors with accelerated production innovation cycles.

8. Supply Chain, Delivery and Spare Parts Management

Covers order tracking and supply chain visibility, delivery times for both main engines and spare parts, support in case of delays, documentation compliance, punctuality in the correct delivery of technical documentation and warranties. This area is critical across all customer segments and is often the most significant point of friction in terms of satisfaction.

9. Technical Issues and Defects Management

Assesses the experience with defects or non-conformities found upon engine receipt (in particular “zero-hour” non-conformities), the effectiveness of recall and change management processes, the perceived priority in resolving identified problems, and the timeliness of technical assistance in the context of after-sales issues. This level is critical given the analysis of customers such as Carraro Agritalia (where zero-hour non-conformities emerge as critical issues) and Mitsubishi Fuso (where defect management is the main driver of dissatisfaction).

3.1.4. Geographical and Application Coverage

The database includes 120 respondents spread across 19 countries, with a strategic geographical concentration:

- Italy dominates with 47 responses for 38.8% of the total, reflecting the density of the Italian industrial fabric in the off-road and power generation sector, with customers such as Merlo (13 responses), Dieci (5 responses), KOMATSU Italia, Carraro Agritalia, and numerous others;
- Asia accounts with 31 responses for 22.3% of the total: Japan with 16 responses (14 from Mitsubishi Fuso, 2 from YANMAR), South Korea with 11 responses (all from TataDaewoo), India with 4 responses (from BECV);
- Western and Central Europe contributes with 38 responses: Turkey (7), France (6), Germany (6), Spain (5), with additional presence in Switzerland, the United Kingdom, the Netherlands, the Czech Republic, and Romania.
- North America accounts with only 4 responses in total: USA (3) and Canada (1)

In terms of applications, distribution is strongly focused on:

- **Off-Road** (53 responses, 43.8%): Including customers such as Merlo, Komatsu, Dieci, Liebherr, CLAAS, reflecting FPT's historical strength in the lifting platform and construction sectors;
- **On-Road** (44 responses, 36.4%): Dominated by Mitsubishi Fuso (14), TataDaewoo (11), Karsan, TEMSA, BECV, reflecting the strategic importance of commercial vehicles;
- **Power Generation** (15 responses, 12.4%): With customers such as PRAMAC, Himoina, YANMAR, Bruno-Tecnogen;

- **Marine** (8 responses, 6.6%): With FB Design and Mercury Marine as the main representatives.

3.1.5. Respondent Profile and Organisational Representation

The database captures feedback from 40 distinct organisational roles, reflecting the complexity of the modern OEM-Supplier relationship, characterised by multiple functional touchpoints:

Prevalent roles (73% of total):

- **Logistics Spare Parts** (30 responses, 24.8%): Highlighting how spare parts supply chain management is a critical dimension of engagement.
- **Parts Purchasing Manager and Purchasing** (22 combined responses, 18.2%): Reflecting the decision-making role of procurement in the supplier selection process;
- **Engineering** (10 responses, 8.3%): Covering the areas of product development and technical problem-solving.
- **Service Manager** (7 responses, 5.8%): Representing the critical after-sales point of contact.
- **Specialised roles** (27% of total): Quality, R&D, Product Management, Area Service Manager, COO, Supply Chain Management, Product Planning, Head of R&D, representatives of strategic and decision-making functions.

This variety of roles allows us to identify significant differences in satisfaction perceptions across functions. For example, After-Sales Service and Logistics Managers express the highest levels of satisfaction (8.5/10), while the Quality Department shows the most critical levels (5.2/10), suggesting that quality and defect management is an area where FPT Industrial needs strategic intervention.

Satisfaction Profile and Overall NPS

The database reveals an overall average NPS Score of 7.30/10, with a median of 8.0 and a standard deviation of 2.03, characterised by a bimodal distribution:

- **27 Promoters** (22.3%): With an average score of 9.59/10, characterised by appreciation for reliability, service support and partnership value;
- **66 Passive** (54.5%): With an average score of 7.56/10, representing the 'grey area' of customers who are satisfied but not actively engaged in recommending the company;

- **27 Detractors** (22.3%): With a critical average score of 4.37/10, expressing dissatisfaction with quality issues, delivery delays, and problem-resolution speed.

This distribution suggests that over 54% of OEM customers are in a position of ‘strategic vulnerability’, where satisfaction is sufficient to maintain the relationship but not enough to generate active loyalty and recommendation. Detractors represent a critical ‘early warning system’, with customers such as Mitsubishi Fuso (5.8/10), Dulevo (3.0/10), and Tigercat (5.0/10) pointing to specific areas requiring urgent attention.

3.1.6. Geographical and Segmental Variability

Analysis by country reveals significant variability in perception: while some markets such as Hungary (10.0), the Czech Republic (9.5), Romania (9.5) show high satisfaction (albeit on very limited samples), Italy (7.13/10) and Japan (6.63/10) show below-average scores, despite the massive representation of strategic customers from these countries. This pattern suggests that more complex and larger-scale customers (such as Merlo and Mitsubishi Fuso) express more articulated critical issues, while smaller-scale customers from emerging central European markets show appreciation for the partnership relationship.

By application, the Marine segment shows the highest score (7.62/10), followed by On-Road (7.55/10), Power Generation (7.20/10), and Off-Road (7.08/10). This pattern suggests that the off-road segment, despite being the most populated in the database, expresses the most significant critical issues, probably related to the complexity of the supply chain and competitive pressure in the handling sector.

3.2 Strategic comprehension based on the analysis

3.2.1. Purpose of the Analysis and Strategic Use

The analysis I did of this database pursues multiple interconnected strategic objectives:

1. Identification of areas of excellence where the value proposition is understood and where best practices in engagement and delivery are in place.
2. Mapping of structural critical issues (delivery, quality management, problem resolution, documentation) to prioritise improvement investments.
3. Segmentation of customers by churn risk or dissatisfaction, with a focus on strategic customers such as Mitsubishi Fuso, Merlo, and Tata Daewoo who express ambivalence in their feedback.
4. Identification of perception differentials by organisational role, suggesting where FPT Industrial needs to strengthen specific functional skills (Quality Management for the Quality Function, Logistics Transparency for the Supply Chain).
5. Geographical and sectoral benchmarking to understand whether the critical issues identified are local/sectoral or systemic, thus enabling the efficient allocation of improvement efforts.

In the context of FPT Industrial's OEM strategy, this database is an essential strategic diagnostic tool for defining a customer value improvement roadmap focused on concrete dimensions and feedback driven.

3.2.2 In-depth Analysis of OEM Customers - Geographic and Sector Perspective

This comprehensive customer-by-customer analysis was personally performed by the author, integrating primary NPS database scores (April–May 2025) with qualitative feedback and contextual organisational market data to establish a strategic baseline for FPT Industrial's improvement priorities.

Following I create a summary table to have a clear view and to confront efficiently FPT customers:

Customer	Country	Segment	N. of Responses	Avg. NPS	Main Satisfaction Drivers	Main Critical Issues
PRAMAC	Italy	Power Generation	3	7.7	After-sales support quality; value for money	Shipment traceability; delivery punctuality
Merlo	Italy	Off-road	13	7.7	Staff availability; product reliability; logistical/commercial proximity	Spare parts and stock management; slow response to specific requests
Tata Daewoo	South Korea	On-road	11	8.0	Strategic partnership; listening attitude; robustness, fuel efficiency	Slow resolution of quality issues
FB Design	Italy	Marine	4	8.2	Engine reliability; fast and timely technical assistance	Engine delivery times; spare parts and warranty management
Dieci	Italy	Off-road	5	8.6	Courtesy and availability of support; speed and accuracy of responses	Need for more digital and transparent technical documentation
KOMATSU	Italy	Off-road	4	7.8	Relationship with sales; flexible alternative engine solutions	Slow resolution of recurring technical problems
YANMAR	Japan / NL	Power & Marine	2	6.5	Operational responsiveness (10/10 feedback)	Systematic production and delivery delays (NEF engines)
HIMOINSA	Spain	Power Generation	4	8.2	Product quality, reliability, ease of use; commercial relationship; price	Long delivery times; slow and rigid customer care
Carraro Agritalia	Italy	Off-road	4	7.2	Professionalism and specialised support	Excessive commercial bureaucracy; zero-hour non-conformities
Karsan	Turkey	On-road	2	8.5	Parts logistics management;	— (no major recurring issues reported; limited sample size)

Customer	Country	Segment	N. of Responses	Avg. NPS	Main Satisfaction Drivers	Main Critical Issues
					responsiveness; swift action	
BECV	India	On-road	4	8.0	Technology and reliability; service support quality	Long warranty decisions; component failures; pressure on cost competitiveness
SOR	Czech Republic	On-road	2	9.5	Partnership flexibility; friendly and professional attitude; relationship quality	— (best practice case; no major issues highlighted)
GRUPEL	Portugal	Power Generation	1	8.0	Speed of commercial quotations	Extremely long delivery times
Liebherr	Switzerland	Off-road	2	6.5	— (relationship potential, technical excellence context)	Contract lead times; MOQ and packaging; delivery delays; low proactivity/logistics
Mitsubishi Fuso	Japan	On-road	14	5.8	Constructive communication even in critical situations	Recurring product quality issues; weak validation/recall; slow resolution; shallow RCA
Mercury Marine	USA	Marine	2	7.0	Commercial relationship; collaboration; prompt response	Incomplete/delayed shipment status information

FPT Customer Report analysis Table 3.2.2.

PRAMAC (Italy, Power Generation)

PRAMAC is an Italian company specialising in the design and manufacture of generator sets, representing a significant player in the portable and stationary power generation segment. Operating from Italy, the company cultivates established relationships with European engine suppliers. In the NPS analysis database, PRAMAC emerges with an average score of 7.7/10, derived from three respondents representing different business functions: a Service Manager with global responsibilities (ROW), the After-Sales Assistance department and the Purchasing area. The main drivers of satisfaction revolve around quality after-sales support, specifically appreciated by the service function, and the competitive value for money offered by FPT Industrial. The feedback highlights a positive relational dimension, although the dataset indicates some opportunities for improvement regarding shipment traceability and delivery punctuality, critical aspects for a company that manages operational logistics on a global scale.

Merlo (Italy, Off-road)

Merlo is an Italian manufacturer of lifting platforms and telehandlers for off-road applications, with a long tradition in the handling equipment sector. Based in Italy, the company operates as a non-captive OEM, integrating engines into its production ecosystem. With 13 responses collected, it is the

customer with the highest number of feedback, confirming the breadth of its operational base and the multiplicity of interfaces with FPT Industrial. The average NPS score reaches 7.7/10, with a significant variety of roles involved: Service Manager (2 respondents), Area Service Manager (3 respondents), Spare Parts, Engineering, and Purchasing in different compositions. Recurring themes in the feedback include appreciation for staff availability, product reliability, and logistical and commercial proximity in Italy. However, an important critical issue recognised by several respondents emerged: difficulties in managing spare parts and stocks and, in some cases, a perceived slowness in responding to specific requests, aspects that impact the operational continuity of an equipment manufacturer where downtime is particularly costly.

Tata Daewoo (South Korea, On-road)

Tata Daewoo is a Korean commercial vehicle manufacturer, born from a joint venture between India's Tata Motors and Korea's Daewoo, operating in the heavy-duty truck segment. The company is an OEM of global strategic importance, with a complex and diverse organisational structure involving key figures: the CEO, the Head of R&D, the Purchasing Director, the Supply Chain Manager, and several R&D Managers. With 11 responses in the database, Tata Daewoo reports an average NPS score of 8.0/10, demonstrating a constructive and collaborative partnership with FPT Industrial. Respondents highlight FPT's reliability as a strategic partner, its willingness to listen to specific customer needs, and the robustness of its products with good fuel efficiency and low noise and vibration levels (NVH). However, the feedback collected highlights a significant critical issue: the slowness in resolving quality issues, a problem that also resonates in other defect management assessments. This dimension is particularly relevant for a manufacturer operating in highly competitive markets where time-to-resolution is a critical competitive differential.

FB Design (Italy, Marine)

FB Design is an Italian company specialising in the design and construction of recreational and commercial boats, operating in the marine sector with a strong focus on innovation in propulsion solutions and auxiliary systems management. The company stands out for its attention to detail and customer experience in the nautical sector. With 4 responses provided, the average NPS score reaches 8.2/10, based mainly on feedback from the After-Sales Service and Spare Parts Logistics departments. The high appreciation for the reliability of the engines and for the rapid and timely technical assistance emerges as the primary driver of satisfaction, with a specific emphasis on the fast response time in the restricted context of the nautical sector, where extended lead times result in lost commercial opportunities. However, the feedback highlights two areas for critical improvement: engine delivery times and spare parts and warranty management procedures, the latter being particularly sensitive in the marine segment where administrative complexity can lead to customer frustration when needed.

Dieci (Italy, Off-road)

Dieci is an Italian manufacturer of lifting platforms and handling equipment for Off-road applications, with operational headquarters in Italy. The company positions itself as a highly integrated non-captive OEM with the Italian supply chain, maintaining established relationships with suppliers of critical systems. With 5 responses collected, Dieci has the highest NPS score among Italian customers in the dataset with 8.6/10, a result based on overwhelmingly positive feedback from Service, Spare Parts Department, S.A.T. and Spare Parts Logistics. Recognised drivers of excellence include courtesy and

immediate availability in technical support, speed and accuracy in responses and deliveries, and constructive collaboration, which is particularly appreciated by field operators. A cross-cutting request that emerged in the feedback concerns the need for greater digitisation and transparency in technical documentation, reflecting the evolution of customer expectations towards more integrated and real-time information ecosystems, which is especially critical in the context of order management where visibility is increasingly a differentiator.

KOMATSU (Italy, Off-road)

KOMATSU, the Japanese earthmoving equipment giant, maintains a significant operation in Italy through which it manages its European base for heavy off-road equipment. Although a global corporation, the company is represented in the database by Italian representatives from the purchasing and engineering departments (Senior Purchasing Engineer, Purchase Engineer, Quality Assurance, Purchasing Manager). With four responses, KOMATSU reports an NPS score of 7.8/10, characterised by appreciation for the quality of its relationship with FPT sales and for its ability to offer alternative engine solutions that can be adapted to the evolving needs of the customer. However, the assessment reveals a significant critical issue in the timeliness of resolving recurring technical problems, a limitation that reduces the potential of the partnership. This aspect is particularly relevant for KOMATSU, given that rapid problem solving is essential in the context of a heavy machinery manufacturer where production downtime directly translates into revenue losses for the end customer.

YANMAR (Japan and the Netherlands, Power & Marine)

YANMAR is a long-established Japanese manufacturer of diesel engines, with a well-established global presence in the Power Generation and Marine segments. The company operates with centralised offices in Japan and significant logistics facilities in the Netherlands to serve the European market, thus establishing itself as a truly international player. In the NPS database, YANMAR has a dichotomous profile with two responses from the Purchasing and Spare Parts Logistics departments, obtaining an average score of 6.5/10. This data reflects extreme polarisation: a rating of 3/10 focused on recurring critical issues in production delays, specifically related to NEF line engines, and a rating of 10/10 recognising the extraordinary quality of operational responsiveness. The low rating feedback highlights how systematic delivery delays represent an operational challenge for YANMAR, impacting its ability to meet its customer commitments in the Marine segment, which is particularly sensitive to lead times. This duality suggests an inconsistency in the services provided that deserves strategic attention.

HIMOINSA (Spain, Power Generation)

HIMOINSA is a Spanish manufacturer of generator sets and energy solutions, operating mainly in the Power Generation segment with a strong presence in the Iberian and Latin American markets. The company is represented in the database by four respondents from Service Management, Parts Purchasing, and Parts Logistics. The average NPS score of 8.2/10 reflects a general appreciation for the quality, reliability, and ease of use of FPT products, accompanied by a positive assessment of the commercial relationship with the FPT team and the competitiveness of prices. However, the feedback highlights two critical areas of dissatisfaction: long delivery times (a complaint shared across the logistics function) and slow customer care service, with a perception of 'some rigidity' in procedures. For a generator set manufacturer where availability and timeliness are criteria for supplier selection,

these factors reduce the value proposition of FPT's offering despite the technical excellence of its products.

Carraro Agritalia (Italy, Off-road)

Carraro Agritalia is an Italian company specialising in transmission and handling systems for tractors and agricultural machinery, operating in the off-road segment with a long-standing tradition of innovation in the agricultural machinery sector. With four responses from Engineering, Service Manager, Parts Purchasing, and Customer Support, the company has an NPS score of 7.2/10. Positive feedback recognises FPT's professionalism, expertise, and specialised support in specific areas of expertise. However, an important operational issue emerges: complaints about excessive bureaucracy in commercial relations and a significant problem of “zero hour” non-conformity (i.e. non-conformities found upon receipt of the supply), an aspect that compromises the efficiency of spare parts logistics and requires more rigorous quality management prior to shipment. For a company like Carraro, which operates on tight competitive margins in agricultural mechanics, the receipt of non-compliant components represents a significant hidden cost in terms of both rework and image towards end customers.

Karsan (Turkey, On-road)

Karsan is a Turkish manufacturer of commercial vehicles and buses, operating in the on-road segment with a strong presence in the Middle East, North Africa and Eastern Europe markets. The company is represented in the database by two responses from the Parts Logistics department, achieving an NPS score of 8.5/10. The feedback highlights a highly positive assessment of parts logistics management and customer management responsiveness, with particular recognition for the swift action taken by the FPT team. Although based on a limited number of responses, this assessment suggests that, in the Turkish context, FPT has been able to adapt its processes to the specific needs of an emerging OEM, creating an agile and solution-oriented partnership model. Karsan is an important customer for FPT's penetration of emerging markets in Western Asia.

BECV (India, On-road)

BECV (Bharat Engine & Coach) is an Indian company specialising in the design and assembly of vehicles and engines for the Indian and Asian markets, operating in the on-road segment with a focus on efficient diesel technology. In the database, BECV is represented by four respondents from COO, Service, and Parts Logistics, achieving an average NPS score of 8.0/10. The positive feedback recognises the technology and reliability of the products and the quality of service support; However, significant critical issues emerge: warranty decisions protected by long administrative waiting times even in cases of clear compliance; concerns about engine performance quality, with specific complaints about critical component failures; and an implicit request for better alignment with competitive cost benchmarks, reflecting pressure in emerging markets where price is a primary decision-making factor. For an Indian OEM, these elements represent constraints on the growth of its partnership with FPT.

SOR (Czech Republic, On-road)

SOR is a Czech manufacturer of city and intercity buses, operating in the on-road segment with a strong tradition in the Central European market. In the database, the company is represented by two responses from the Engineering department, achieving an NPS score of 9.5/10, among the highest in

the dataset. The feedback highlights an extraordinary appreciation for the flexibility of the partnership with FPT, the friendly and professional attitude of the FPT teams, and the quality of the overall business relationship. SOR represents a best practice case study in which FPT's investment in understanding the specific needs of the Czech market has generated a virtuous partnership characterised by mutual respect and a shared focus on results.

GRUPEL (Portugal, Power)

GRUPEL is a Portuguese company specialising in generator sets and portable energy solutions, operating in the Power Generation segment with a significant presence in the Iberian and African markets. In the database, the company is represented by 1 response from the Spare Parts Logistics department, reporting an NPS score of 8.0/10. The feedback highlights positive appreciation for the speed of commercial quotations despite also identifies an explicit criticism: extremely long delivery times compromise the operational timeliness of an energy solutions provider, where speed of supply is often a factor in the selection of suppliers in the market. For GRUPEL, this aspect reduces the competitive advantage of FPT's offering compared to competitors with more agile supply chains in the African markets where they operate.

Liebherr (Switzerland, Off-road)

Liebherr is the Swiss giant in the construction of earthmoving machinery and high-precision hydraulic components, operating globally in the Off-road segment with a reputation for technical excellence and innovation. In the database, Liebherr is represented by two responses from Parts Purchasing Managers and Spare Parts Logistics, achieving an NPS score of 6.5/10. The feedback reports significant critical issues: long times to reach agreements on spare parts contracts, negative feedback on MOQ (Minimum Order Quantity) and packaging, delivery delays, and requests for improvement in proactivity, logistics response times, and simplification of complex processes. For Liebherr, a global leader with high international standards, these elements represent significant misalignments with the expectations of a world-class customer, suggesting that FPT needs to intensify its efforts to synchronise with Swiss supply chain best practices.

Mitsubishi Fuso (Japan)

Mitsubishi Fuso is a Japanese manufacturer of light-duty and medium-duty trucks, part of the Mitsubishi conglomerate, operating in the on-road segment with a global presence particularly strong in Japan and Asia, and growing in other continents. In the database, with 14 responses, Mitsubishi Fuso is represented by a complex structure involving the Head of Quality, R&D, Quality, and Parts Purchasing departments (Manager and Director), reporting an average NPS score of 5.8/10, among the lowest in the dataset. This result contrasts strongly with Fuso's nomination of FPT as Supplier of the Year 2025. This score is based on highly critical feedback that identifies recurring product quality issues, ineffective validation and recall processes, delays in resolution times, and dissatisfaction with the depth of root cause analysis and the definition of corrective actions. Despite recognition of constructive communication even in critical situations, Mitsubishi Fuso highlights a tense partnership where the quality issue emerges as the critical dimension, which is particularly worrying given that Mitsubishi is a world-class OEM with high standards. This customer represents a strategic priority for improvement for FPT.

Mercury Marine (USA, Marine)

Mercury Marine is the marine propulsion division of Brunswick Corporation, a global leader in the design and production of outboard marine engines and propulsion systems for boats, operating in the USA with a global distribution focus in the Marine segment. In the database, with 2 responses from Spare Parts Logistics and Parts Purchasing Manager, Mercury Marine reports an NPS score of 7.0/10. The positive feedback highlights good commercial relationships, constructive collaboration, and FPT's prompt response to requests; however, a specific issue emerges: incomplete or delayed information regarding shipment statuses, a critical aspect in the marine sector where logistical visibility is essential for distributor supply chain planning. For Mercury Marine, this represents an opportunity for differentiation by improving supply chain transparency.

3.3 Customer-by-Customer Analysis: Corrective Actions and Contextualisation with NPS Data

Following I wrote a comprehensive review of quantitative data provided by the FPT Industrial Sales department, including annual turnover figures and number of engines supplied per customer. I assigned strategic priority levels to each OEM reporting quality claims. This dual-matrix approach systematically combined commercial relevance (revenue contribution + engine volume) with NPS performance metrics from the April–May 2025 database, enabling targeted assessment of each customer's experience specifically with the Quality department and identification of corrective actions aligned with their strategic importance to FPT Industrial.

3.3.1 Implementation and Accountability Framework

Customer prioritization combines Sales Department metrics (annual turnover €M + engine units supplied) with NPS performance (≥ 8.0 =High, $7.0-7.9$ =Medium, ≤ 6.9 =Critical):

- High Priority: High turnover/volume + Low NPS (strategic risk)
- Medium Priority: High turnover/volume + Medium NPS (growth opportunity)
- Low Priority: Lower turnover/volume (limited strategic impact)

3.3.2 Approval & Monitoring Process

All proposed corrective actions require Quality Department Director approval prior to implementation. Post-approval, Quality Functional Leaders (Engineering + Production) assume ownership, tracking progress through monthly update meetings with measurable KPIs. Effectiveness will be validated via NPS 2026 and 2027 results, establishing direct accountability between actions → execution → loyalty improvement.

The following summary table highlights prioritized customers and their proposed strategic actions:

Customer	Priority	NPS	Units (€M Turnover)	Action 1 (Key Initiative)	Action 2 (Key Initiative)	Action 3 (Key Initiative)	Strategic Impact
Mitsubishi Fuso	High	5.8	41,144 (167M)	Zero-Km Reliability Programme (gemba kaizen)	Transparent Problem-Resolution Dashboard	Chronic Design Resolution Task Force (crankshaft)	Tier 1 Risk - Largest customer
CLAAS	High	5.4	3,940 (51M)	Transparent Price-to-Value Mapping	Dedicated Spare Parts Hub CLAAS facility	Executive Service Escalation	Tier 1 Risk - Agricultural sector leader
Liebherr	High	6.5	1,774 (21.1M)	Spare Parts Contract Streamlining	Flexible MOQ/Packaging Strategy	Logistics Transparency Portal	Precision manufacturing alignment
Komatsu	High	7.8	601 (3.1M)	Technical Quality Gap Benchmarking vs Japan competitors	Chronic Issue Executive Task Force	—	Japanese quality standards match
Dulevo	High	3.0	282 (3.4M)	North America Service Overhaul	Crisis Recovery Executive Engagement	—	Tier 1 Risk – Churning risk, Lowest NPS
Yanmar	High	6.8	321 (5.3M)	NEF Supply Chain Stabilization	Design Flaw Investigation + Guarantee	—	Premium Marine positioning
Blue Energy	High	8.0	875 (5.7M)	Expedited Warranty Tiered Authority	Spare Parts Availability Guarantee	Premium Tier Service Liaison	India market gateway
Merlo	Medium	7.7	863 (7.1M)	Southern Italy Service Network	Packaging Redesign + Validation	Regional Account Management	Italian reference customer
Tata Daewoo	Medium	8.0	4,714 (61M)	C9 Chronic Issue Accelerated Resolution	Korean Market Strategic Alignment	Rapid Issue Resolution Task Force	Korean market reference
Himoinsa	Low	8.2	3,631 (22.2M)	Iberian Spare Parts Hub	Authorized Service Network Expansion	—	Generator expansion enabler
Argo Tractors	Low	5.8	2,205 (19M)	Delivery Reliability RCA + Stabilization	Price Transparency Framework	—	Agricultural sector recovery
Arquus	Medium	7.5	210 (2.9M)	Digital Ordering Portal	Defence-Sector Account Manager	—	Defence segment strategic
FB Design	Medium	8.3	16 (0.7M)	Delivery Reliability Priority Scheduling	Technical Training Academy	—	Premium marine custom solutions

Customer	Priority	NPS	Units (€M Turnover)	Action 1 (Key Initiative)	Action 2 (Key Initiative)	Action 3 (Key Initiative)	Strategic Impact
Anadolu Isuzu	Low	7.0	35 (0.6M)	Small OEM Fast-Track Framework	Emerging Market OEM Strategy	—	Small OEM market unlock

Customers and their proposed strategic actions Table 3.3.2

1. HIMOINSA (Spain, Power Generation)

Quantitative Data

- Priority: Low
- NPS Score: 8.2/10
- Units supplied: 3,631 engines
- Market: Europe
- Turnover: €22.2 million
- Average unit price: €6,118/unit
- Quality Experience: Positive feedback

Context and Feedback from the NPS Database

HIMOINSA, a Spanish manufacturer specialising in the production of diesel, natural gas and hydrogen-powered generators, is a customer with overall high satisfaction (8.2/10) but classified as low priority given its small turnover compared to other strategic OEMs. The NPS database reveals four responses from the Service Manager, Parts Purchasing Manager and Spare Parts Logistics, with positive feedback focusing on the quality, reliability and ease of use of the products, as well as competitive prices and positive commercial relations with FPT staff.

However, specific critical issues emerge: customer service perceived as slow, insufficient service network in the territories served by HIMOINSA (Iberian market and African/Latin American exports), and spare parts supply not fast enough to support the operational needs of a generator set manufacturer where machine downtime is extraordinary critical for end customers.

Proposed Corrective Actions

Action 1: Regional Spare Parts Distribution Hub (Iberian Peninsula)

- Establish stock point in Madrid or Lisbon with 150-200 fast-moving parts (fuel systems, alternators, filters)
- Partner with regional distributor to handle logistics; FPT owns inventory management and replenishment
- KPI: 24-hour parts delivery to HIMOINSA vs. current multi-day lead times

Action 2: Authorized Service Network Expansion

- Recruit 2-3 independent authorized service partners in Spain/Portugal and 1-2 in key Latin American markets (Brazil, Mexico)
 - Provide training and certification; FPT handles warranty processing
 - KPI: Technical response within 48 hours for critical failures
-

2. MITSUBISHI FUSO (Japan, On-Road)

Quantitative Data

- Priority: High
- NPS Score: 5.8/10
- Units supplied: 41,144 engines
- Market: Japan + Europe + ROW (Rest of World)
- Turnover: €167 million
- Average unit price: €4,058/unit
- Quality Experience: Major concerns

Context and Feedback from the NPS Database

Mitsubishi Fuso, a Japanese manufacturer of light and medium commercial vehicles, is the most critical and strategically relevant customer in the NPS analysis, with 14 responses (the highest number in the database) from Quality, R&D, Purchasing Director and Head of Quality. The score of 5.8/10 is among the lowest, with no Promoters among the 14 respondents and a prevalence of critical assessments focused on quality issues.

The database reveals polarised feedback: on the one hand, recognition of the availability of the FPT quality team and the commitment of top management, on the other, deep frustration with: numerous zero-hour non-conformities (mis-assembly, contamination, fuel leaks), countermeasures perceived as invalid or implemented with inadequate timing, design weak points (e.g. crankshaft bearing seizure) unresolved for years, recurring problems with the 4P10 engine, long response times, and lack of transparency on the causes of problems and the time required for spare parts.

Proposed Corrective Actions

The department identifies three strategic corrective actions for Mitsubishi Fuso, recognising the seriousness of the situation:

Proposed Corrective Actions

Action 1: "Zero-Km Reliability Programme" with Executive Accountability

- Target: X% reduction in zero-hour non-conformities within 6 months (measurable, time-bound)
- Scope: Complete assembly line audit + root cause analysis for top 5 recurring defects (mis-assembly, contamination, fuel leaks, bearing seizure, 4P10 issues)

- Japanese Cultural Calibration: Frame as "gemba kaizen"(on-site continuous improvement) rather than "crisis response"—positions FPT as serious partner implementing proven Japanese methodology

Action 2: Transparent Problem-Resolution Dashboard (Culturally Calibrated)

- Create shared digital dashboard showing:
 - Issue tracker: Every reported defect with status (open → root cause analysis → countermeasure design → implementation → validation)
 - Conservative timelines: Commit to pessimistic estimates that are reliably met (e.g., "30 days for root cause analysis, 60 days for countermeasure deployment") rather than optimistic promises that slip
 - Responsibility assignment: Named individual accountable for each issue (leveraging Japanese preference for personal accountability)
 - Monthly Transparency Call: FPT Quality Director + Fuso Head of Quality review all open issues together (ritual-based relationship building valued in Japanese business culture)

Action 3: Dedicated Design Resolution for Chronic Issues

- Crankshaft bearing seizure (4P10): Assign senior engineer to lead redesign; target resolution within 12 months with full validation before production restart
- Systematic LL implementation: Mandate that all fixes from prior Fuso JP24, F1, DICV India projects are validated as implemented on current production (prevent recurring same-root issues)

3. BLUE ENERGY MOTORS (India, On-Road)

Quantitative Data

- Priority: High
- NPS Score: 8.0/10
- Units supplied: 875 engines
- Market: India
- Turnover: €5.7 million
- Average unit price: €13,958/unit (the highest in the On-Road segment)
- Quality Experience: Major concerns

Context and Feedback from the NPS Database

Blue Energy Motors, India's leading heavy truck manufacturer (represented in the database as BECV - Bharat Engine & Coach), operates in a highly competitive and price-sensitive emerging market. With four responses from COO, Service and Spare Parts Logistics, the customer records an NPS of 8.0/10 but expresses specific concerns: delayed warranty decisions even for standard cases, concerns about

engine performance quality, high cost of spare parts, unavailability of critical parts, and low sense of engagement with FPT.

The feedback highlights a contrast: appreciation for the technology and reliability of the product and for the service support, but frustration with operational aspects that impact the total cost of ownership. The €13,958 unit price commands premium positioning, yet warranty decisions drag for weeks, critical spare parts disappear from availability, and component failures damage perceived quality. In India's price-competitive market, these delays erode total cost of ownership advantage that should justify FPT's premium pricing versus local alternatives (Ashok Leyland, Tata Motors).

Proposed Corrective Actions

Action 1: Expedited Warranty Process with Tiered Decision Authority

- Standard claims: Decision within 3 business days via regional manager authority where the cost to solve it is not the main issue of the claim (eliminate central approval bottleneck)
- Complex claims: Decision within 10 business days with transparent root cause communication
- Pre-approved warranty categories: Co-define with BECV "automatic approval" scenarios (e.g., bearing failures within 50K km, fuel system leaks within warranty period) that bypass case-by-case analysis
- Monthly performance reporting: Share warranty decision speed metrics with BECV (transparency signals commitment)

Action 2: Spare Parts Availability Guarantee

- Critical components list: Jointly identify top 15-20 parts representing 90% of warranty/service demand
- Safety stock commitment: Maintain minimum inventory at India distribution hub; FPT absorbs carrying costs
- Local supplier backup: Identify certified alternate suppliers for 5-8 critical parts (fuel injectors, seals, bearings) to prevent single-source delays
- KPI: 90% parts availability within 5 business days (vs. current unpredictable delays)

Action 3: Premium Tier Service for High-Volume Customers

- Dedicated liaison: Assign single FPT India manager as BECV's account owner (cultural preference for personal relationships in India)
- Quarterly business reviews: Discuss upcoming production forecasts, warranty trends, supply chain risks (positions FPT as strategic partner, not vendor)

4. LIEBHERR (Switzerland, Off-Road)

Quantitative Data

- Priority: High
- NPS Score: 6.5/10
- Units supplied: 1,774 engines
- Market: Europe/NAFTA
- Turnover: €21.1 million
- Average unit price: €11,868/unit
- Quality Experience: no/minor concerns

Context and Feedback from the NPS Database

Liebherr, the Swiss giant in the production of earth-moving machinery and high-precision hydraulic components, is a customer with world-class expectations. With two responses from the Parts Purchasing Manager and Spare Parts Logistics, the customer recorded an NPS of 6.5/10 (below the average of 7.3) with critical issues focused on: very long times to reach agreements on spare parts contracts, negative feedback on MOQ (Minimum Order Quantity) and packaging, delivery delays, requests for improvement in proactivity, logistics response times, and simplification of complex processes. Liebherr operates 300+ equipment models with diverse engine variants; their "low-volume complexity" is fundamentally different from high-volume OEMs like Fuso. FPT's standard processes (long contract cycles, fixed MOQs, static delivery windows) are optimized for bulk buyers, not precision manufacturers. These actions reposition FPT as "agile supply partner" rather than "inflexible commodity vendor," justifying premium €11,868 unit pricing through operational excellence rather than product specs alone.

Proposed Corrective Actions

The quality department assigns the management of Liebherr to the spare parts/logistics team, with specific actions:

Action 1: Spare Parts Contract Streamlining with Dedicated Commercial Lead

- Process redesign: Reduce spare parts contract via:
 - Pre-templated contract framework (eliminates custom legal review for each negotiation)
 - Single FPT commercial contact with authority to approve non-standard terms (eliminates approval loops)
 - Monthly auto-renewal cycles (vs. annual renegotiations) with quarterly price adjustments tied to indexed benchmarks
 - Swiss cultural calibration: Position as "prozessoptimierung"(process optimization) rather than "cost cutting"—appeals to Swiss precision mindset

Action 2: Flexible MOQ and Packaging Strategy

- Volume-tiered MOQs: Instead of fixed minimums, offer:
 - Standard MOQ for high-volume parts (fuel injectors: 500 units/order)

- Reduced MOQ for low-volume specialty parts (50-100 units)
- Small-order surcharge option: Accept 10-20 unit orders at €X premium for strategic partners

Action 3: Logistics Transparency and Proactive Communication

- Shipment visibility portal: Real-time tracking for all Liebherr orders (production status → QA release → shipment → transit → delivery)
- Proactive delay alerts: Automatically notify Liebherr 5 business days in advance if delivery will slip (vs. discovering at expected delivery date)
- Dedicated logistics coordinator: Single contact for Liebherr shipping inquiries (eliminates being routed between departments)

5. MERLO (Italy, Off-Road)

Quantitative Data

- Priority: Medium
- NPS Score: 7.7/10
- Units supplied: 863 engines
- Market: Europe / NAFTA
- Turnover: €7.1 million
- Average unit price: €8,208/unit
- Quality Experience: Served Customer (No Quality Ket Account Manager)

Context and Feedback from the NPS Database

Merlo, the Italian leader in the production of lifting platforms and telehandlers, is the second customer with the highest number of responses in the database (13), representing a broad operational base with multiple functional touchpoints: Service Manager (2), Area Service Manager (3), Purchasing (3), Parts Purchasing Manager, Engineering, Product Improvement Engineer, Service Inspector (2). The NPS score of 7.7/10 is in line with the average, with positive feedback on staff availability and cooperation, reliability, and logistical and commercial proximity.

However, operational issues emerge: excessive response times in specific geographical areas (Sardinia and Puglia), and insufficient packaging performance (ATS packaging perceived as too fragile). The southern Italy response time issue is particularly solvable via partnerships (low-cost, high-impact). Packaging fragility erodes trust and creates hidden warranty costs. These actions address both dimensions while leveraging FPT's Italian geographic advantage, positioning as "local partner invested in Merlo's success" rather than "distant supplier." €7.1M turnover is modest, but 13 responses indicate high operational engagement. Merlo operates across Europe/NAFTA with visibility to other lifting platform OEMs (JCB, Manitou, Bobcat); establishing Merlo as "Italian reference customer" creates halo effect for competitor prospecting.

Proposed Corrective Actions

Action 1: Regional Service Network for Southern Italy

- Establish partnerships with 1-2 authorized service providers in Sardinia and Puglia (leveraging existing regional technical networks rather than FPT-owned resources)
- Service agreements: Include warranty support protocols, training on common issues, and parts pre-stocking for fast-moving components
- KPI: Maximum 24-hour response time for critical issues in both regions (vs. current multi-day delays)
- Italian cultural calibration: Frame as "rete locale di supporto"(local support network) emphasizing proximity and relationship—valued in Italian business context

Action 2: Packaging Redesign with Joint Validation

- Co-design session: Involve Merlo logistics team in packaging specification review to understand their specific handling constraints
- Upgraded ATS packaging: Replace fragile materials with reinforced options (foam inserts, rigid corner protection) tested for standard logistics handling (drops, vibration, temperature extremes)
- Cost sharing: FPT absorbs 60% of packaging cost increase; Merlo absorbs 40% (signals shared commitment to quality)

Action 3: Regional Account Management

- Dedicated Merlo account manager (leverage existing Italy team proximity advantage) who coordinates across Service, Purchasing, and Technical functions
- Quarterly business reviews: Discuss upcoming forecast, warranty trends, supply chain risks

6. TATA DAEWOO (South Korea, On-Road)

Quantitative Data

- Priority: Medium
- NPS Score: 8.0/10
- Units supplied: 4,714 engines
- Market: Korea
- Turnover: €61.0 million
- Average unit price: €12,944/unit
- Quality Experience: no/minor concerns

Context and Feedback from the NPS Database

Tata Daewoo, a joint venture between Tata Motors and Daewoo in the heavy commercial vehicle sector, is a customer with 11 responses in the database from the CEO, Head of R&D, Purchasing Director, COO, Supply Chain Manager, R&D Manager, and Product Planning. The NPS score of 8.0/10 reflects an overall positive partnership, with feedback recognising FPT as a 'trustful partner', 'very cooperative', with 'very robust' products and 'good fuel efficiency and low NVH'.

However, specific critical issues emerge: slowness in resolving quality issues, specific problems with the C9 engine (oil sump gasket/oil cooler bolts, both open since 2022), and the perception that FPT's market vision is not understood in the Korean context. The "market vision misalignment" comment suggests Tata perceives FPT as pursuing generic European strategies without understanding Korean market specifics (price sensitivity, regulatory trajectory, competitive dynamics). With €61M turnover and 4,714 units, Tata Daewoo is FPT's second-largest Asian customer; the gap between technical appreciation and operational frustration signals vulnerability to competitive displacement. From a financial impact €61M turnover warrants significant investment. Tata Daewoo is a gateway to broader Korean market (potential influence with Hyundai, Kia commercial divisions, domestic OEMs). Establishing Tata as "Korean market reference customer" creates competitive moat and generates referrals to other Asian OEMs.

Proposed Corrective Actions

Action 1: C9 Chronic Issue Resolution Programme with Accelerated Timeline

- Root cause deep-dive: Assign senior engineer to investigate oil sump gasket and oil cooler bolt failures (unresolved since 2022)
 - Conduct failure mode analysis (FMEA) on both components
 - Identify systemic design vs. manufacturing vs. material specification root causes
 - Develop redesigned gasket/bolt assembly with revised specifications
- Accelerated validation: Test redesign under Tata Daewoo's specific Korean operating conditions (climate, duty cycle, fuel quality)
 - Target: Complete redesign validation within 4 months (vs. standard 8-12 month cycles)
 - Involve Tata R&D in testing to ensure their operational scenarios are covered
- Transparent communication cadence: Provide Tata with monthly progress updates (even if incremental)
 - "정기적인 소통"(Regular communication) is highly valued in Korean business culture; consistent updates build trust during extended fix timeline
 - Monthly review calls with Head of R&D signal that FPT prioritizes this partnership

Action 2: Korean Market Alignment with Strategic Partnership Positioning

- Dedicated Korean market strategist: Assign account manager with expertise in Korean commercial vehicle market (regulatory environment, competitive landscape, OEM customer expectations) to bridge FPT's European perspective and Tata's Korean market realities
- Quarterly strategic alignment sessions: Co-develop:

- FPT's Korean market positioning (premium reliability, technological leadership, long-term partnership commitment)
- Tata Daewoo's competitive challenges and growth priorities in Korean market
- Joint value proposition for Tata's truck customers (end-users) that justifies FPT engine premium vs. alternatives (Cummins, Volvo Penta, MTU)
- Transparent strategic dialogue: Clarify FPT's commercial positioning:
 - Why premium pricing reflects long-term R&D investment, not opportunistic margin extraction
 - How FPT's roadmap (electrification, autonomous integration, emissions reduction) aligns with Korean regulatory trends
 - Demonstrate commitment to Korean market as strategic priority, not secondary geography

Action 3: Rapid Issue Resolution Task Force

- Empower quality resolution: Create dedicated cross-functional team (Quality + Engineering + Commercial) with authority to approve expedited countermeasures without lengthy approval cycles
- Monthly Tata steering calls: Direct communication between FPT VP Quality and Tata Head of R&D (executive-level engagement signals seriousness)

7. YANMAR (Japan/Netherlands, Power Generation/Marine)

Quantitative Data

- Priority: High
- NPS Score: 6.8/10
- Units supplied: 321 engines
- Market: Japan/Europe
- Turnover: €5.3 million
- Average unit price: €16,369/unit (the highest among the customers analysed)
- Quality Experience: Major concerns

Context and Feedback from the NPS Database

YANMAR, a long-established Japanese manufacturer of diesel engines with a global presence in the Power Generation and Marine segments, presents a dichotomous profile in the NPS database with two responses (Purchasing, Spare Parts Logistics): a rating of 3/10 focused on continuous production delays (especially NEF engines), and a rating of 10/10 recognising the extraordinary quality of

operational responsiveness. : The feedback ‘production delays have continuously happened especially in NEF engines’ and ‘There are many recurring defects. Root cause is not resolved’ identify two distinct but related issues: supply chain reliability (timing) and intrinsic product quality (design). The €16,369 premium unit price requires flawless execution; recurring delays and design flaws violate the implicit premium-pricing contract. Japanese business culture expects consistency, transparency, and long-term partnership commitment. From a financial aspect €5.3M turnover is modest, but €16,369 unit price suggests YANMAR is FPT's premium positioning case study in marine/power generation. Stabilizing YANMAR creates reference customer for other Japanese OEMs (Mitsubishi, Isuzu, Hino) and opens doors to broader marine market where premium positioning justifies high pricing.

Proposed Corrective Actions

Action 1: NEF Engine Supply Chain Stabilization Programme

- Root cause analysis: Audit Turin production facility for NEF engine delays:
 - Identify bottlenecks (component procurement delays, production capacity constraints, quality rework cycles, documentation issues)
 - Conduct structured interview with YANMAR Purchasing to understand specific recurring failure patterns
 - Map supply chain visibility: Which suppliers are causing delays? Which production steps are bottlenecks?
- Targeted interventions:
 - Increase safety stock for critical NEF components (fuel systems, bearings, seals) to absorb supplier variability
 - Implement weekly production status calls between Turin plant manager and YANMAR Purchasing Director (ritual-based communication valued in Japanese business culture)
 - Establish escalation protocol: If NEF shipment will miss scheduled date, YANMAR receives notification 10 days in advance with revised delivery commitment (transparency over surprises)
- Conservative commitment strategy: Frame delivery estimates pessimistically; commit to dates FPT can reliably meet with high confidence
 - "보수적 약속"(Conservative commitments) are highly valued in Japanese and Korean business—meeting conservative estimates builds trust more than missing optimistic promises

Action 2: Design Flaw Root Cause Investigation and Transparent Resolution

- Customer collaboration session: Schedule immediate technical meeting with YANMAR's Head of Engineering to identify and discuss recurring design flaws:
 - Request specific examples of failures (engine model, symptom, failure mode, recurrence frequency)

- Review YANMAR's internal failure database to understand pattern and severity
 - Document root causes for each recurring defect (e.g., "crankshaft bearing clearance insufficient for high-load marine duty")
 - Prioritized redesign roadmap: Co-develop with YANMAR a fix prioritization based on:
 - Frequency of failures (highest-frequency flaws fixed first)
 - Impact on customer operations (marine propulsion failures > power generation failures due to safety implications)
 - Feasibility of rapid implementation (software fixes vs. hardware redesigns)
 - Monthly transparency updates: Provide YANMAR with detailed progress reports on each design flaw resolution, even if incremental
 - Include failure mechanism analysis, proposed solution, validation status, expected production restart date
 - Invite YANMAR to participate in validation testing (co-ownership increases commitment to solution)
 - Quality guarantee: Offer extended warranty or failure rate guarantee for redesigned components (e.g., "zero crankshaft bearing failures for 24 months post-redesign, or FPT replaces at no cost")
-

8. ARGO TRACTORS (Italy, Off-Road)

Quantitative Data

- Priority: Low
- NPS Score: 5.8/10
- Units supplied: 2,205 engines
- Market: Europe / NAFTA
- Turnover: €19.0 million
- Average unit price: €8,613/unit
- Quality Experience: Positive feedback

Context and Feedback from the NPS Database

Argo Tractors, Italian leader in the production of agricultural tractors under the Landini, McCormick and Valpadana brands, presents a problematic profile with an NPS of 5.8/10 (among the lowest in the database) based on four responses from Parts Purchasing Managers, General Managers, Parts Logistics Managers and Purchasing Managers. The feedback highlights appreciation for product quality, but significant critical issues regarding: price uncertainty, excessively long response times, repeated problems with delivery punctuality, and zero-hour issues. The NPS of 5.8 (Detractor territory) and the '0' rating given in one of their interview suggest a critical situation. The 'Low Priority'

classification, decided by the directory, appears inconsistent with the severity of the NPS, suggesting that Argo may have been strategically deprioritised, but this risk could become a regret if the critical issues are not addressed.

Proposed Corrective Actions

Action 1: Delivery Reliability Root Cause Analysis and Stabilization

- Multi-functional investigation: Audit production, logistics, and quality processes to identify why Argo experiences repeated delivery delays:
 - Production delays (insufficient capacity allocation for Argo orders?)
 - Logistics delays (carrier selection, route optimization, customs clearance?)
 - Quality rework cycles (zero-hour issues forcing shipment delays?)
 - Documentation/administrative delays (export certificates, compliance paperwork?)
- Argo-specific process redesign:
 - If production is bottleneck: allocate dedicated production slot for Argo (e.g., "every Wednesday batch reserved for Argo")
 - If logistics is bottleneck: establish preferred carrier with guaranteed lead times and real-time tracking
 - If quality is bottleneck: implement enhanced pre-shipment quality checks to eliminate zero-hour inefficiencies
 - If administrative is bottleneck: pre-prepare all export documentation, compliance certificates, warranty paperwork before quality sign-off
- Conservative delivery commitment: Commit to delivery dates FPT can reliably meet; communicate delays 10 days in advance (transparency over surprises)

Action 2: Price Transparency and Commercial Stability

- Price certainty framework: Eliminate "price uncertainty" complaint by:
 - Publishing annual price list with clear effective dates (e.g., "2026 pricing: €X/unit effective Jan 1, 2026")
 - Offering 2-3 year fixed-price contracts for volume commitments $\geq X.000$ units/year
 - Providing quarterly cost breakdowns to Argo (raw materials, labor, logistics, margin) so they understand pricing logic
- Volume incentive: Offer tiered pricing for committed volumes

9. KOMATSU GLOBAL (Japan/Italy, Off-Road)

Quantitative Data

- Priority: High
- NPS Score: 7.8/10
- Units supplied: 601 engines
- Market: Europe
- Turnover: €3.1 million
- Average unit price: €5,111/unit (the lowest among High Priority customers)
- Quality Experience: Major concerns

Context and Feedback from the NPS Database

KOMATSU, a Japanese giant in the earthmoving equipment sector with European operations in Italy, presents four responses from Senior Purchasing Engineer, Purchase Engineer, Quality Assurance, and Purchasing Manager, with an NPS of 7.8/10. The feedback recognises the quality of the relationship with the FPT sales representative and the ability to propose alternative engine solutions, but highlights a systemic critical issue: perception of lower quality compared to Japanese competitors, long timescales for resolving problems, with some problems persisting for years.

The feedback 'perception of lower quality compared to Japanese competitors', 'long times to resolve quality issues, with some problems persisting for years', 'compared to the Japanese engines we use, the products have a significantly higher defect rate both at zero hours and among end users' represents one of the most severe criticisms in the database. KOMATSU, being a world-class Japanese OEM, operates with quality standards that FPT must match in order to maintain this partnership. The unit price of €5,111/unit (the lowest among High Priority customers) suggests a cost-competitive positioning, but this does not justify the quality gap compared to Japanese competitors. The NPS of 7.8 (Passive) masks a deep dissatisfaction that could explode: technical benchmarking and direct consultation are therefore critical to regaining trust.

Proposed Corrective Actions

Action 1: Technical Quality Gap Analysis with Direct Customer Consultation

- Structured benchmarking exercise with KOMATSU engineering:
 - Request specific examples of "significantly higher defect rates" (which components? what failure modes? frequency?)
 - Acquire samples of Japanese competitor engines and use them for comparisons (Isuzu, Hino, Mitsubishi engines KOMATSU uses)
 - Conduct side-by-side technical analysis: design robustness, material specifications, manufacturing tolerances, assembly processes
- Quality perception deep-dive: Identify specific factors driving "lower quality perception":

- Design reliability (bearing selection, seal materials, cooling system efficiency)?
- Manufacturing consistency (process controls, inspection rigor, rework rates)?
- End-user experience (fuel consumption, cold-start reliability, NVH, vibration)?
- Warranty/support responsiveness (replacement availability, repair documentation)?
- Comparative testing: If possible, run KOMATSU's typical duty cycle on FPT vs. Japanese competitor engines under controlled conditions
 - Measure reliability metrics (MTBF, failure modes, performance degradation over time)
 - Provide transparent report showing FPT's comparative weaknesses and proposed remediation

Action 2: Chronic Issue Resolution with Executive Accountability

- Inventory of persistent problems: Document all issues reported by KOMATSU that remain unresolved for >12 months:
 - Identify root causes (design flaw? manufacturing process? supplier component quality?)
 - Assign accountability (which FPT department owns resolution?)
 - Establish timeline for fix (engineering redesign? supplier qualification? production restart?)
- Dedicated resolution task force: Assign senior engineer + cross-functional team (Quality, Manufacturing, Supplier Management) to resolve all chronic issues:
 - For each issue: root cause analysis → redesign validation → production implementation → field validation with KOMATSU
 - Monthly update calls with KOMATSU engineering (ritual-based communication valued in Japanese business)
 - Transparent communication of setbacks or delays (vs. silence, which erodes trust)
- Quality guarantee on resolved issues: Offer extended warranty or replacement guarantee for redesigned components (e.g., "zero failures on redesigned bearing assembly for 24 months post-implementation, or FPT replaces at no cost")

10. DULEVO (Italia, On-Road)

Quantitative Data

- Priority: High
- NPS Score: 3.0/10 (lowest in the database)
- Units supplied: 282 engines
- Market: Europe / NAFTA

- Turnover: €3.4 million
- Average unit price: €11,926/unit
- Quality Experience: Served Customer (No Quality Key Account Manager)

Context and Feedback from the NPS Database

Dulevo, an Italian company specialising in sweepers, industrial and urban cleaning equipment, represents the most critical case in the database with an NPS of 3.0/10, based on three responses from the Quality Manager, Spare Parts Logistics and General Manager. The feedback is extremely negative: 'Discontinuity in service reliability', 'Poor quality i.e. poor service in North America, low service level', 'discretionary price increases'. No positive aspects are mentioned.

With 282 units and a turnover of €3.4 million, Dulevo is not a large-scale customer, but it is classified as 'High Priority' and 'Served Customer', suggesting strategic relevance (probably for the specific urban cleaning segment where Dulevo is one of the leaders). The North American issue is particularly serious because it indicates that FPT is unable to adequately support customers operating in geographically distant markets. The proposed actions (service model review, dedicated consultant) are necessary but may be insufficient: Dulevo may already be in the process of evaluating alternative suppliers.

Proposed Corrective Actions

Action 1: North America Service Model Overhaul with Geographic Coverage Fix

- Root cause diagnosis: Understand why North America service is "poor quality":
 - Is there a dedicated FPT North America technical support function?
 - What are response times for warranty claims, technical issues, spare parts requests?
 - Are there contractual gaps between FPT and regional distributors/dealers?
 - Interview Dulevo directly on specific service failures (which issues? when? what was FPT's response?)
- Service model redesign:
 - If no dedicated North America technical support exists, establish one (hire/contract regional technical manager)
 - Establish service agreements with qualified distributors/dealers in key North American markets (Canada, USA, Mexico)
 - Implement warranty claim fast-track process: Decision within 5 business days (vs. current multi-week delays)
 - Establish parts availability: Pre-stock critical Dulevo components at North American distribution hub
- Geographic redundancy: Identify backup suppliers/distributors so that if primary contact is unavailable, customers have escalation path

- Name specific contacts (not generic customer service lines)
- Provide 24/7 emergency escalation number for critical failures affecting Dulevo customer operations

Action 3: Crisis Recovery Programme with Executive Engagement

- Executive relationship reset:
 - Assign FPT Regional Vice President to meet personally with Dulevo General Manager
 - Acknowledge service failures explicitly and commit to systemic remediation
 - Present 90-day action plan with measurable milestones (North America support establishment, warranty process redesign, price transparency)
- Quick wins to rebuild trust:
 - Identify 2-3 pending warranty claims and expedite resolution within 5 business days (demonstrate commitment through action, not words)
 - Provide complimentary spare parts shipment for most critical components (demonstrates investment in relationship)
 - Offer temporary 3-month service credit or discount while North America support model is being established
- Transparency cadence: Weekly check-in calls for first 30 days; bi-weekly for next 60 days
 - Report progress on North America service setup, warranty process improvements, pricing alignment
 - Address any new issues immediately
 - Demonstrate that FPT is "all-in" on relationship recovery

11. ANADOLU ISUZU (Turkey, On-Road)

Quantitative Data

- Priority: Low
- NPS Score: 7.0/10
- Units supplied: 35 engines
- Market: Turkey
- Turnover: €0.6M
- Average unit price: €16,364/unit (among the highest)
- Quality Experience: Positive feedback

Context and Feedback from the NPS Database

Anadolu Isuzu, a Turkish joint venture in the commercial vehicle sector, presents 1 response from Engineering with an NPS of 7.0/10. Critical feedback highlights: 'FPT procedures seem to be suitable for large OEMs. We hope for quick answers and information,' indicating that FPT processes are perceived as unsuitable for small-scale OEMs. With only 35 units and €0.6M in turnover, Anadolu Isuzu is the smallest customer among those received by the sales department, but the unit price of €16,364/u (the second highest) indicates premium engines. The "Low Priority" classification is consistent with the small scale, but feedback points to an opportunity: if FPT can create lean processes for small OEMs, it could unlock a currently underserved market segment. Even €0.6M turnover is currently insignificant, this represents a strategic market opportunity: many emerging markets have 50-200 small commercial vehicle builders (regional brands, specialized equipment manufacturers) who currently cannot engage with FPT because processes are too complex. Creating a "small-OEM track" with dedicated account management, simplified contracts, and fast-response support could unlock significant new customer base with minimal cannibalization of existing large-OEM business.

Proposed Corrective Actions

Action 1: "Small OEM Fast-Track" Process Framework

- Differentiated service model tailored to low-volume customers (<100 units/year):
 - Simplified approval workflows: Single-approver decision authority vs. multi-layer approval cycles
 - Standardized contracts: Pre-templated purchase agreements requiring minimal customization (vs. custom legal negotiation for each deal)
 - Dedicated small-OEM hotline: Direct contact (named individual) for technical questions, quotations, status updates—no generic customer service queue
 - Flexible MOQs: Accept smaller order quantities (50-100 units) without punitive surcharges
- Documentation package: Provide comprehensive yet concise technical kit including:
 - Quick-start installation guide (5-10 pages vs. 100-page manuals)
 - Common troubleshooting guide specific to small OEM use cases
 - Pre-filled spare parts list recommendations (no need for customer to guess which components to stock)
 - Contact protocol: "For question X, call Y; for question Z, email W" (removes ambiguity on who to contact)
- Quarterly business reviews (even for 35-unit customer):
 - Discuss production forecasts, new platform development, market feedback
 - Positions FPT as "strategic partner" rather than "parts vendor"
 - Builds relationship sticky costs; switching becomes organizationally difficult

Action 2: Emerging Market OEM Growth Strategy

- Position as "preferred small-OEM supplier":
 - Market FPT's "small-OEM friendly" processes as competitive advantage (vs. competitors who only service large-volume customers)
 - Target emerging market commercial vehicle builders (Brazil, Mexico, India, Southeast Asia) where many OEMs are small/medium scale
 - Create case study: "How FPT supports Anadolu Isuzu's premium positioning despite low volumes"
- Volume growth incentive:
 - Offer X% discount if Anadolu Isuzu grows to 100+ units/year
 - Commit to proportional investment in support (e.g., "if volumes double, dedicated Account manager assigned full-time")
 - Position as partnership in growth: "We invest in your success as you scale"
- Turkish market calibration:
 - Emphasize long-term relationship stability ("uzun vadeli ortaklık"(long-term partnership)—valued in Turkish business culture)
 - Respect for entrepreneurial independence (small OEMs value autonomy; avoid over-prescriptive processes)

12. ARQUUS (France, On-Road)

Quantitative Data

- Priority: Medium
- NPS Score: 7.5/10
- Units supplied: 210 engines
- Market: Europe
- Turnover: €2.9 million
- Average unit price: €13,789/unit
- Quality Experience: Served Customer (No Quality Key Account Manager)

Context and Feedback from the NPS Database

Arquus, a French company specialising in the design and manufacture of armoured vehicles for military and security applications, presents four responses from Engineering, Logistics Parts, Parts Purchasing Manager, with an NPS of 7.5/10. The positive feedback recognises customer focus and the proactivity of the technical teams, with a perceived improvement in customer service (rating on the rise). However, a critical operational issue emerges: the ordering process is perceived as incredibly

difficult, slow and non-transparent. With 210 units and €2.9 million in turnover, Arquus is a small but strategically important customer in the defence segment, where regulatory complexity and traceability requirements are high.

Action 1: Digital Ordering Portal with Real-Time Transparency

Implement a dedicated, simplified digital ordering interface specifically for Arquus, with:

- Single-entry-point ordering system replacing multiple email/phone/ERP touchpoints (currently causing delays)
- Real-time order status dashboard showing order confirmation → production scheduling → quality checks → shipment date → delivery tracking
- Automated compliance documentation (export certificates, regulatory declarations, traceability logs) pre-populated and ready for download at each order stage

Action 2: Dedicated Account Manager with Defence-Sector Specialization

Negotiate with Arquus a single named Account Manager with:

- Defence-sector domain expertise: Understanding of ITAR export regulations, NATO supply chain requirements, military vehicle certification cycles, and security clearance implications
- Commercial authority to expedite decisions: Empowered to approve non-standard delivery schedules, packaging exceptions, or documentation formats without requiring multiple internal approvals
- Monthly strategic review calls (vs. ad-hoc contact): Proactive discussion of upcoming production forecasts, regulatory changes, supply chain risks—positioning FPT as strategic advisor, not transactional supplier
- Single point-of-contact for all departments: Engineering, Logistics, Quality, Purchasing all route through this account manager to eliminate internal confusion and multiple conflicting messages

13. CLAAS (France, Off-Road)

Quantitative Data

- Priority: High
- NPS Score: 5.4/10
- Units supplied: 3,940 engines
- Market: Europe / NAFTA
- Turnover: €51.0 million (second highest after Mitsubishi Fuso)
- Average unit price: €12,936/unit
- Quality Experience: no/minor concerns

Context and Feedback from the NPS Database

CLAAS, a leading German holding company in the agricultural tractor sector (FPT serves the French branch), presents three responses from the Quality Field Manager, Spare Parts Logistics, and Parts Purchasing Manager, with an NPS of 5.4/10 (among the lowest). The feedback acknowledges that the products are 'very good products' but highlights a critical issue: 'service and support not at the required level', with specific mention of FPT's business strategy and unjustified price increases as a source of dissatisfaction.

Proposed Corrective Actions

Action 1: Transparent Price-to-Value Mapping with Annual Justification

Eliminate the perception of "unjustified price increases" through explicit commercial transparency:

- Annual Commercial Review Meeting (Q1 each year) with CLAAS Purchasing Director, where FPT presents:
- Cost structure breakdown: Raw materials (+X%), labour (+Y%), logistics (+Z%), R&D investment (+A%), margin (B%)
- Year-over-year justification: What specific investments/improvements justify each price delta vs. prior year (e.g., "€80/unit increase due to: €40 new emission control system, €25 enhanced warranty support, €15 supply chain security investments")
- Competitive benchmarking: FPT's pricing vs. Perkins, Cummins, Deutz on equivalent engine specifications (transparency that FPT is NOT outlier)
- Value-add roadmap: Next 3 years of planned improvements tied to price trajectory (e.g., "2026 price +2% includes predictive maintenance AI; 2027 price +1.5% includes 24/7 digital support portal")
- Price Lock Guarantee Option: Offer CLAAS a 2-year fixed-price commitment on volumes $\geq 3,000$ units/year, with volume escalation clause (e.g., "if volumes grow to 4,500+, price reduces 1.5%")

Action 2: Dedicated Spare Parts Hub with Embedded Inventory

Address the "service and support not at required level" complaint through operational redesign:

- Establish a FPT-managed spare parts hub physically located at or adjacent to CLAAS France facility:
 - Stocks 200-300 critical fast-moving parts (fuel injectors, seals, bearings, filters) that represent 80% of spare part demand
 - Operated by FPT-employed technician with direct authority to issue parts without requisition delays
 - 2-hour parts delivery to CLAAS production line vs. current multi-day lead times
- "White-Glove" Technical Support: Assign 1-2 senior FPT field engineers to be on-call for CLAAS:

- On-site diagnostics for critical failures within 8 business hours (vs. current phone support)
- Authority to authorize warranty replacements on the spot without central approval
- Monthly preventive maintenance visits to CLAAS's production line to identify potential issues before failures

14. FB DESIGN (Italy, Marine)

Quantitative Data

- Priority: Medium
- NPS Score: 8.3/10
- Units supplied: 16 engines (the smallest customer by volume)
- Market: Europe + ROW
- Turnover: €0.7M
- Average unit price: €42,801/unit (by far the highest, almost 3x higher than the second highest)
- Quality Experience: Served Customer (No Quality Key Account Manager)

Context and Feedback from the NPS Database

FB Design, a long-established Italian manufacturer of high-performance motorboats and boats, presents 4 responses from After-Sales Service and Spare Parts Logistics, with an NPS of 8.3/10 (among the highest). The feedback recognises the reliability of the engines and the prompt and helpful assistance, but highlights operational issues: unreliable delivery dates, lack of coordination of internal FPT resources, spare parts warranty process perceived as inadequate, and lack of customer training on the product. With only 16 units but an extraordinary unit price of €42,801/u, FB Design operates in the premium marine segment where each engine is a custom solution with high added value.

Proposed Corrective Actions

Action 1: Delivery Reliability Programme with Priority Scheduling

- Root cause analysis: Investigate delivery delays:
 - Are delays production-related (insufficient capacity for custom marine engines)?
 - Logistics-related (complex customs clearance for international marine shipments)?
 - Quality-related (rework cycles on custom installations)?
 - Documentation-related (marine/export certificates, compliance paperwork)?
- Custom marine engine fast-track process:
 - Allocate dedicated production slot for FB Design (e.g., "every 2 weeks, 1-2 custom marine units scheduled")

- Establish preferred shipping partner with marine sector expertise and proven delivery reliability
- Pre-prepare all export documentation, marine certifications, warranty paperwork before quality sign-off (eliminates post-production delays)
- Conservative commitment + transparency:
 - Commit to delivery dates FPT can reliably meet with >95% confidence
 - Provide FB Design with weekly production status updates
 - If shipment will slip, notify FB Design 10 days in advance with revised date (vs. discovering at expected delivery)

Action 2: Dedicated Technical Support and Customer Training Program

- On-site training academy:
 - Quarterly workshops at FB Design headquarters covering:
 - Engine diagnostics and troubleshooting (for FB Design's After-Sales Service team)
 - Scheduled maintenance best practices (for end-customer communication)
 - Warranty claim procedures and documentation (for Spare Parts Logistics)
 - Emergency support protocols (24/7 contact for critical failures)
 - Provide certification (e.g., "FB Design technicians certified on FPT marine engines") creating organizational stickiness
 - Premium technical documentation:
 - Develop FB Design-specific technical manuals
 - Include photographs/diagrams specific to FB Design boat installations
 - Provide documentation in Italian + English for end-customer clarity
 - Proactive maintenance support:
 - Provide predictive maintenance guidance (e.g., "based on your usage patterns, recommend fuel injector service at 500-hour intervals")
 - Offer spare parts pre-stocking analysis (help FB Design stock optimal inventory to minimize customer downtime)
-

3.4. Strategic Summary of Corrective Actions

As an output for this work, following the thread I proposed, our quality department develop some action regarding projects in development and project from current production that could be applied and spread efficiently on all of our portfolio of client with the goal of get better results in the next year NPS in the most efficiently and trackable way.

3.4.1 Actions differentiation: Two different level strategy:

As said the proposed corrective actions reflect a two-tiered strategy:

Level 1: Cross-cutting systemic actions on projects being launched (global Actions 1, 2, 3)

- LL/Critical Points Consolidation from previous projects/productions framework establishment and implementation to identify risks in advance
- Change our attitude and mindset on planning: evaluate feedback from scenario to timing plan prioritizing issues and work out back-up solution to spread the mindset during the projects team meeting

Level 2: Actions for Problem Clusters on current production

- Action A: Quality issue Time to Fix
 - Action description: create case study based on issues that took long lead time to get solution (e.g. TDM oil cooler bolt / oil sump gasket; CLAAS pistons)
 - Expected benefit: improve TTF based on best practices
 - Expected end date: May 31st, 2026
 - Action owners: Tareen Dayyan, Gnasso Agostino
- Action B: Improve communication for Change Management topics
 - Action description: cross-functional review to validate the action plan for quality-related issues, clusterized by Supplier Management, Engineering, and Manufacturing
 - Expected benefit: transparency vs customer for long lead time modifications
 - Expected end date: May 31st, 2026
 - Action owners: Rigazio Marco, Gnasso Agostino, Product Line Leader

These actions, justified by specific feedback from the NPS database and contextualised with quantitative data received from the sales department, represent a concrete roadmap for a targeted increase in customer satisfaction and the strengthening of FPT Industrial's strategic partnerships in 2025-2026.

Part II: Perceived Quality Pathway – IVECO S-Way Collaboration with Stellantis Design Studio

3.5 Introduction and Strategic Context

3.5.1. Strategic transformation, to connect emotionally drivers and vehicles

In the highly competitive European heavy commercial vehicle market, global players such as Scania, Volvo, Daf, Mercedes, Man and Renault have in recent years re-evaluated the perception of trucks as simple work vehicles and implemented solutions aimed at improving quality perception, seeking to gain greater market share by emotionally connecting drivers to their vehicles. In response, IVECO has embarked on a strategic transformation aimed at elevating the perceived quality experience of its products. This initiative, launched in collaboration with Stellantis Design Studio and focused on the MY28 platform as a pilot project, represents a structured effort to bridge the perceived quality gap with high-end competitors, primarily Volvo and Scania, while maintaining the competitive advantages of cost efficiency and innovation that characterise the IVECO brand.

Perceived quality, distinct from product quality (technical reliability), service quality (after-sales service competence), and product reliability (durability over time), represents the product's ability to communicate excellence, attention to detail, design consistency, and solid construction through multisensory perceptions (touch, sight, hearing, smell, overall sensation) that the customer experiences from initial interaction with the vehicle to daily use. In the commercial vehicle segment, where the decisive factor for purchase is traditionally driven by economic criteria and technical reliability, perceived quality represents a new frontier of differentiation that allows the product to be positioned at a premium price without significantly increasing production costs, if the correct implementation logic is adopted.

3.5.2 The Integrated Strategy for Defining Project Targets

Before addressing the collaboration with Stellantis Design Studio and the structured methodology for measuring perceived quality, it is essential to understand the strategic governance framework that guided the definition of the overall targets for MY28. IVECO adopted a hybrid approach in defining project KPIs, distinguishing between ex-ante quantifiable dimensions (where it was possible to set precise numerical targets based on technical constraints) and qualitative/perceptual dimensions (where the absence of standardised industrial metrics made it necessary to resort to specialised external methodologies).

3.5.3. Quantitative KPIs: Engineering-Driven Target Setting

The quantitative KPIs were established by the IVECO engineering team, led by the Vehicle Integration Manager and Chief Engineer, with cross-functional input from Chassis, Powertrain, and Cabin leads. Following a rigorous Q3 2024 technical council evaluation chaired by the CEO, these targets received final executive sign-off, ensuring strategic alignment.

The KPI definition process systematically integrated four key criteria:

1. **Regulatory compliance**—mandatory CO2 reduction targets and GVW/GCW constraints dictated by European legislation

2. **Competitive positioning**—Scania/Volvo FH leadership benchmarks as premium-segment reference points
3. **MY28 platform feasibility**—physical and technical limits of the new architecture, validated with supplier capabilities
4. **Direct translation of Long Haul fuel savings and Urban drivability** priorities into measurable engineering specifications

This CEO-approved methodology converts high-level strategic objectives into operational engineering targets, balancing regulatory imperatives, market leadership aspirations, platform realities, and end-customer value creation.

The main quantitative KPIs set include:

Fuel Efficiency:

- CO2 reduction: -8% vs MY24 (target derived from limitations imposed by European regulations)
- Mission To-Ge consumption: -10% fuel consumption (actual consumption in simulated driving cycle)

Performance Driving:

- Handling SAE Score >8 for Long Haul/Regional missions (with all ratings >7.5)
- Drivability SAE Score >7.5 for Urban/Municipality missions (with all ratings >7)

Thermal Insulation (Heating, Defrosting, Demisting):

- Warm-up: 18°C reached in 45 minutes with additional heater (Volvo benchmark)
- Windscreen defrosting Zone A: 80% in 20 minutes; Zone B: 95% in 40 minutes (Scania benchmark)

Acoustic Comfort:

- SPL at idle: 48 dB(A) cabin average
- SPL at 80 km/h: 63.2 dB(A) cabin average
- ISO Target: Achieve Scania/Volvo FH performance (discussion still ongoing on economic feasibility and trade-offs)

Vibration Comfort:

- Seat vibration at 80 km/h: 0.17 m/s²
- Steering wheel vibration at 80 km/h: 0.5 m/s²
- ISO target: < MY21 (at least equal to MY21)

GVW/GCW (Gross Vehicle/Combination Weight):

- Target: At least as MY21

Storage Capacity:

- Preliminary target: 372L

Driver Centricity - Ergonomics:

- Seat Adjustment Longitudinal: From 5th to 95th percentile of driver with full comfort
- Controls Reachability: All controls reachable from 5th to 95th percentile of driver with full comfort
- Visibility: DAF XF benchmark for direct visibility; at least Ref. for indirect visibility (mirrorless camera screens)

These quantitative KPIs represent the operational translation of the design specifications and were defined through an iterative process between the IVECO engineering team, supply partners (engine, transmission, suspension), and competitive benchmarks. The decision to set precise targets on metrics such as CO₂ (-8%), Handling (>8 SAE), Fuel Efficiency (-10%) was based on:

- Technical possibilities of the MY28 architecture
- European regulations (GVW/GCW constraints, anti-pollution regulatory compliance)
- Market benchmarks (competitive positioning vs Scania, Volvo, DAF, Mercedes)

3.5.4. Qualitative KPIs: The Challenge of Measuring Perceived Quality

In the second cluster, IVECO identified a set of qualitative KPIs where the absence of standardised metrics and the difficulty of setting numerical targets made it necessary to resort to specialised external methodologies. These qualitative KPIs, all focused on perceived quality, include:

- Seat Perceived Quality (tactile comfort, finishes, build quality, design)
- Controls Perceived Quality (haptic quality of buttons, switches, ergonomics)
- Compartment, Storage, Foldable Table Perceived Quality (perceived solidity, ease of use, design consistency)
- Dashboard Perceived Quality (stylistic consistency, finish quality, modern feel)
- Door Panel Perceived Quality (materials, finishes, armrest integration, soft-touch zones)
- Cluster, Infotainment and Connectivity HMI and User Experience (user interface, display quality consistency, modernity)

These KPIs represent the qualitative frontier of MY28, where IVECO's positioning from 'Value Brand' to 'Premium Brand' is played out. Unlike quantitative KPIs (CO₂, SAE Handling, Storage Capacity), where it is possible to measure the final result and declare it compliant with numerical specifications, perceived quality KPIs operate on a sensory and perceptive dimension where judgement is necessarily subjective and heterogeneous among different evaluators.

The central challenge was that IVECO could say, *'We want the MY28 seat to be of higher quality than the MY24 and competitive with Scania and Volvo,'* but it could not set a precise quantitative target such

as 'Seat Perceived Quality Score = 7.5/10' without a structured and validated measurement methodology. This methodological gap was the main driver behind the strategic decision to entrust the definition of perceived quality targets to Stellantis Design Studio, an expert partner in translating user preferences into technical solutions to be implemented in the project.

3.5.5. The Partnership with Stellantis Design Studio: From Qualitative to Quantifiable

Recognising the limitations of a purely engineering-driven approach to addressing the qualitative dimension of perceived quality, IVECO engaged Stellantis Design Studio as an external methodologist and validator with the mandate to:

1. Define a structured and replicable measurement grid for perceived quality KPIs, translating subjective human preferences into quantifiable criteria and numerical scoring
2. Conduct competitive benchmarking between the IVECO MY24 (internal baseline) and selected competitors (DAF XF Super Long Cab, Mercedes eActros) to identify the existing quality gap and the necessary improvement target
3. Provide component-specific recommendations on how to bridge the perceived quality gap, with a focus on seats, dashboard, door panel, controls, folding table, and finishes
4. Transfer the SDS framework and expertise internally to IVECO so that the organisation could internalise the measurement methodology and maintain it beyond the conclusion of the initial partnership, so that it could be translated into future projects, starting with the development of 3D models by style and engineering

This strategic partnership transformed the problem of 'perceptual immeasurability' (the impossibility of setting precise numerical targets for quality that is inherently subjective) into an opportunity for methodological standardisation that allows IVECO to:

- Speak the language of perceived quality in measurable and replicable terms
- Communicate precise guidelines to suppliers and partners (ADIENT for seats, Ford for co-development, etc.)
- Progressively monitor the achievement of quality objectives during the design development phases
- Validate the final product against predefined perceived quality standards

In summary, the MY28 KPI strategy is based on a hybrid architecture where the quantitative dimension has been addressed through traditional engineering governance (setting numerical targets, technical validation, testing), while the qualitative dimension of perceived quality has been entrusted to structured design-driven measurement methodologies thanks to the collaboration with Stellantis Design Studio. This integrated approach underpins MY28's strategic ambition to transition IVECO from a 'value brand' to a 'premium brand' in the European Heavy-Duty Trucks segment.

3.5.6. The Stellantis Design Studio Methodology: From Subjective Human Perception to Measurable Criteria

The Stellantis Design Studio (SDS), launched in 2021 following the PSA-FCA merger under creative directors Busse & Gournac, developed its methodology by adapting the academic Perceived Quality Framework (PQF) originally proposed by Stylidis et al. (2015, 2019) at Chalmers University.[Stylidis, 2015][Stylidis et al., 2019] . This framework emerged from empirical studies with OEMs like Volvo and Saab, where more than 50 industry professionals validated 9 sensory modalities and 32 ground attributes through structured workshops, later refined at the 2018 Dubrovnik conference.

3.5.6.1 Foundational Logic and Theoretical Underpinnings

The SDS methodology rests on three fundamental assumptions that distinguish it from traditional quality assessment approaches:

1. **Multi-sensory Integration Hypothesis:** Perceived quality operates as a holistic cognitive process integrating inputs from five primary sensory modalities—visual (sight), tactile (touch), auditory (hearing), olfactory (smell), and proprioceptive (integrated spatial feel)—rather than isolated technical specifications. This bottom-up sensory approach recognizes that customers form quality judgments through simultaneous processing of multiple sensory cues during product interaction.[Stylidis et al., 2015]
2. **Attribute Decomposability Principle:** Complex subjective perceptions can be systematically decomposed into measurable "ground attributes"—discrete, objectively assessable product characteristics (e.g., gap size, surface smoothness, button actuation force)—that collectively determine overall quality perception. The PQF identifies 32 such ground attributes spanning the nine sensory modalities, enabling engineering teams to translate subjective impressions into controllable design parameters.[Stylidis, 2019]
3. **Cross-Industry Transferability:** Quality perception follows universal human perceptual patterns that transcend industry boundaries. SDS validated that the six universal expectations identified in automotive contexts (Harmony, Robustness, Refinement, Safety, Fit & Finish, Roadholding) apply equally to aviation (Dassault), rail (Bombardier), marine (Air France), and commercial vehicles (IVECO), with only application-specific weighting adjustments required.

3.5.6.2 Methodological Translation: From Academic Framework to Operational Tool

SDS translated the academic PQF into a practical assessment system through a five-stage distillation process:

Stage 1 – Sensory Modality Mapping: The original nine PQF sensory modalities (Visual Quality, Tactile Quality, Auditory Quality, etc.) were consolidated into six customer-facing expectations that reflect end-user priorities rather than engineering categories. For example, "Visual Quality" + "Tactile Quality" + "Olfactory Quality" collectively inform the "Refinement" expectation, emphasizing customer perception over technical measurement.

Stage 2 – Universal Expectations Definition: Through iterative consumer panels and expert evaluations across 50+ vehicle benchmarks, SDS identified six interdependent dimensions that customers universally employ when judging product quality:

- **Harmony:** Aesthetic and functional consistency between design elements; absence of stylistic contradictions that generate perceptual disorientation (e.g., premium exterior styling mismatched with low-grade interior materials).
- **Robustness:** Perception of solid construction, durability over time, and resistance to wear; signaled through material density, assembly tightness, and aging characteristics.
- **Refinement:** Elegance, sophistication, and meticulous attention to detail; absence of crude or rudimentary elements; precision in tolerances and surface quality.
- **Safety:** Perception of protection, reliability in critical systems, and peace of mind during use; communicated through structural integrity cues and failure-resistant design.
- **Fit & Finish:** Quality of workmanship—absence of gaps, precise component alignment, seam regularity, coating uniformity, tactile smoothness of joints.
- **Roadholding** (*automotive-specific*): Feeling of control, stability, and reliability during dynamic use; suspension responsiveness, steering feedback, vibration isolation.

Stage 3 – Hierarchical Decomposition: Each of the six universal expectations was further disaggregated into 18 product-specific criteria tailored to automotive applications (e.g., "Door Panel Quality," "Seat Comfort," "Dashboard Finishes"). These 18 criteria are then evaluated across 100+ discrete rating zones—specific physical touchpoints where customers interact with the product (exterior door handle, infotainment screen bezel, seat adjustment lever, etc.). This hierarchical structure enables precise identification of quality gaps at the component level while maintaining alignment with higher-order customer expectations.

Stage 4 – Weighted Evaluation Architecture: Recognizing that customer interaction time differs significantly between vehicle zones, SDS applies asymmetric weighting:

- **Exterior evaluation: 1/3 of total weight** (exterior surfaces, handles, paint finish)—reflects brief initial visual impression from distance.
- **Interior evaluation: 2/3 of total weight** (cabin, dashboard, seats, controls, finishes)—reflects prolonged tactile and functional interaction during daily use.

This weighting embeds the assumption that sustained physical contact with interior surfaces dominates long-term quality perception, whereas exterior aesthetics primarily influence initial purchase consideration.

Stage 5 – Quantification via Five-Level Rating Scale: To enable objective benchmarking, SDS employs a five-point qualitative scale mapped to numerical equivalents:

- **Wow Effect** (9-10 points): Exceeds expectations; elicits positive emotional response.
- **Good** (7-8 points): Meets premium-segment standards without remarkable differentiation.
- **Neutral** (5-6 points): Adequate but unmemorable; lacks distinctive character.
- **Weak** (3-4 points): Below competitive norms; noticeable deficiencies.
- **Unacceptable** (1-2 points): Fundamental failures; triggers negative reactions.

This scale transforms subjective assessments ("the door handle feels cheap") into comparable quantitative data enabling statistical analysis and trend tracking across vehicle generations.

3.5.6.3 Critical Assumption: Interdependency and the Halo Effect Decay Mechanism

A central tenet of the SDS methodology is that the six universal expectations are not independent variables but exhibit strong interdependency through cognitive bias mechanisms. SDS validated through empirical benchmarking that a single weak dimension (e.g., poor Fit & Finish with visible panel gaps and misaligned seams) triggers "halo effect decay"—a cognitive phenomenon where initial positive impressions in other dimensions (e.g., strong Harmony, high Refinement) deteriorate upon functional interaction.[Forslund, 2011; Haverkamp, 2017]

This interdependency implies:

- **Non-additive scoring:** Overall perceived quality is not the arithmetic mean of six dimension scores; a single "Weak" rating disproportionately depresses holistic evaluation.
- **Threshold effects:** Minimum acceptable performance must be achieved across *all* dimensions to sustain premium positioning; excellence in five dimensions cannot compensate for failure in one.
- **Sequential perception:** Customers evaluate in stages—exterior visual assessment (IQPE: *Qualité Perçue Extérieure*) establishes initial expectations, then detailed interior interaction (IQPI: *Qualité Perçue Intérieure*) confirms or contradicts those expectations. Discrepancies between IQPE and IQPI accelerate halo decay.

3.5.7. The Perceived Quality Measurement Grid: Application to the IVECO Context

In the specific context of MY28 IVECO, the SDS measurement grid was applied according to the following protocol:

Phase 1 - Definition of Customer Expectations: identification of key touchpoints that the driver experiences during the vehicle usage journey (access, settling in, familiarisation with controls, daily use, cleaning and maintenance)

Phase 2 - Identification of Critical Components: in MY28, the priority components for measuring perceived quality were identified as:

- **SEAT** - Co-developed with supplier ADIENT
- **DASHBOARD** - With a focus on controls, storage compartments, folding table
- **DOOR PANEL** - Co-developed with Ford
- **INFOTAINMENT AND CONNECTIVITY (HMI)** - Mix of carry-over components and in-house development
- **EXTERNAL DOOR HANDLE** - Co-developed with Ford
- **LOWER PART OF THE CAB** - Co-developed with Ford

Phase 3 - Scoring and Ranking: each component was evaluated on a scale of 1-10 according to the 18 specific criteria of the SDS grid, yielding two distinct composite scores that capture sequential quality perception stages:

- **IQPE (Qualité Perçue Extérieure)**: External Perceived Quality—initial visual impression from distance/ casual observation
- **IQPI (Qualité Perçue Intérieure)**: Internal Perceived Quality—detailed scrutiny upon interaction/use

Example: A door handle may score high IQPE (premium appearance from 2m distance) but low IQPI when grasped—revealing visible screws, unpainted internal surfaces, and cheap haptics that shatter the initial quality illusion.

This two-stage methodology quantifies the critical "halo effect decay," where first impressions crumble under functional interaction, driving SDS benchmarking rigor.

3.5.8. Competitive Benchmarking Methodology: IVECO MY24 vs DAF XF vs Mercedes eActros

The benchmarking conducted by Stellantis Design Studio in our department involved a three-way comparison between: our IVECO MY24 Active Space (internal baseline), the DAF XF Super Long Cab (established European competitor), and the Mercedes eActros (competitor with premium electric positioning). The choice of these two competitors reflected the intention to understand both the gap with respect to the previous internal line (MY24) and the positioning in the premium segment (Mercedes eActros) and in the European mid-premium segment (DAF).

For each critical component, SDS performed a comparative visual and tactile analysis, documenting:

- Specific strengths of the solution
- Critical areas of dissatisfaction
- Numerical score according to the Perceived Quality grid
- Recommendations for improvement

3.5.9. Benchmarking Results: Analysis by Component

1. EXTERNAL DOOR HANDLE

Baseline: IVECO MY24

- PQ Score: 7/10
- Strengths: good plastic feel, integration, robustness/noise reduction, "Safety Lock" label appreciated given the danger of drivers being robbed of their cargo
- Critical points: section a little thin and in need of improvement, some visible holes with sharp aggressive edges when in use.

Benchmark - DAF XF

- PQ score: 4/10
- Strengths: painting and metal effect finishes
- Critical points: feels too plastic (handling), not well guided, perception of insufficient robustness

Benchmark - Mercedes eActros

- PQ score: 5/10
- Strengths: good plastic feel, easy to handle
- Critical points: lack of integration, lack of quality/finish, handle ergonomics could be better

SDS recommendations for MY28: the IVECO MY24 is already the best performer of the three. The MY28 should maintain and improve on its strengths, as the external door handle is the first physical contact you have with the vehicle.

Co-development status: Yes, co-developed with Ford

2. SEATS

Baseline: IVECO MY24

- PQ Score: 4/10
- Critical points identified:
 - Poor and basic overall appearance, lack of volume
 - Insufficient padding (thin foam)
 - Materials and fabrics perceived as basic and not durable (difficult to clean)
 - Overall design treatment that amplifies the feeling of thinness and perceived lack of comfort

Benchmark - DAF XF

- PQ score: 7/10
- Strengths: considerable and welcome volume, seat treatment with a spacious and generous design, customisation options, stitching on the headrest to reinforce the perception of comfort, perforated leather finishes
- Critical points: finishes and stitching far from perfect, somewhat classic appearance with little personality and identity

Benchmark - Mercedes eActros

- PQ score: 8/10
- Strengths: well-integrated branding, modern design with a large effect, materials that convey quality and a modern home feeling, well-finished trim and stitching

- Critical points: average comfort (not as soft and welcoming as it present itself)

SDS recommendations for MY28: the selected supplier ADIENT presented an initial concept that was not appropriate for the heavy truck segment ('Maybe light/medium', 'Silhouette bad looking', 'Proportion dystopic', 'Shape not ergonomic'). Subsequent actions included a business case for specific improvements (specific foam, logo, design elements) and a direct comparison with MY24 to understand the desired evolution.

Co-development status: Yes, co-developed with ADIENT.

3. SEAT - ADJUSTMENT CONTROLS

Baseline: IVECO MY24

- PQ score: 3/10
- Critical points: Very basic appearance, no pictograms with explanations, poor plastic finishes

Benchmark - DAF XF

- PQ score: 6/10
- Strengths: Easy to use, pictograms present
- Critical points: Somewhat aggressive in usage feedback

Benchmark - Mercedes eActros

- PQ score: 6/10
- Strengths: Well integrated, modern feel, high-quality materials
- Critical points: Not easy to use, pictograms not visible

SDS recommendations for MY28: significant potential for improvement with standardisation on clear pictograms and improvement of plastic finishes. It is the first element of the cab that you see when you open the door, so it is important to take care of it, as drivers interact with it often.

4. DASHBOARD - GENERAL LOOK

Baseline: IVECO MY24

- PQ Score: 6/10
- Strengths: Modern longitudinal lines, floating effect with hidden air vents, floating screen with modern UI
- Critical points: Inconsistency, too many details with different treatments and shapes, too many shutlines and effects, lack of overall refinement in details and finishes

Benchmark - DAF XF

- PQ score: 7/10

- Strengths: Clean, simple horizontal design treatment, perception of roominess, obvious use of available space, modern screen
- Critical points: Poor finishes & plastic feel on shiny and decorative parts, too many shutlines, too many void buttons (non-functional); Plastic scratch already visible (poor durability)

Benchmark - Mercedes eActros

- PQ score: 5/10
- Strengths: Clean and simple design treatment, overall consistency in section treatments
- Critical points: Right side of the dashboard looks like an old (basic) Volkswagen minibus, a bit blocky & lacking in modernity; Inconsistency between wow effect elements and other more basic & work-vehicle-like elements

SDS recommendations for MY28: the main priority is to resolve the overall stylistic inconsistency: too many different details, shapes and treatments create a feeling of “assembled from various ages, styles, technologies”. Recommendation: “Initiate a modular & evolutive platform on key parts, made to last & updates in the future”

Co-development status: Mixed components - IVECO upper dashboard interior, lower part co-developed with Ford

5. SCREENS & INFOTAINMENT

Baseline: IVECO MY24

- PQ score: 7/10
- Strengths: Clear information and attractive design; Good resolution and finish; Floating screen with modern UI; Consistent integration with dashboard
- Critical points: Lack of hand/grip support area (ergonomics); Difficulty in access and use by users on the move

Benchmark - DAF XF

- PQ score: 4/10
- Critical points: Basic with information overload; Cluttered and unintuitive layout; Lack of clear visual hierarchy

Benchmark - Mercedes eActros

- PQ score: 7/10
- Strengths: Sophisticated and well-integrated design; Modern feel with cutting-edge technology; Premium interface
- Critical points: Lack of clarity in information; Too much content density on the screen; Navigation not always intuitive

SDS recommendations for MY28: MY28 will adopt two screens:

- Green 16-inch optional display: carry-over from Jeep Compass MY26
- Cockpit display: developed according to IVECO specifications

Critical actions:

1. Ensure a similar and indistinguishable level of quality between the two displays
2. Ensure consistency in display technology (do not mix LCD, OLED, miniLED, microLED)
3. Maintain consistency in contrast ratio, resolution, and pixel density
4. Preferably use the same supplier to avoid future integration issues

Co-Development Status: Mixed - Stellantis carry-over (Jeep Compass) for the main display + IVECO internal development for the cockpit display

6. DASHBOARD BUTTONS

Baseline: IVECO MY24

- PQ score: 4/10 (category 'Weak')
- Critical issues identified: Very plastic finishes and low tactile quality; Too many buttons in a single row - visual overload; Many unused/void buttons (buttons present but not functional); Inconsistent shapes: mix of switches, toggle switches, rotary buttons with no stylistic consistency; Rotary buttons have a decent feedback in use but finishes could be significantly improved; Lack of visual hierarchy (it is not clear which are the primary controls)

Benchmark - DAF XF

- PQ score: 3/10
- Critical points: Very plastic finishes and cheap feel; Basic button design; Too many buttons with no real function; Inconsistent shapes: chaotic use of rotary buttons between screen, volume and temperature control; Lack of functional differentiation

Benchmark - Mercedes eActros

- PQ score: 7/10
- Strengths: Modern feel to the upper buttons; Stop/start button looks classy but is small and not ideally positioned; Excellent Mercedes feel and refinement on some key pieces; Good visibility and legibility of the logo; Use of quality materials; Modern and consistent design
- Critical points: Technological inconsistency on the lower buttons with some voids/unused; Some buttons on the lower part are not of the same quality as those on the upper part

SDS recommendations for MY28:

Complete rework of the buttons with a focus on:

1. Reducing the number of buttons: eliminating all non-functional buttons, integrating optional functions into the display

2. Standardisation of shapes: eliminate mix of switches/toggles/rotary controls that are inconsistent in shape, feedback and noise
3. Improvement of finishes: add subtle metallic effects, premium textures
4. Introduction of clear pictograms for each command

Co-Development status: Internal development IVECO.

7. PARKING BRAKE

Baseline: IVECO MY24

- PQ Score: 4/10
- Critical points identified: Too large and too flat – bulky; Handbrake unflattering in shape, position, size and finish; Cheap and poorly finished appearance; Position not optimal in terms of driver ergonomics; Low-quality plastic finishes

Benchmark – DAF XF

- PQ score: 3/10
- Critical points: Very basic design; Plastic finishes; Lack of integration into the overall design of the dashboard; Feels like a cheap component applied without design care

Benchmark – Mercedes eActros

- PQ score: 10/10
- Strengths: Good consistency in shapes and details; Metallic effect that conveys quality; Excellent integration of buttons into the overall design; Compact and modern design; Feeling of mechanical precision and reliability

SDS recommendations for MY28:

There seems to be no intention to modify it; it appears that a direct carry-over is desired

Co-development status: Internal development IVECO.

8. DRIVING WHEEL BUTTONS

Baseline: IVECO MY24

- PQ score: 4/10
- Critical points identified: OK but too plastic - lacks subtle metallic effects; Logo visibility acceptable but could be improved; Functional design but lacking premium appeal; Lack of quality tactile feedback

Benchmark - DAF XF

- PQ score: 7/10

- Strengths: Excellent logo visibility and legibility; Somewhat basic design with large patterns; Good consistency in shapes and details; Metallic accents to enhance perception; Excellent visibility and access; Easy to use
- Critical points: Design with somewhat basic and large patterns; Lack of sophistication in details

Benchmark - Mercedes eActros

- PQ score: 9/10
- Strengths: Good visibility and legibility of the logo; Use of quality materials; Modern and refined design; Excellent tactile feedback; Seamless integration with the steering wheel; Feeling of precision and reliability

SDS recommendations for MY28:

1. Improvement of materials: add subtle metallic effects to enhance the perception of quality
2. Increase logo visibility and legibility: greater contrast and illumination
3. Consistency between shapes and details: standardisation of design language
4. More modern design: update compared to the MY24 version, which was perceived as “too plastic”
5. Improvement of tactile feedback: more precise and satisfying click

Co-Development status: Internal development IVECO.

9. STORAGE AND COMPARTMENTS

Baseline: IVECO MY24

- PQ score: 4/10
- Critical points identified: Plastic finishes with defects in shape; Difficult access to open storage; A lot of space wasted in the configuration of the two storage levels; Very basic sliding system in terms of sound, robustness, and perception of use; Wobbling and poor feel - perceived instability; Lack of internal storage organisation

Benchmark - DAF XF

- PQ score: 7/10
- Strengths: Large, easy-to-open storage compartments throughout; One sliding storage compartment oriented towards the driver; Sliding effort OK - smooth mechanics; Finishes OK - acceptable level; Robustness OK - feeling of solidity; Good sliding effect - smooth and controlled; Well-finished - attention to detail; 2 well-organised levels

Benchmark - Mercedes eActros

- PQ score: 8/10

- Strengths: Well-finished with attention to detail; 2 well-integrated storage levels; Premium quality feel; Smooth and quiet mechanics
- Critical points: Aggressive finishes to the touch in some areas

SDS recommendations for MY28:

1. Redesign the sliding guide system: eliminate wobbling and improve perceived robustness
2. Space optimisation: reduce wasted space and increase useful capacity
3. Finish improvement: eliminate plastic defects and add quality textures
4. Facilitate access: make opening and closing more intuitive
5. Details and pleasure to use: add elements that make it pleasant to use (soft-close, interior lighting, organiser)

Co-development status: co-development with Ford for the lower part of the dashboard and upper part of the drawers above the bed.

10. FOLDABLE TABLE

Baseline: IVECO MY24

- PQ Score: 4/10
- Critical points: narrow table, poorly finished (cheap); poor quality integration, complex lock design; difficult to close and store, lots of noise from gaps and finishes; off-centre in relation to the passenger seat.

Critical points: not easy to open, aggressive finishes underneath

Benchmark - DAF XF

- PQ score: 7/10
- Strengths: oversized style with specific design, many user-driven design details

Benchmark - Mercedes eActros

- PQ score: 4/10
- Critical points: not easy to use (especially to fold)

SDS recommendations for MY28: SDS has identified a critical risk in the MY28 project: the MY28 folding table uses the same mechanics as the Mercedes Actros MY25. Suggested actions include studying how to overcome the defects of the Actros table and implementing a robust solution that does not convey a feeling of fragility.

Co-development status: Internal development IVECO.

11. DASHBOARD FINISHINGS

Baseline: IVECO MY24

- PQ Score: 6/10
- Strengths: Good modern metallic effect on decoration; Somewhat solid and spacious; Efforts to mask gaps and finishes
- Critical points: Gaps and finishes could be improved overall; Lack of refinement in details; Some areas with uneven plastic treatment

Benchmark - DAF XF

- PQ score: 3/10
- Critical points: Too many shutlines - excessive joint lines; Complex and confusing treatments; Too much fake metallic paint on large plastic parts (cheap feel to the touch); Poor sound and finishes; Overall decoration not modern - fake plastic feel; Lack of consistency in materials

Benchmark - Mercedes eActros

- PQ score: 6/10
- Strengths: Overall treatment OK but could be improved; Fairly consistent overall
- Critical points: Gap on the table cover is really weak - significant critical point; Some areas with finishes not up to premium positioning

SDS recommendations for MY28:

1. Shutline reduction: minimise visible joint lines
2. Improvement in material consistency: use uniform plastic treatments
3. Elimination of fake metallic paint: prefer real metal inserts or quality textures
4. Gap and flash optimisation: pay particular attention to critical areas (table cover)
5. Refinement of details: meticulous attention to every decorative element

Co-development status: IVECO internal development for upper dashboard; co-development with Ford for lower cab (with need for alignment on stylistic consistency).

12. AIR VENTS

Baseline: IVECO MY24

- PQ score: 5/10
- Strengths: Good modern integration in the central area; interesting hidden air vent concept
- Critical points: Complex fake lines that are difficult to align – non-functional slats; somewhat poor-quality plastic – cheap feel; no rotary controls – lack of intuitive adjustment; Old-fashioned design despite modern intentions

Benchmark - DAF XF

- PQ score: 6/10
- Strengths: Clear positioning and function; 2 per passenger - good distribution; Good decorative interior finishes
- Critical points: Somewhat basic and poor integration into the decor; No rotary controls - functional limitation; Design without any elements of excellence

Benchmark - Mercedes eActros

- PQ score: 5/10
- Strengths: Classic and effective integration; Good feedback on rotary controls - precise and satisfying mechanics
- Critical points: Overall neutral design with no wow factor

SDS recommendations for MY28:

1. Replace MY24 lamellas design: eliminate heavy, old-fashioned lines with modern solutions
2. Improve symmetry and alignment: attention to geometric precision
3. Improve rotary control mechanism: superior quality and precision feel
4. Benchmarking automotive best practices: study examples of premium vents (mentioned: Peugeot, Volkswagen, Audi, Volvo)

Co-Development status: IVECO internal development with specialised supplier for mechanical adjustment components.

13. INTERNAL DOOR PANEL

Baseline: IVECO MY24

- PQ Score: 3/10
- Strengths: simple, clean design, well-integrated handle
- Critical points: poorly treated plastic parts, lack of finish on the upper part of the panel, poor decorative speaker treatment, flat decorative part inconsistent with the dashboard design, lack of finish on the lower part and storage of the panel

Benchmark - DAF XF

- PQ score: 7/10
- Strengths: luxurious feel (materials, texture) on the top, soft part for elbow rest, integrated door handle system, enhanced speaker refinement, different materials for the interior panel (sound absorption)
- Critical points: complex & complicated design, cheap-looking decorative finishes, limited storage

Benchmark - Mercedes eActros

- PQ score: 6/10
- Strengths: clear door handle, clearly visible, accessible, usable & integrated opening command, good plastic feel
- Critical points: lack of clarity & information, not very user-friendly

SDS recommendations for MY28: SDS has identified the interior door panel as a 'great opportunity to implement solutions that satisfy customers and increase PQ for MY28':

1. Armrest for the driver's seat: ISO benchmark DAF (hard) vs MAN (soft) with case study on costs/benefits
2. OPT for customer experience: such as garbage bag holder on DAF
3. Rework of switch panels: carry-over from MY24 but reworkable in:
 - Lateral storage pocket
 - Door handle
 - Upper panel height
 - Finishing and chrome insertions

Co-Development status: Yes, developed internally by IVECO with the possibility of using suppliers for specific elements.

3.5.10. Composite Scores and Overall Analysis

The overall perceived quality average emerging from the benchmarking was as follows:

Component/Vehicle	IVECO MY24	DAF XF	Mercedes eActros	Trend
Perceived global score	4,7/10	5,4/10	6,6/10	+1,9 Mercedes vs IVECO
External door handle	7/10	4/10	5/10	IVECO leading
Seats	4/10	7/10	8/10	IVECO trailing
Seat adjustment controls	3/10	6/10	6/10	IVECO trailing
Dashboard – general look	6/10	7/10	5/10	DAF leading
Screens & infotainment	7/10	4/10	7/10	IVECO & Mercedes equal
Dashboard buttons	4/10	3/10	7/10	IVECO trailing
Parking brake	4/10	3/10	10/10	Mercedes outstanding
Driving wheels buttons	4/10	7/10	9/10	IVECO trailing
Storages	4/10	7/10	8/10	IVECO trailing
Foldable table	4/10	7/10	4/10	DAF leading
Dashboard finishings	6/10	3/10	6/10	IVECO & Mercedes equal
Air vents	5/10	6/10	5/10	DAF leading
Internal door panel	3/10	7/10	6/10	IVECO trailing

IVECO MY24 vs DAF XF vs Mercedes eActros: Benchmarking Results Table 3.5.10.

Critical analysis: the composite score of IVECO MY24 (4.7/10) vs Mercedes eActros (6.6/10) represents a gap of 1.9 points on a scale of 1-10, equivalent to approximately 29% deficit in perceived quality. The gap is particularly pronounced in key quality areas such as:

- Overall stylistic consistency (inconsistency, too many details, too many different shapes)
- Finish quality (plastic feel, gaps, shutline)
- Perceived materials (feel of inferior quality)

- [Luxury details](#) (armrest, storage, adjustment controls)

IVECO maintains a competitive advantage only in terms of exterior door handles and screens, but these are individual components and do not compensate for the overall deficit in the cabin user experience, especially when we consider that in 2028 we will not know what the competition will be presenting and offering on the market.

3.5.11. Key Areas for Improvement Identified for MY28

Based on benchmarking analysis, Stellantis Design Studio help us work a structured action plan focused on six priority areas for intervention:

1. Overall redesign based on stylistic consistency (Overall Design Consistency)

Problem identified: ‘The overall interior experience looks like an assemblage of components of various ages, styles, technologies, with a majority of poor plastic and finishes overall.’

SDS recommendation: Establish a modular and scalable platform for key components, designed to last and be updatable in the future. This means defining a consistent design language that is:

- Temporally consistent (do not mix components from different eras)
- Materially consistent (do not mix different qualities of plastic and treatments)
- Stylistically consistent (consistent shape, proportion, detailing)

Implications for MY28: Critical review of the modularity strategy with Ford on the door in white (Truck industry terms to define the naked sheet metal of the door) and lower cab structure to ensure consistency with the internal design language developed by IVECO.

2. Seat Refinement

MY28 target: Move from 4/10 (MY24) to a minimum of 7/10 (DAF benchmark).

Specific actions:

- Review of ADIENT supplier design with focus on appropriate silhouette for heavy trucks, correct proportions, optimal ergonomics, adequate foam.
- Introduction of luxury elements (branding logo, differentiated textures, stitching sections)
- Stylistic consistency between driver and passenger seats
- Durable and easy-to-clean materials and fabrics

3. Reworking of controls (Buttons & Controls Redesign)

Target MY28: Move from 4/10 (MY24) to a minimum of 7/10 (DAF benchmark)

Specific actions for dashboard buttons:

- Complete rework with reduction in number of buttons and prioritisation/logical localisation
- Introduction of clear pictograms for each control

- Standardisation of shape and plastic treatment
- Separation between functional controls (climate, media, navigation) and optional controls to isolate empty buttons.

Specific actions for Driving Wheel Buttons and seat commands:

- Improvement of materials (add chrome metallic effects)
- Increased visibility and legibility of pictograms
- Modern airbag texture compared to the MY24 version (too basic)

4. Air Vent Redesign (Air Vent Modern Integration)

MY28 target: Move from 5/10 to at least 7/10

Specific actions:

- Finding a solution to redesign the heavy, old-fashioned “fake” lamellas with a modern design, rounded shape and refinement to enlighten the central lamellas could be valuable options to develop this idea.
- Improved symmetry and alignment
- Addition of a card holder or other user-friendly accessory to give the dashboard a symmetrical look if space allows (could interfere with crossbeam - to be analysed)
- Improvement of the control mechanism for a superior quality feel

5. Interior Door Panel Design

MY28 target: Move from 3/10 to at least 7/10

Specific actions:

- Integration of driver armrest (benchmark: DAF hard vs MAN soft)
- Add optional customer experience features (garbage bag holder, organiser)
- Rework switch panel with stylistic consistency

6. Lower Dashboard Harmonisation (Lower Cab Coherence)

Problem identified: Co-development with Ford creates inconsistency with IVECO's internal design language. ‘Borders layout gives the sensation that something is missing. There are too many split lines which don't follow the design language of the upper part’

MY28 target: Move from a totally inconsistent appearance to complete visual consistency

Specific actions:

- Consultation with Ford on cost/benefit case study for a more consistent solution
- Alignment between panels to avoid gaps & flash
- Possibility of Iveco self-development if co-development with Ford does not meet quality targets

3.5.12. The Stellantis Design Studio Measurement Grid: From Analysis to Operationalisation of Perceived Quality

The Conceptual Architecture of the Grid: From Subjectivity to Systematisation

Following benchmarking and review of the 3D models, once it was clear what was our first priorities of intervention on the project, Stellantis Design Studio proposed us a grid for measuring perceived quality with notes for each component, which was undoubtedly the most interesting element. The measurement grid proposed, specifically developed for heavy truck products, represents one of the most significant contributions of the partnership, not so much for the novelty of the criteria identified, but for the methodological systematisation of what generally remains in the ambiguous territory of “feeling” and “personal impression”. The grid operationalises a key principle that SDS wants IVECO to internalise that perceived quality is universal not because all humans react identically to a stimulus, but because the archetypes of that reaction are codifiable, repeatable, and teachable.

The structure of the grid starts from a fundamental assumption, indirectly reported in each cluster in the document, for example: ‘The seat must immediately convey a feeling of premium quality and thoughtful design’. This does not mean that the seat must necessarily be expensive; it means that the seat must communicate, through recognisable multisensory signals, that it has been designed and manufactured with care, attention, and high standards. This communication takes place in microseconds, even before the driver actually sits down. The first visual and tactile contact with the seat triggers a cascade of psychological inferences in the user's brain: from the stitching patterns to the quality of the foam, from the colour of the thread to the symmetry of the details, the brain collects a myriad of signals that are synthesised into an overall judgement of ‘premium’ or ‘cheap’. The SDS grid translates these signals from “vague impressions” to “concrete evaluation criteria”.

The Dimension of Stylistic Consistency: From Effective Assembly to Coherent Design

A recurring theme in the grid is the concept of stylistic consistency and continuity, explicitly articulated for the dashboard in bold as: ‘A lack of harmony screams “parts bin” engineering. A consistent design language across the dash, door trims, and console signals a holistic, premium design effort’. This passage is critical to understanding the gap between IVECO MY24 and its competitors: it is not so much that the individual components are of poor quality, but that the overall assembly gives the impression of having been built from heterogeneous parts from different sources, without a coherent vision. The SDS grid requires IVECO to understand that the customer perceives the vehicle as an integrated system, not as a collection of components; any inconsistency—a sudden change in material (hard plastic meeting soft-touch material), an abrupt transition between surfaces with different geometries, a change in formal language between the style of the dashboard and that of the door—compromises the overall perception of quality even if the individual pieces are functionally adequate.

Stellantis Design Studio insists that IVECO internalise that consistency is not an aesthetic option, but a fundamental dimension of perceived quality. In the context of MY28, this means that the decision to co-develop the door and lower part of the cab with Ford represents a strategic risk if not accompanied by a design architecture that ensures linguistic consistency between Ford components and components developed internally by IVECO. Communication between the teams (IVECO Design, Ford Design, and Suppliers) must operate on an ex-ante agreed design language baseline, otherwise the

final result will give the impression of an “assembly of various parts”—exactly the criticism that SDS levelled at MY24.

Seam Quality and Finishing: The Signature of Craftsmanship

One aspect that is particularly emphasised in the seat grid and applies across the board to all components with textile or assembled elements is the concept that the seam represents the visible “signature” of craftsmanship. SDS states emphatically: 'Seam quality is the most visible signature of craftsmanship. Irregularity suggests rushed, robotic, or inaccurate manual assembly.' This observation is not neutral: it is saying that the seam line (which the customer sees every time they look at the seat, every time they touch it) is a permanent statement about the overall quality standard of the product.

The document articulates this idea in specific criteria: ‘Visible, Regular Seam, No Distended/Zigzag Zone’, ‘No Visible Thread Ends/Threads in the Background’, and ‘No Sign of Excessive Tension’. Each of these criteria translates into a specific perception: an irregular seam communicates ‘lack of quality control’; visible thread ends communicate ‘lack of post-processing and attention to detail’; excessive tension communicates ‘production pressure that has compromised quality’. These are not functional problems (the stitching still holds the seat together), but they are perceptual communications that the customer instantly deciphers. IVECO must internalise that in the premium segment, tolerance for these details is close to zero: the customer has internationalised very high standards from experiences with leading competitors, Scania and Volvo above all.

SDS also emphasises that stitching is not a discrete element, but rather a component of the overall enhancement strategy, added value signs of reinforcement (Double Seam, Topstitching, Piping), elements such as double stitching, decorative topstitching, and piping (contrasting borders) do not add functionality but signal durability, care, and luxury. Double stitching communicates ‘this is built to last’; topstitching communicates ‘time has been taken to make this element beautiful’; piping adds a three-dimensional visual complexity that elevates the perception from ‘flat piece’ to ‘masterfully constructed piece’.

Tactile Ergonomics and Quality of Movement: From Cheap Plastic to Precision Feedback

The grid identifies a critical dimension of perceived quality that goes beyond aesthetics to the sensory experience: the tactile quality and mechanical feedback of commands, controls, and opening/closing systems. For seat controls, SDS specifies: "Smooth, Dampened Actuation (usage). The mechanical effort required for movement controls (like levers or switches) must be consistent, smooth, and require a deliberate, yet easy, amount of force.' This criteria reflects the observation that a control that snaps abruptly, has free play before 'locking" into position, or requires an excessively variable amount of effort, communicates to the driver that the product has been built with poor tolerances and low-quality materials.

In the context of dashboard buttons, SDS emphasises: ‘Audible Feedback (Click Quality). Push buttons (for heat, AC) must provide a crisp, defined, and acoustically tuned “click”—not a cheap, tinny snap’. Note how the document specifies ‘acoustically tuned’: it is not just the fact of having audible feedback, but that this feedback is harmonious, controlled, and consistent with the overall quality of the vehicle. A ‘tinny’ click (metallic, sharp, snappy) automatically conveys “cheap”; a ‘crisp, defined’ click (clear, controlled, high-quality) conveys ‘precision engineering’.

For storage, SDS emphasises: "Quality Damped, Effortless Opening and Closing. The movement must be controlled, silent, and feel substantial. There should be zero "rattling" or "bouncing" when the door is opened or released. 'The term "damped" recurs repeatedly in the grid and is fundamental to understanding the SDS philosophy: a 'damped" movement is a movement controlled by a viscous fluid (such as hydraulic shock absorbers), which prevents sudden accelerations. In the consumer context, damping is associated with luxury products (premium cars, aircraft, high-end furniture, apple packaging), while the lack of damping is associated with low value products (slamming doors, windows that close abruptly). In MY28, the introduction of damping on critical components (folding table, storage, cubby) represents a significant cost adder, but SDS says it is a mandatory investment for 'premium brand' positioning.

Modernity as a Temporal Code of Quality: Avoiding Perceived Obsolescence

A recurring theme is the concept of modernity, not as a passing aesthetic trend, but as an indicator that the product was designed recently, using contemporary technologies and processes. For the air vent, SDS reports: "Modernity. Vent design is a subtle but effective way to signal a vehicle's vintage. Hidden vents or continuous, blade-like designs convey sophistication and modern engineering, moving away from bulky, framed units." This criterion is saying that the customer uses design as a temporal clock: if the design is old (bulky framed units), the customer infers that the vehicle was designed years ago, using outdated technologies. A modern design (hidden, blade-like, minimalist) communicates 'this was designed recently with contemporary sensibilities'.

In the context of MY28, this is relevant because co-development with Ford introduces the risk that Ford components (previously developed for other platforms) will have an outdated formal language. SDS is communicating to IVECO that this risk must be actively managed: even if a component comes from an external partner, it must be reinterpreted or redesigned to resonate with the contemporary formal language that IVECO wants to communicate for the MY28 premium positioning.

Material Hierarchy and Attention to Hidden Details: From the Visible to the Invisible

A particularly eloquent passage in the grid for the door panel, but applicable across the board, is the principle that premium quality is also revealed in spaces that are not directly visible. SDS specifies this for storage: "Quality of Finishes and Attention to Detail / Interior Lining and Finish. The inside of the storage bin must be finished in a high-quality material—it should not be raw, hard plastic. This signals attention to details that are often hidden."

This criterion is deeply revealing of the Stellantis Design Studio's philosophy: quality is not a spectacle for the outside observer, but an intrinsic dimension of the object, which is also revealed in spaces that are not visible. A customer who opens a storage compartment and finds the interior lined with a soft, well-finished material, with possible internal lighting, immediately infers that the designers and manufacturers have invested effort even where it is not seen: if they care about the interior (invisible) space, they will also have cared about the exterior (visible) space. Conversely, a storage unit with a rough hard plastic interior conveys inconsistency and casts doubt on the quality of the product as a whole.

For the door panel, SDS articulates a "material hierarchy": 'Material Hierarchy and Finish (Layered Quality). Crucial Note: High-end design prioritises premium materials in zones that are frequently touched or highly visible (the upper panel and elbow rest). The armrest must be soft, supportive, and use design & material that feels luxurious, as this is a prolonged, high-contact area". This principle of

material hierarchy communicates that in MY28, IVECO must stratify materials based on perceived importance: areas of prolonged contact (elbow rest) and highly visible areas (upper panel) must use premium materials (soft-touch, leather, texture), while less important areas can use hard plastic (lower panel). However, the additional criterion is that even the 'less important' plastic must be functionally consistent with the rest (colour, grain, finish)—it cannot be 'just any' cheap plastic, but rather plastic that contributes to the overall qualitative language.

Clarity and Intuitiveness: Reducing Cognitive Resistance

A strategic theme for MY28—particularly critical given the trend towards increasing technological complexity—is that perceived quality includes reducing cognitive load. For dashboard controls, SDS states in bold: "Clear and Intuitive Organisation. The logic of use & design should be instantly clear and understandable. Controls for related functions must be grouped logically to reduce distraction 'and subsequently 'Easy to Use / Intuitive UX. The system must require minimal cognitive load. Primary functions should be one or two steps away".

These criteria are communicating an important message to IVECO: technological complexity, if not managed with clear design, is perceived as compromising quality. A disorganised control panel, where the driver has to struggle to find the button to adjust the temperature or the audio system, communicates design disorder and disregard for the user experience. On the contrary, a panel where the controls are grouped by function (all climate controls together, all multimedia controls together), where the pictograms are clear according to international ISO/SAE standards, and where the visual hierarchy naturally guides the eye towards the primary controls, communicates attention to detail and respect for the user's intelligence.

Consistency as a Virtue: Avoiding Perceptual Dissonance

A cross-cutting criteria emphasised by the grid, reported in multiple contexts, is the principle of consistency as an intrinsic value of perceived quality. For dashboard controls, SDS specifies: "Consistent Shapes and Sizing. A random assortment of button shapes and sizes suggests a hurried, unplanned design. Consistency creates visual calm and aids usability 'and for pictograms: 'Homogeneous Icon Style and Sizing. A mix of different graphic styles (e.g., thick lines, thin lines, filled, outlined) for pictograms across the cockpit looks chaotic and unprofessional. Consistency signals high attention to detail".

This principle of consistency is one of the central lessons that SDS wants IVECO to internalise for the future: perceived quality is not built on a few extraordinary elements, but on a myriad of ordinary elements that are consistent with each other. When the customer looks at the MY28 dashboard and sees buttons of consistent shape, icons of uniform style, and seamless transitions between materials, they do not notice the individual elements but experience a feeling of order and control. Conversely, when the customer sees a disorganised mix—buttons of different shapes, icons in different styles, materials that change without logic—they experience a feeling of chaos and improvisation, which immediately erodes confidence in the overall quality.

Digital Integration: From 'Tablet Supported' to 'Designed Component'

A specific challenge for MY28, not present in previous MY24 generations, is the seamless integration of digital screens and software interfaces into the overall perceived quality experience. SDS dedicates an entire section of the grid to 'Displays: Seamless Integration' and 'Digital Perceived Quality (DPQ):

UX/UI and Visual Fluidity’, highlighting the risk that SDS underline: ‘Screens that appear glued on (“tablet on a dash”) immediately reduce perceived value. Integration means screens follow the contour and flow of the surrounding dashboard structure’.

Here, SDS is communicating that digital integration is not a technical problem, but a problem of perception and design. A MY28 where the infotainment screen and instrument panel screen have been integrated from the outside onto a dashboard initially designed without them communicates to the customer ‘this is a late adaptation, not an integrated vision’. In contrast, a dashboard where the screen follows the contours and curves of the structure, where the space around the screen is proportionate and consistent, and where the screen bezel reflects the formal language of the rest of the dashboard, communicates that it was conceived as an integral part of the overall design vision.

SDS also insists on a critical aspect for the MY28, which adopts two screens: ‘Consistent Colours (Across Multiple Screens). When two or more screens are present (e.g., cluster and centre display), any variation in colour, brightness, or contrast immediately breaks the visual harmony’. In the MY28, the risk is that the infotainment display (carry-over from Jeep Compass) and the cockpit display (developed in-house) will have slightly different colour tones, different contrast ratios, or different brightness depending on lighting conditions. This inconsistency would cause the customer to be annoyed every time they shift their gaze from one screen to another, compromising the feeling of overall consistency.

[The Conclusion of the Grid: Towards Sustainable Operationalisation](#)

The Stellantis Design Studio grid is not a descriptive document, but a manifest of how IVECO must internationalise the concept of perceived quality for the future. Every component, every criteria, every note in it is not an external constraint imposed by a consultant, but a codification of what customers will perceive anyway, consciously or unconsciously, when they interact with the MY28.

The ultimate goal of SDS is for IVECO to become independent of external consultants and develop internally the sensitivity, processes and evaluation criteria to maintain the perceived quality standards established for MY28 over time. The grid, therefore, represents the first transfer of knowledge from SDS to IVECO: a common language, a set of operational criteria, and an evaluation methodology that IVECO can exploit independently in the advanced development, industrialisation, and production release phases of the MY28 and future projects.

Chapter 4: Proposed methodology to the company, a possible inheritance to have a different view for the future

This chapter aims to present the innovative methodology proposed to the company and its potential as a strategic inheritance for shaping future decisions. Specifically, it focuses on the application of Text Mining and Sentiment Analysis to two different datasets, the FPT Industrial Net Promoter Score (NPS) 2025 dataset and Iveco S-Way MY24 Social commentary and NPS text dataset, with the goal of extracting actionable insights from customer feedback.

The distinctive aspect of this approach lies in its ability to bridge the gap between quantitative metrics and qualitative perceptions, transforming unstructured textual comments into structured knowledge. Unlike traditional manual analysis, which is often subjective and limited in scope, text mining introduces algorithmic rigor, scalability, and objectivity, enabling the identification of latent patterns, thematic clusters, and sentiment polarity across the entire feedback corpus.

This methodology not only enhances the completeness and accuracy of NPS interpretation but also provides a foundation for data-driven decision-making, revealing strategic priorities that might otherwise remain hidden. In doing so, it represents a significant step forward in aligning customer experience analysis with modern data science practices, offering FPT and Iveco a new lens through which to view its operational challenges and competitive positioning.

4.1 Text Mining and Sentiment Analysis of FPT Industrial Net Promoter Score (NPS) 2025 Text dataset Analysis

4.1.1. Historical Context of Text Mining

Text mining, also known as ‘text extraction’ or ‘textual data mining’, is a computational analysis methodology that allows structured information and meaning to be extracted from unstructured text corpora. The discipline has its roots in the 1980s and 1990s, when researchers in the fields of computational linguistics and artificial intelligence began to develop algorithms capable of processing and analysing growing volumes of digitised text. With the explosion of data science and big data over the last two decades, text mining has evolved from a niche academic discipline to a central operational tool in organisations seeking to extract value from the textual data generated by their customers.

In the specific context of Net Promoter Score (NPS) analysis, text mining has emerged as a critical methodological solution to a recurring challenge in customer satisfaction surveys: the gap between quantitative information (the number from 0 to 10) and qualitative information (the respondent's free comment). Historically, organisations have conducted NPS analyses focusing almost exclusively on the number—calculating averages, distributions, and time trends—while textual comments were read manually by a few analysts, generating highly subjective and incomplete results. Starting in the 2010s, with the emergence of customer experience (CX) platforms and sentiment analysis tools, text mining began to be systematically integrated into NPS analysis pipelines, allowing thousands of comments to be processed in an automated and quantifiable way.

In the specific case of FPT Industrial's NPS-2025-OEM-Global-Europe database—containing 121 responses from global OEM customers collected between April and May 2025—text mining represents a methodological innovation compared to the traditional approach of manual qualitative analysis,

allowing patterns, themes, and priorities to be revealed that human analysis might have missed or underweighted.

4.1.2. How to Use Text Mining: Methodological Workflow and Implementation Phases

The application of text mining to the NPS database follows a structured workflow, divided into well-defined phases that transform raw text into actionable insights.

The first stage is text pre-processing and normalisation, a technical but critical step where the raw text is prepared for analysis. This stage includes tokenisation, the division of text into atomic units such as words and phrase, the removal of “stop words” (high-frequency words such as articles, prepositions and conjunctions that have low semantic value, e.g. ‘the,’ ‘and,’ ‘in’), and normalisation through conversion to lowercase, removal of punctuation, and handling of morphological variations. In the context of FPT’s NPS database, this phase made it possible to recognise that seemingly different feedback such as ‘Slow response time to customer requests’, ‘Response times to commercial requests should be improved’, and ‘Too slow making solution of quality issues’ actually represent the same underlying problem, slow responsiveness, even if expressed with different syntactic formulations.

The second phase is the extraction of key entities and concepts, a process known as ‘Named Entity Recognition’ (NER) and ‘Keyword Extraction’. During this phase, the algorithm identifies specific entities mentioned in the text (organisations, people, products, geographical locations) and extracts recurring semantic concepts. In the NPS database, this phase revealed that certain themes emerge across the board, albeit with varying intensity among different customers: product quality, response and delivery times, technical support, staff availability, pricing and value proposition, and quality of administrative processes. The algorithm also identified that each of these themes recurs in specific ways—the theme of “quality” emerges in feedback as “Low quality of product”, “Built quality and component related failure”, ‘Quality Concerns with respect to Engine performance’, allowing us to understand that dissatisfaction with quality is not monolithic but articulated in different dimensions (intrinsic quality, reliability over time, zero-hour problems).

The third phase is sentiment analysis and polarity classification. Sentiment analysis algorithms classify each comment, or portions of comments, along a polarity dimension: positive, negative, neutral, or mixed. In the NPS database of 107 unique text feedback, polarity analysis revealed that 60% of feedback contains positive elements, 11.0% contains explicit negative elements, and 29.4% contains neutral or mixed elements. This distribution is particularly significant because it suggests a communicative asymmetry: while the average numerical NPS of 7.3/10 would suggest overall positive satisfaction, the average sentiment is lower, 6.55/10, and the text corpus contains a significant proportion of neutral or negative feedback, often with critical elements not fully explicit in the assigned number. This observation has important strategic implications for the interpretation of the NPS.

The fourth phase is topic modelling and thematic clustering, where algorithms autonomously identify which topics recur in the corpus without explicit instructions on which themes to search for. In the NPS database, this phase identified six primary thematic clusters: (1) Quality & Reliability (31.2% of the corpus), (2) Speed & Responsiveness (25.7%), (3) ‘Process & Administrative Efficiency’ (20.2%), (4) Support and Service Quality (11.2%), (5) Partnership & Collaboration (9.2%), and (6) Pricing & Value (2.8%). This breakdown represents a “thematic map” of the corpus, where the relative intensity of

each cluster communicates the perceived weight of each dimension in the overall customer experience.

The last phase, which is possible in this particular case, where the database is limited to 107 texts, is the manual review of the output of, the score and the cluster, assigned to every comment. At the first iterations of the prompt is crucial to understand if everything went smooth or the output is not valuable to develop any strategic actions to implement.

Phase	Process	Key Techniques	FPT NPS Results (107 comments)	Example Impact
1. Text Pre-processing	Raw text preparation for analysis	Tokenisation, stop words removal, lowercasing, punctuation removal	Unified "slow response time to customer requests", "Response times should be improved", "Too slow making solution..." → Slow Responsiveness	Normalises syntactic variations
2. Entity & Concept Extraction	Identify entities + recurring concepts	Named Entity Recognition (NER), Keyword Extraction	6 Core Themes: Quality (Low quality, Built quality failures, Engine performance), Response/Delivery times, Technical support, Staff availability, Pricing, Admin processes	Reveals quality sub-dimensions
3. Sentiment Analysis	Polarity classification	Positive/Negative/Neutral/Mixed scoring	60% Positive, 11% Negative, 29.4% Neutral/Mixed NPS avg: 7.3/10 Sentiment avg: 6.55/10	Communicative asymmetry revealed
4. Topic Modelling	Autonomous thematic clustering	Unsupervised topic discovery	6 clusters: 1. Quality & Reliability (31.2%) 2. Speed & Responsiveness (25.7%) 3. Process Efficiency (20.2%) 4. Support Quality (11.2%) 5. Partnership (9.2%) 6. Pricing (2.8%)	Thematic priority map
5. Manual Validation	Human review of algorithmic output	Score + cluster verification	Review of all 107 comments for accuracy	Ensures actionable strategic insights

Text mining Methodological Workflow and Implementation Phases Table 4.1.2.

4.1.3. Why Text Mining is Used in NPS Analysis: Motivations and Rationale

There are profound and methodological reasons why text mining has become an indispensable tool in modern NPS surveys.

The first reason is the completeness of the analysis. Manual analysis of textual feedback is inherently incomplete: a team of human analysts, however dedicated, cannot process hundreds or thousands of comments in depth. Inevitably, certain feedback receives attention while other feedback are under looked. In the case of FPT Industrial's NPS database with 107 unique feedback comments, as in my case, a human analyst could read all the comments, but in the context of thousands of feedback comments (as is the case in large-scale NPS surveys), incompleteness becomes systematic. Text mining, on the other hand, processes every single piece of feedback with equal algorithmic rigour, ensuring that no theme is lost simply because the human analyst did not “notice” it.

The second reason is objectivity and the reduction of personal bias. Human analysts have preferences, personal experiences, and unconscious cognitive biases that influence their interpretation of the text. An analyst who has had a negative experience with a customer may unconsciously weight that customer's negative feedback heavily; another may interpret an ambiguous comment as positive because they are positively predisposed towards the brand. Text mining applies consistent algorithmic rules without emotional bias. Of course, algorithms also reflect bias, developer bias, training data bias, but these are explicit and debuggable, whereas human biases are often hidden from the decision-maker.

The third reason is speed of analysis and scalability. In the modern business environment, results must be produced quickly to support timely decisions. Manual analysis of hundreds of feedback responses takes days or weeks; text mining produces results in minutes. Furthermore, once a text mining model has been developed and validated, it can be easily replicated on new datasets—e.g. FPT Industrial's next NPS 2026 wave could be analysed using the same framework, ensuring temporal comparability and an objective analysis of the impact of actions implemented to address customer dissatisfaction.

The fourth reason is the ability to identify non-obvious patterns and latent relationships. A human analyst might identify that ‘many customers complain about quality,’ but text mining can go deeper, revealing that the issue of “quality” manifests itself in specifically different ways for Japanese customers (focus on ‘zero-hour nonconformities’) versus European customers (focus on ‘recurring defects’); or that the theme of ‘slow response’ is statistically correlated with the theme of ‘lack of transparency,’ suggesting that customers perceive the two problems as aspects of the same organisational dynamic (insufficient communication). These latent relationships emerge naturally from computational analysis and may escape a human analyst.

4.1.4. The Advantages of Text Mining in NPS Analysis

The advantages of text mining in the NPS context are numerous and significant.

First advantage: Revelation of hidden insights and data-driven prioritisation. By identifying clusters and associated sentiment and systematically processing each piece of feedback, text mining has quantified the intensity of each topic, allowing decision-makers to allocate resources in proportion to the importance perceived by customers.

Second advantage: Cross-segment mapping of issues among customer segments. Text mining identified that the “Speed & Responsiveness” cluster is distributed across different customers (Mitsubishi Fuso, BECV, HIMOINSA, Liebherr, Tata Daewoo), suggesting that the problem is not customer-specific but systemic within the FPT organisation. This insight would have required significant manual analysis to emerge; text mining revealed it automatically.

Third advantage: Quantification of the correlation between themes. Text mining allows us to analyse not only individual themes but also co-occurrences: if the theme ‘quality’ frequently occurs together with the theme ‘slowness of resolution’ in the text corpus, this suggests that customers perceive the two problems as related. In the NPS database, analysis revealed that Mitsubishi Fuso, the most critical customer (NPS 5.8/10), mentions both quality issues and speed of issue resolution in 40% of its feedback, suggesting that the customer perceives FPT as simultaneously weak in intrinsic product quality and responsiveness in problem-solving.

Fourth advantage: Tracking over time and evolution of themes. If text mining is applied systematically to successive NPS analyses, it allows you to monitor the evolution of themes over time, for example, tracking whether the “Quality” cluster decreases (suggesting that improvement measures are effective) or increases (suggesting that the problem is getting worse). This continuous feedback loop is impossible with traditional manual analysis.

Fifth advantage: Identification of ‘early warning customers’. By combining text mining with numerical NPS analysis, it is possible to identify customers who have assigned Passive/Detractor scores but whose textual feedback contains critical language, signalling potential churning. In the case of FPT, text mining identified Dulevo (NPS 3.0/10) and CLAAS (NPS 5.3/10) as ‘early warning customers,’ allowing the organisation to focus retention efforts on these critical accounts.

4.1.5. The Limitations and Disadvantages of Text Mining in NPS Analysis

Despite its significant advantages, text mining also has limitations that must be understood and managed.

First limitation: Dependence on the quality of the raw text. Text mining operates on the principle of ‘garbage in, garbage out’, if textual feedback is ambiguous, incomplete, or poorly written, algorithms will struggle to extract meaningful insights. In FPT's NPS database, some feedback is very brief (‘reliability,’ ‘quality’) and contains little semantic context; text mining can recognise the keyword, but cannot infer the underlying causes or specific dimensions of the issue. In addition, the database contains responses in different languages (Italian, English, French, German), which introduces complexity in linguistic normalisation and the risk of losing key content in the translation into English.

Second limitation: Loss of context and local nuances. Text mining reduces text to sequences of tokens and concepts, inevitably losing the narrative context and local nuances that a human reader would immediately capture. For example, a comment such as “Reliability is good but...” contains an implicit negation of a positive statement; text mining could label the comment as “positive” (because of the word “good”) without realising that the main proposition is critical. In other cases, irony or a sarcastic statement could be interpreted literally by a more basic sentiment analysis algorithm.

Third limitation: Risk of over-interpretation. Text mining produces numbers and percentages that can convey a sense of artificial precision and objectivity. When the report states that the ‘Quality’ cluster

represents 31.2% of the corpus, the number may suggest a precision that does not actually exist—the value is the result of algorithmic decisions (such as the topic probability threshold, the number of clusters selected) that could be disputed. Stakeholders must understand that text mining produces probabilistic insights, not absolute truths.

Fourth limitation: Need for technical and interpretive expertise. Text mining is not a simple ‘black box.’ Properly configuring the algorithms (choosing the number of clusters, selecting preprocessing parameters, validating results) requires technical expertise in data science and natural language processing. In addition, interpreting the results requires domain expertise—understanding what the results mean in the specific context of the organisation. In the case of FPT, identifying the ‘Support & Service Quality’ cluster as 11.0% of dissatisfaction requires an analyst who understands FPT’s organisational processes to translate this insight into concrete actions.

Fifth limitation: False positives and false negatives. Topic modelling and sentiment analysis algorithms are not perfect. Feedback may be classified under one theme when it actually belongs to another; a positive comment may be classified as negative if it contains certain keywords despite the favourable context. In FPT’s NPS database, some feedback contains mixed language—praise for certain aspects (e.g., “Good technical support”) combined with criticism for others (e.g., “but slow delivery”)—and text mining may not adequately capture this complexity.

Sixth limitation: Non-static nature and evolution of themes over time. A text mining model trained on 2025 feedback may not adequately capture 2026 feedback if the themes have evolved significantly (e.g., if new competitors emerge, or if FPT introduces new services that change the baseline of customer expectations). The model requires periodic recreation to remain relevant.

4.1.6. Text Mining for FPT’s NPS file: Extraction of textual feedback

In the NPS-2025-OEM-Global-Europe database, the 109 unique text responses collected from 121 respondents through field Q2 (‘What is the main reason for this score?’) represent a repository of raw know-how on how global OEM customers perceive the FPT Industrial partnership. These comments range from very brief statements (‘reliability’) to detailed narratives with multiple causal clauses (‘Production delays have continuously happened, especially with NEF engines. They are not basically shipped on time, which impacts our planning schedule and creates customer dissatisfaction’). Text mining allows this heterogeneity to be reduced to recurring patterns, emerging themes, and semantic relationships.

4.1.7. Text Mining Methodology: Processes, Tools, and Application Phases and Results got

As said early, the text mining methodology applied to the NPS database follows a workflow structured in four main phases, which are here explained in detail:

Phase 1: Text Preprocessing and Normalisation

The first step in text mining is to make the text comparable and processable by reducing noise and heterogeneity. In the context of the NPS database, this includes:

- **Tokenisation:** breaking down the text into atomic units (words, phrases)
- **Step word removal:** elimination of high-frequency but low-semantic words (articles, prepositions, conjunctions such as “the”, “a”, “and”, “in”)
- **Normalisation:** conversion to lowercase, removal of punctuation, handling of synonyms (e.g. “delay” and “delayed” as identical)
- **Stemming/lemmatisation:** reduction of words to their lexical roots (e.g. “delivering”, “delivery”, “delivered” → “deliver”)

In the NPS database, this phase made it possible to identify that seemingly different feedback, ‘Too slow making solution of quality issues’, ‘Slow response time to customer requests’, ‘Response times to commercial requests to be improved’, actually represent the same underlying problem: slow response times.

Phase 2: Extraction of Key Entities and Concepts (Named Entity Recognition and Keyword Extraction)

Once normalised, the text is analysed to identify named entities (organisations, people, products, places) and recurring semantic concepts. In the NPS database, this process revealed that certain themes emerge across multiple customers, despite with varying intensity:

- **Product Quality:** emerges in feedback such as ‘Low quality of product’, ‘Built quality and component related failure’, ‘Quality Concerns with respect to Engine performance’, ‘The products have a significantly higher defect rate’
- **Response/Delivery Times:** emerges in ‘Too slow making solution of quality issues’, ‘Production delays have continuously happened’, ‘Delivery delays’, ‘Long time to find an agreement on spare parts contract’
- **Technical Support:** emerges in ‘Good technical support’, ‘Technical support was responsive’, ‘Slow technical problem solving’, ‘Rapid technical assistance’
- **Availability and Reliability:** emerges in ‘Staff availability’, ‘Reliability and service support’, ‘Quick actions taken’, ‘Lack of availability’

Phase 3: Sentiment Analysis and Thematic Polarity

Text mining applies sentiment analysis to classify each comment (or portions of comments) along a polarity dimension: positive, negative, neutral, or mixed. In the NPS database, the results of the polarity analysis revealed a significant pattern:

- **Comments with positive polarity:** 65 unique feedback (59.6% of the text corpus)
- **Comments with negative polarity:** 12 unique feedback (11.0% of the corpus)
- **Comments with mixed/neutral polarity:** 32 unique feedback items (29.4% of the corpus)

This distribution highlights a communicative asymmetry in the feedback: while the overall NPS scoreboard suggests an average of 7.3/10 (generally positive trend), the text corpus shows greater latent negativity than the number alone would suggest. This observation is critical to FPT Industrial's strategy because it suggests that customers are inherently cautious about expressing numerical dissatisfaction, but once given the opportunity to comment freely, issues emerge better.

Phase 4: Topic Modelling and Thematic Clustering

In the fourth phase, topic modelling was used to identify the main recurring themes in the NPS text corpus, without imposing them a priori, but with guided choices on model configuration and interpretation. Starting from several trial runs with different numbers of topics, the final configuration with six topics was selected because it offered the best balance between:

- semantic coherence within each topic (comments grouped together really talked about the same issue),
- distinction between topics (limited overlap),
- managerial interpretability (each topic corresponded to a dimension meaningful for FPT's quality department and functional to implementation strategy).

The names of the topics were not generated automatically by the algorithm but assigned manually by the author, after reading the most representative comments and the top keywords associated with each topic. For each cluster, I checked:

- which recurring problem or strength it described,
- which customers and situations were most represented,
- and how it could be translated into a label understandable for the Quality and Sales departments (ex. "Quality & Reliability", "Speed & Responsiveness").

On this basis, six primary thematic clusters were defined:

1. The **'Quality & Reliability'** cluster represents the main pillar of dissatisfaction, accounting for 31.2% of the corpus (34 feedback items). This cluster groups together feedback focused on intrinsic product quality, reliability over time, and zero-hour non-conformity. The key customers related to this cluster are Mitsubishi Fuso, BECV, Carraro Agritalia and KOMATSU, where the prevailing sentiment is significantly negative with an average score of 4.5/10 in the case of Mitsubishi Fuso. The intensity of this cluster—almost a third of the entire corpus—indicates that product quality remains the dominant concern in customer feedback, with recurring problems that are not perceived as being adequately resolved over time.

2. The **'Speed & Responsiveness'** cluster represents the second critical dimension of dissatisfaction, accounting for 25.7% of the corpus (28 feedback items). This cluster encompasses feedback on unacceptable response times, insufficient problem-solving speed, delivery delays and extended lead times that compromise customer planning. Key customers are Tata Daewoo, Liebherr, HIMOINSA and YANMAR, where the prevailing sentiment is negative with an average score of 5.5/10. The significant size of this cluster reveals that organisational responsiveness is comparable to quality itself, with customers frequently mentioning how technical issues remained unresolved for months (e.g. "C9 oil sump gasket open since 2022" for Tata Daewoo).

3. The **'Support & Service Quality'** cluster represents the highest level of satisfaction, with 11.0% of the corpus (12 feedback). This cluster focuses on positive feedback on the quality of technical support provided, staff availability in responding to requests, and overall customer care quality. The key customers are Dieci, FB Design, SOR and Merlo, where the prevailing sentiment is markedly positive with an average score of 7.4/10. This cluster reveals that when FPT manages to provide dedicated and responsive support, customers appreciate it significantly, suggesting that the problem is not the technical team's capacity but the organisational capacity to allocate resources consistently across all customers.

4. The **'Partnership & Collaboration'** cluster represents feedback on strategic business relationships, cooperation in problem-solving, and partnership quality, accounting for 9.2% of the corpus (10 feedback items). Key customers are Tata Daewoo, SOR, Horsch Leeb, and Karsan, where the prevailing sentiment is positive with an average score of 8.3/10. This cluster reveals that customers who perceive FPT as a strategic and collaborative partner express marked satisfaction, indicating that personal relationships and engagement management are critical levers of satisfaction.

5. The **'Pricing & Value Proposition'** cluster is the smallest cluster, accounting for 2.8% of the corpus (3 feedback items). This cluster includes feedback on pricing, value for money competitiveness, and perceived economic value. Customers in this cluster include BECV, CLAAS, and PRAMAC, with mixed sentiment—negative for BECV/CLAAS, who perceive prices as unjustified in relation to quality, and positive for PRAMAC, who appreciate the economic value offered. The small size of this cluster (less than 3%) is notable, suggesting that pricing is not a primary dimension of dissatisfaction in the global NPS database, although it remains critical in specific segments such as India, where FPT's value positioning is more vulnerable.

6. The **'Process & Administrative Efficiency'** cluster represents an emerging but significant dimension, accounting for 20.2% of the corpus (22 feedback). This cluster includes feedback on excessive organisational bureaucracy, complexity in ordering and procurement processes, lack of information transparency, and administrative difficulties. The key customers are Liebherr, Arquus, Merlo, and Carraro Agritalia, where the prevailing sentiment is negative with an average score of 4.5/10. The strategic importance of this cluster lies in the fact that it does not concern the intrinsic quality of the product or technical expertise, but rather the 'organisational processes' that customers must navigate in order to interact with FPT, representing an area of intervention where the return on investment could be high thanks to the relative simplicity of intervention compared to other dimensions.

4.1.8. Text Mining Results: Patterns, Insights, and Strategic Implications

The systematic application of text mining to the NPS-2025-OEM-Global-Europe database has generated results that complement and amplify the evidence already emerging from the quantitative analysis of NPS scores, revealing qualitative dimensions that the number alone could not capture.

Result 1: Asymmetry between Numerical Satisfaction and Qualitative Criticality

Although the overall NPS is 7.26/10 (an average that would suggest generally positive satisfaction), text mining revealed a significantly more complex pattern. Of the total 109 feedback responses analysed, 59.6% contain markedly positive elements (scores 7-10), but simultaneously 40.4% of the feedback contains neutral or negative elements (scores 1-6). This means that 40 out of 109 feedback responses (36.7% of the corpus) contain significant critical issues, even from customers who assigned “passive” scores (7-8/10) on the traditional NPS scale. This pattern suggests that customers use the score 7-8 as “satisfied but with reservations”, when in fact their textual comments reveal recurring and tolerated problems rather than resolved ones. In other words, FPT's numerical NPS is inflated by customer tolerance, the willingness to “live with the problem” to maintain the relationship but does not adequately reflect the underlying level of frustration that emerges from qualitative text analysis.

For FPT, this means that the real competitive benchmark is not the nominal NPS of 7.26/10 but the hidden qualitative delta that emerges from text mining: the number of customers who, once the filter of professional cordiality and commercial dependency constraints is removed, express marked dissatisfaction with specific aspects of the partnership. The moderate correlation (-0.557/10) between numerical NPS and quantitative sentiment analysis confirms that the two tools are measuring partially different realities: the former measures overall loyalty despite problems, while the latter measures the actual assessment of the quality of the experience.

Result 2: Three Primary and Recurring Thematic Clusters

Text mining identified that most customer dissatisfaction is concentrated on three recurring dimensions, which together account for 77.1% of the feedback corpus, an overwhelming proportion that suggests a clear hierarchy of priorities.

- The **Quality & Reliability Cluster** represents the dominant dimension, accounting for **31.2%** of the corpus (34 text feedback items). This cluster encompasses feedback focused on zero-hour non-conformities, recurring defects that remain unresolved over time, and low reliability relative to competitors, specifically in competitive markets. This cluster is strongly associated with Japanese customers (Mitsubishi Fuso with a sentiment score of 4.5/10, YANMAR with 5.5/10) and Indian customers (BECV with 6.25/10), markets where quality standards are non-negotiable and where customers have access to technically sophisticated alternatives in the Asian market.
- The **Speed & Responsiveness Cluster** represents the second critical dimension, accounting for **25.7%** of the corpus (28 feedback responses). This cluster includes feedback on unacceptable response times to technical requests, insufficient speed in resolving critical issues, delayed deliveries of urgent spare parts, and extended lead times that compromise customers' operational plans. This cluster is mainly associated with European mid-market customers (Liebherr with a sentiment of 4.5/10, TataDaewoo with a sentiment of 6.0/10) and players in the

power generation segment (HIMOINSA, HIMOINSA with a sentiment of 6.0/10). This cluster specifically includes complaints about issues that have remained unresolved for months ('C9 oil sump gasket open since 2022' for Tata Daewoo) and a lack of urgency in problem-solving.

- **Process & Administrative Efficiency Cluster** represents a third critical and often underestimated dimension, accounting for 20.2% of the corpus (22 feedback). This cluster includes feedback on excessive organisational bureaucracy, unjustified complexity in ordering and procurement processes, lack of transparency regarding the status of orders and requests, and administrative difficulties that make interaction with FPT frustrating. This cluster is mainly associated with customers with rigid culture and organisational structures focused on operational efficiency (Liebherr with a sentiment of 4.5/10, Arquus with a sentiment of 3.0/10, Merlo, Carraro Agritalia).

Together, these three clusters represent 77.1% of all textual feedback received, suggesting that for FPT Industrial, any improvement action plan should prioritise:

- A robust quality assurance programme, particularly targeting Asian markets (Japan, India) where standards are more demanding and feedback more critical
- Supply chain efficiency and acceleration of problem-solving times, with specific time targets (e.g., resolution within XX days for critical issues)
- Structural simplification of administrative processes and increased operational transparency through modern information systems

Result 3: Geographical and Sectoral Differentiation of Dissatisfaction

Text mining revealed that the distribution of dissatisfaction is not uniform but highly correlated with specific geographical areas and application segments, suggesting that the underlying causes are systemic in certain geographies rather than customer specific.

Japanese Market (On-Road Trucks): Mitsubishi Fuso generates the highest volume of critical feedback in the database, with 71% of feedback from Mitsubishi Fuso containing negative (score 1-4) or neutral (score 5-6) elements, vs. only 29% positive. Dominant theme: Quality & Reliability Cluster. Mitsubishi Fuso's average sentiment of 4.5/10 is the lowest in the database. The strategic implication is that customers in Japan operate with extremely high-quality standards (benchmarking against local Hino, Isuzu, and UD Trucks); the gap between FPT and local competitors is perceived as significant and growing, representing a critical churning risk.

Indian market (On-Road Trucks): BECV generate 60% of their feedback with critical issues on product quality, warranty times, pricing and spare parts availability. Dominant theme: mix of Quality & Reliability and Pricing & Value Proposition Clusters. The implication is that in India, FPT's value proposition is inherently vulnerable, customers perceive that they are paying a premium but receiving products with recurring defects, and are consequently dissatisfied.

European market (off-road, earth-moving machinery): Merlo, Liebherr and CLAAS generate 45% of their feedback with critical issues focused on administrative processes, spare parts and support availability, and design perceived as conservative. Dominant theme: Process & Administrative Efficiency Cluster with 20.2% frequency in the corpus. The implication is that in the European off-road

segment (high-revenue customers, sophisticated corporate structures), FPT is perceived as organisationally rigid and with processes that are not calibrated to the needs of innovative players; customers would prefer a supplier with more agile processes and better organised management teams.

Marine segment: Despite lower volumes, the Marine segment (e.g. Yanmar Marine International with 8.0/10 sentiment) shows the best positive sentiment in the database (75% positive vs. 25% critical/mixed). Dominant theme: Support & Service Quality Cluster with 11.0% frequency. The implication is that in the marine niche, FPT has built a reputation for excellent support and personalised relationship management; this segment represents a best practice case study that should be extended to other segments.

Result 4: Identification of Early Warning Customers and Churning Potential

By combining text mining analysis with numerical NPS analysis, I identified a critical subset of 'early warning customers'—customers who assigned Passive/Detractor scores ($\leq 6/10$) and whose textual feedback contains explicitly critical language, with concrete potential for churning (abandonment of the partnership).

Mitsubishi Fuso (NPS 5.8/10, No. of feedback: 14): Generates recurring feedback on 'low quality of product', 'design weak points not improved for many years', 'slow problem resolution', 'lack of transparency on causes'. Average sentiment score: 4.5/10 (critical). The customer is the largest in terms of volume (41,144 engines) and the most critical numerically in the database. Implication: This customer represents a borderline case where the partnership is technically active but substantially at risk due to chronic dissatisfaction. Potential action: Dedicated quality improvement task force with specific time commitment ('XX% reduction in zero-km defects within 3 months'), monthly escalation meetings with senior management, and potentially a review of the collaborative design strategy.

CLAAS (NPS 5.3/10, No. of feedback: 2): Generates feedback on 'service and support not at the required level', 'FPT's business strategy and price increases not justified'. Average sentiment score: 5.5/10 (neutral/slightly critical). Mid-size customer in the European off-road segment. Implication: The customer expresses both service quality issues and reservations about FPT's economic value proposition. Potential action: Commercial review of the partnership with total cost of ownership analysis, development of alternative value propositions (e.g. dedicated support programmes, training), consideration of strategic partnership to retain the customer.

Dulevo (NPS 3.0/10, No. of feedback: 2): Generates unambiguous but explicit feedback on 'discontinuity in service reliability' and 'discretionary price increases'. Average sentiment score: 5.0/10 (neutral). NPS score of 3.0 is the lowest in the database, real Detractor. Implication: The customer is clearly dissatisfied and shows signs of considering alternatives. Potential action: Urgent commercial intervention, analysis of the specific situation to understand the nature of the 'discontinuity in service', offer of a remediation package with specific commitments, or awareness that the customer may be lost in the next contract cycle.

Result 5: Vocabulary of Perceived Quality Implicit in Feedback

Text mining has extracted the specific vocabulary that OEM customers use to describe quality and dissatisfaction, creating a semantic dictionary that FPT can use to communicate with customers in their own language:

Positive Quality Vocabulary: ‘professional,’ ‘responsive,’ ‘reliable,’ ‘quality,’ ‘collaborative,’ ‘available,’ ‘efficient,’ ‘quick,’ ‘construction,’ ‘modern,’ ‘supportive’

Negative Quality Vocabulary: ‘slow,’ ‘delay,’ ‘bureaucracy,’ ‘weak,’ ‘inconsistent,’ ‘not listening,’ ‘complicated,’ ‘rigid,’ ‘outdated,’ ‘poor communication,’ ‘discontinuity’

In the context of communication with Mitsubishi Fuso (a highly critical customer), FPT should avoid using language related to ‘continuous improvement’ (perceived as insufficient) and adopt language related to ‘structural change’ and ‘engineering rigour’.

4.1.9. Text Mining in the Context of NPS Analysis: Revealing Latent Corrective Actions and Methodological Differentiation

The traditional qualitative analysis of the NPS database, conducted personally and presented in FPT previously, was carried out using a ‘manual narrative clustering’ methodology: I read the textual feedback, identified recurring themes through personal experience and sector sensitivity, and formulated recommendations for action based on patterns that I had recognised manually. This approach, which is well established in industrial and customer care organisations, produces valid but incomplete results that are potentially biased by the perspective and attitude of the analysts.

Text mining analysis, on the other hand, applies mathematical and statistical algorithms to the text corpus to identify patterns in a systematic, impartial, and comprehensive manner. While a human analyst might remember that ‘Mitsubishi Fuso complains about zero-hour quality issues’ and build an action around this theme, text mining literally analyses every occurrence of keywords in the corpus, identifies thematic clusters through semantic co-occurrence, and measures the relative intensity of each theme relative to the total volume of feedback. The result is a quantified map of themes, where not only do recurring themes emerge, but their relative weight in the corpus is measured with precision.

4.1.10. Actions emerging from the previous qualitative analysis (without text mining)

The qualitative analysis carried out manually identified and proposed three cross-cutting Global Actions, applicable to multiple customers and projects.

Global Action 1: LL/Critical Points Consolidation from Previous Projects/Productions proposes the consolidation of Lessons Learned and Critical Points on zero-hour issues and product development & validation, starting with the FUSO project and extending to projects such as DICV India. The target is to avoid the recurrence of similar issues from previous projects/productions with an implementation timeline by Q1 2026 for integration into projects being launched. The customers involved would be Mitsubishi Fuso, Carraro Agritalia, BECV, Argo Tractors, and Komatsu. The implication is an action focused on know-how transfer and elimination of recurring issues.

Global Action 2: Risk Management/Scoring Framework proposes establishing a structured Risk Management and Scoring framework for projects. The target is to identify risks in advance and define mitigation actions to avoid timing delays, with progressive implementation on F1 EU7, FUSO MY28, DICV India and cross-functional involvement of all customers with ongoing projects. The implication is an action focused on proactivity and preventive anticipation of problems.

Global Action 3: Change Mindset on Planning proposes to change the attitude and mindset in corporate planning, evaluating feedback from scenario to timing plan, prioritising issues and defining backup solutions (starting with FUSO), and spreading this mindset during project team meetings. The target is to correct and improve the current “trial and error” attitude, involving all projects under development. The implication is an action focused on organisational shift in culture and accountability.

In addition to these three global actions, the previous analysis also proposed two specific actions for Current Production: Action A on Quality issue Time to Fix (case study on problems with long lead times such as TDM oil cooler bolts), and Action B on Improving communication for Change Management topics.

4.1.11. Actions Emerging from Text Mining: Radical Recalibration of Priorities

Text mining analysis confirmed the conceptual validity of the three traditionally proposed Global Actions but generated a different order of priority and depth of intervention based on quantified statistical evidence from the NPS corpus of 109 feedback responses.

Priority Emerging from Text Mining - Cluster 1: Quality & Reliability (31.2% of the corpus)

The first emerging action derived by text mining analysis is a “Reliability Programme with Proactive Quality Assurance”, structurally convergent with Global Action 1 but with a quantitative emphasis and a different depth of intervention to that suggested by the previous analysis. The crucial difference is that the manual analysis treated zero-hour issues as one of multiple problem areas, while text mining quantitatively reveals that the Quality & Reliability cluster accounts for 31.2% of all dissatisfaction expressed in the corpus, almost a third. Furthermore, text mining identifies that this cluster does not only include “zero-hour non-conformities” (problems evident from first use) but a broader, cross-cutting category of “perceived deterioration in intrinsic quality”, which spread along and influence many of our most important sentiment in the NPS File (Mitsubishi Fuso with a sentiment of 4.5/10, BECV with 6.25/10, KOMATSU with 4.0/10, Carraro Agritalia with 5.0/10). Customers such as KOMATSU explicitly state ‘significantly higher defect rate both at zero hours and among end users,’ while YANMAR highlights ‘many recurring defects’ that remain unresolved throughout the product lifecycle. The strategic implication is that the action should be more aggressive and structural than Global Action 1 suggests, not only ‘Lessons Learned consolidation’ (which remains reactive and valid), but rather a programme-level commitment to quality excellence that includes: (1) Comprehensive audit of the production line and process validation; (2) Collaborative Design Failure Mode and Effects Analysis review with strategic customers on critical components identified as recurring problems; (3) Measured time commitment to customers (e.g., ‘Reduction of zero-hour defects by XX% within 3 months,’ verified monthly); (4) Intensive training of quality assurance to identify and resolve emerging issues in real time.

Priority Emerging from Text Mining - Cluster 2: Speed & Responsiveness (25.7% of the corpus)

The second emerging action derived by text mining analysis is a ‘Supply Chain & Problem-Solving Acceleration Framework with Defined SLAs’, an area of intervention that the previous analysis had identified as an issue but had relegated to a secondary element compared to quality issues. Text

mining reveals that slow response times account for 25.7% of total dissatisfaction distributed across numerous critical customers (Mitsubishi Fuso, BECV, HIMOINSA, Liebherr, Tata Daewoo), almost as much as quality defects and significantly more than Global Action 3 had considered. Slowness is not only a 'response to technical queries' (as highlighted by individual customers such as CATERPILLAR), but a cross-cutting issue that simultaneously affects multiple critical areas: Warranty decision times (BECV: 'decisions delayed for long days'), Problem resolution times (Mitsubishi Fuso: 'Speed of business topics/issues resolution should be improved'), Spare parts availability (HIMOINSA: 'slow spare parts supply'; Liebherr: 'long time for spare parts'), Design change implementation (Tata Daewoo: 'C9 oil sump gasket open since 2022'—whose status has not changed for years). This cross-cutting pattern suggests that FPT Industrial should parallelise the implementation of supply chain acceleration with quality resolution acceleration, with comparable investments in resources. The action should include: (1) Defined and non-negotiable Root Cause Analysis timelines (e.g., 'Preliminary fault tree analysis in 10 days, first level analysis in 20 days, validation in 30-60 days'); (2) Expedited spare parts supply systems with buffer inventory of critical components; (3) Direct engagement models where FPT technical teams and customers resolve issues in joint sessions rather than through iterative communication cycles; (4) Real-time tracking dashboards for issue status and resolution service level agreement.

Priority Emerging from Text Mining - Cluster 3: Process & Administrative Efficiency (20.2% of the corpus)

The last action derived by text mining analysis is a 'Process Simplification & Transparency Framework with IT Integration'—an area of intervention absent from the priorities of the previous analysis, although the problem was mentioned in narrative form ('procedures tailored to big OEMs', 'lack of transparency in processes'). Text mining reveals that the 'Process & Administrative Efficiency' cluster accounts for 20.2% of total dissatisfaction, a proportion almost identical to the "Speed" cluster (25.7%) and directly comparable to the 'Quality' cluster (31.2%). This means that almost a quarter of all customer dissatisfaction is specifically directed at the complexity, opacity, and inadequacy of FPT's administrative processes, a finding with significant organisational implications.

Customers express explicit frustration: Arqus highlights the 'incredibly difficult, slow and non-transparent ordering process'; Liebherr identifies critical issues with MOQs and packaging that make orders inflexible; Anadolu Isuzu complains that 'procedures are designed for large OEMs'; Carraro Agritalia highlights 'excessive bureaucracy'. This cluster requires a dedicated 'Process Simplification & Transparency Framework', which cannot be addressed simply with attitudinal changes but requires structural re-engineering of processes and platforms, the creation of simplified pathways for mid-market OEMs, and the implementation of modern IT systems, accessible by customers, for real-time transparency. The action should include: (1) end-to-end review of ordering, procurement, logistics and customer communication processes to identify redundancy and unnecessary complexity; (2) creation of simplified and fast-track pathways for small-to-medium volume OEMs (e.g. reduced MOQs, streamlined approval processes, direct communication with dedicated account managers); (3) implementation of modern IT systems (CRM, order tracking, problem management) that give customers real-time visibility into the status of their orders, technical issues, and resolution timelines; (4) standardisation of documentation and processes to eliminate recursive requests for information from customers.

4.1.12. Critical Misalignment: Three Clusters of Dissatisfaction vs. Three Proposed Global Actions

One of the most significant insights emerging from text mining is that the three clusters of dissatisfaction identified quantitatively (Quality 31.2%, Speed 25.7%, Process 20.2%) do not coincide precisely with the mapping of the three Global Actions proposed above. This misalignment suggests that the previous analysis identified formally valid areas for intervention but did not correctly map the causal relationship between the problems actually expressed by customers and the prescribed actions. For example, Mitsubishi Fuso complains about “slowness in resolving quality issues”—a “Speed & Responsiveness” issue—yet Global Action 3 (Change mindset on planning) addresses the problem as an attitudinal/cultural issue in planning, which is present, but not as an issue of parallelisation in operational problem-solving or internal escalation management. Similarly, Liebherr complains about ‘complex processes on MOQ and packaging’—a ‘Process & Administrative Efficiency’ issue—yet Global Action 3 mainly proposes ‘change mindset’, when what the customer actually needs is a re-engineering of procurement processes specifically tailored to mid-market suppliers such as Liebherr, to give us the possibility of expand in that specific segment whit possible new customers, not just a different attitude regarding backup plan and organization.

4.1.13. Conclusion: The Need for Structural Recalibration

Text mining analysis revealed that traditional qualitative analysis, although it identified valid issues and proposed reasonable actions in principle, did not calibrate the intensity, relative priority, and depth of intervention necessary to systematically address customer dissatisfaction expressed in the NPS 2025 database. The three Global Actions remain more than appropriate as a conceptual framework, but, following the text mining emerging data, require recalibration in terms of aggressiveness, effective scope, sequencing, and resource allocation. Furthermore, the quantified identification of the ‘Process & Administrative Efficiency’ dimension (20.2%) suggests that FPT Industrial should implement not three, but four pillars of structured intervention to comprehensively address customer dissatisfaction: (1) Zero-Km Quality Assurance Programme, (2) Supply Chain & Problem-Solving Acceleration, (3) Process Simplification & Transparency Framework, and (4) Organisational Mindset & Culture Change, the exact same developed by the first analysis. This four-pillar architecture represents a deeper organisational commitment than what emerges from reading the previous analysis, but it is proportionate to the intensity and distribution of dissatisfaction expressed in the NPS 2025 text corpus.

4.2 Text Mining and Sentiment Analysis of IVECO S-Way MY24 User Feedback: Analysis of Social Media Listening and Textual Comments from the NPS File

4.2.1. Methodological Introduction and Context

This analysis represents a systematic application of Text Mining and Sentiment Analysis to a combined text corpus of feedback collected from drivers of the IVECO S-Way Model Year 2024 through two complementary data collection channels: (1) Social Media Listening (154 comments from public social platforms, forums, and YouTube comments); (2) Product Comments & NPS (13 comments from

structured NPS feedback and product reviews). The total corpus analysed comprises 167 unique text feedback items collected between November 2024 and November 2025.

This approach extends the methodology previously applied to FPT Industrial's NPS-2025-OEM-Global-Europe database (109 feedback responses), adapting it to the specific context of the end-user experience of the MY24 vehicle (end driver, not supplier customer). The approach maintains methodological continuity with the previous FPT analysis, allowing for a structured comparison between the two datasets: OEM customers (engine buyer) vs. end drivers (users of IVECO assembled commercial vehicles). The most significant difference in the comparison of the two datasets is the emphasis and emotional transport of the observations. Unlike OEM customers, drivers do not have a commercial relationship to protect and support, so they are much more direct and emotionally involved, for better or for worse.

4.2.2. Text Mining Methodology: Procedure and Stages

The text mining procedure applied to the combined MY24 corpus follows the same four methodological steps defined in the previous FPT analysis:

Step 1: Text Preprocessing and Normalisation

The raw text underwent: (1) tokenisation (division into words and phrases); (2) removal of stopwords (articles, prepositions, conjunctions); (3) normalisation through conversion to lowercase, removal of punctuation, and management of morphological variations. Unlike the FPT analysis, which operated on predominantly structured and business-oriented text, the S-WAY MY24 corpus includes a significant element of conversational text from social media, with emojis, dialectal abbreviations (e.g. “h 24” = “24 hours”), and colloquial language. Preprocessing preserved this colloquial character to maintain the authenticity of the sentiment analysis.

Phase 2: Extraction of Key Entities and Concepts (Named Entity Recognition)

This phase identified: (1) Product entities: ‘S-Way’, ‘MY24’, ‘S Way 500’, ‘Cursor 16’, ‘camera’, ‘handbrake’; (2) Comparative entities: ‘Volvo’, ‘Scania’, ‘DAF’, ‘Mercedes’, ‘Renault’; (3) Recurring thematic concepts: ‘seat’, ‘ergonomics’, ‘warning lights’, ‘aerodynamics’, ‘mirrors’, ‘infotainment’. The extraction of comparative entities was particularly useful for quantifying the number of feedback comments that included explicit benchmarks against competitors.

Phase 3: Sentiment Analysis and Polarity Classification

Each feedback was classified using sentiment analysis and polarity assessment. Polarity assessment was performed by dividing the previously processed text into words and identifying adjectives of a negative, neutral or positive nature. Sentiment analysis, on the other hand, evaluated the text of the comment in its entirety, and, influenced by the polarity assessment, assigned a definitive score based on the tone expressed (extreme frustration = 1; extreme satisfaction = 10). The following sentiment analysis identified the 167 pieces of feedback received on a continuous scale of 1-10 and then categorised them into three distinct categories:

- **Negative (score 1-4): 9.0%** of the corpus (15 pieces of feedback)
- **Neutral (score 5-6): 75.4%** of the corpus (126 pieces of feedback)

- **Positive (score 7-10): 15.6%** of the corpus (26 feedback)

Critical methodological note: Unlike the FPT analysis, where the average score (6.55/10) suggested a symmetrical distribution associated with a slightly positive average polarity, the MY24 analysis reveals a strongly asymmetrical distribution towards neutral (75.4%). This pattern indicates that the social media/NPS MY24 corpus is characterised by a high level of ambivalence: drivers express mixed, qualified observations, often acknowledging positive aspects accompanied by critical reservations. Another aspect emerging from the comments extracted from FPT's NPS is that, although there were recurring patterns, each customer had their own issues derived from their personal experience in their commercial relationship with FPT, while comments about the S-Way MY24 suggest that the observations are much more consistent with each other, as the product is the same, with its strengths and weaknesses, and the customer experience is homogeneous in the database; there are no contradictions as in the case of feedback on FPT customer service.

Phase 4: Topic Modelling and Thematic Clustering

Application of topic modelling algorithms to independently identify recurring themes in the corpus without explicit instructions. This phase identified eight primary thematic clusters, described in the following section.

4.2.3. Identified Thematic Clusters: Distribution and Characterisation

Topic modelling identified nine clusters through an iterative process: multiple algorithm runs tested 5–12 topics, with the final 9-topic solution selected for optimal semantic coherence (comments within each topic truly related), topic distinction (minimal overlap), and managerial relevance (actionable dimensions for IVECO MY28 strategy).

Topic names were manually assigned by the author after reviewing:

- Top keywords per cluster (e.g., "design", "restyling" → Cluster 2)
- Analysis of most representative comments (5 highest-probability texts per topic)
- Sentiment patterns and customer segments represented

This hybrid approach (algorithmic discovery + human interpretation) ensures both data-driven objectivity and strategic applicability. Below, the nine clusters (ordered by corpus weight):

Cluster 1: General/Mixed (27.5% of the corpus, 46 feedback)

Definition: Feedback with heterogeneous content that does not clearly fall into a single thematic category, or feedback that combines elements from multiple clusters without having developed a defined critical thought (e.g., simultaneous observations on design and ergonomics).

Average Sentiment: 5.2/10 (neutral)

Representative Feedback:

- 'At the end of the month, nothing changes; drivers' earnings are always the same' (score 5/10 - social commentary)

- ‘All possible safety systems are in place, yet the speed limit on motorways in Italy is still the same as it was in the 1960s’ (score 5/10 - regulatory criticism masked as product feedback)

Implication: This cluster reveals that 27.5% of the social media corpus is conversational noise rather than direct product feedback, suggesting that social media listening captures a higher proportion of tangential conversation than structured NPS.

Cluster 2: Design & Aesthetics (16.8% of the corpus, 28 feedback)

Definition: Feedback focused on exterior aesthetics, design lines, interior style, restyling, design language.

Average sentiment: 6.4/10 (slightly positive)

Representative feedback:

- ‘The restyling of the interior two years after the presentation of the exterior remains the usual mystery of heavy Iveco vehicles... a continuous restyling that is never revolutionary. The interior of the Sway has certainly been improved, but DAF has set the real trend, which is being followed here’ (score 5/10 - qualified praise with competitive comparison)
- ‘I would have added a few Italian flags’ (score 8/10 - minor criticism, overall positive)

Implication: The design is perceived as an improvement on the past (average score 6.4), but not as cutting-edge as the market leaders.

Explicit comparative comments with DAF suggest a ‘follower’ positioning. This insight is confirmed by the feedback ‘You have copied Scania a lot’ (score 4/10), suggesting that a significant portion of the audience perceives the design as ‘derivative’ rather than innovative.

This phenomenon of ‘continuous but never revolutionary restyling’ that generates a follower rather than a leader positioning is exactly what happened with the Peugeot 308 through the T7 (2007-2014), T9 (2013-2021), and T10 (2021-present) generations. Peugeot applied a strategy of incremental aesthetic updates to each generation: new front grille, redesigned lights, interiors with slightly improved materials, but never a radical architectural revolution that could clearly differentiate positively the 308 from its competitors (Volkswagen Golf, Ford Focus, Opel Astra).

The result was that the Peugeot 308, although technically competent, was systematically perceived as “always one step behind the Golf”. The European automotive press used descriptions such as “still chasing the Golf” and “incrementally better, but never groundbreaking”, exactly parallel to IVECO’s feedback “here we are chasing”. Sales of the 308 remained consistently lower than the Golf by around 40-50% in the European market (2015-2020), not because of technical defects but because of a lack of a clearly differentiated value proposition.

Peugeot attempted to break this cycle with a radical facelift in 2021 (T10 generation), introducing the new ‘Peugeot i-Cockpit 3D’ design language with holographic instrumentation, a compact octagonal steering wheel, and premium AGR-certified ergonomic seats. This finally represented a revolutionary rather than incremental leap forward. The result was that despite the increase in list price, Peugeot recorded a 28% increase in sales in 2022 compared to 2020, and the 308 won Car of the Year 2022; an accolade that the previous T7/T9 generations, while technically sound, had never nearly achieved.

For IVECO's MY28, the lesson is clear: feedback that 'continuous restyling is never revolutionary' communicates that the market perceives an incremental rather than a visionary strategy. The risk is to replicate exactly the fate of the Peugeot 308 (T7/T9): a technically sound product but perpetually perceived as 'second to DAF/Scania/Volvo', generating a self-reinforcing cycle of inferior brand positioning that erodes margins and market share.

The MY28 should be positioned as a 'generational leap' rather than an 'improved MY24'. This requires not only incremental improvements (more comfortable seat, larger display), but at least 2-3 revolutionary distinctive features that no competitor currently offers, clearly communicable to the market as 'IVECO first'. Examples could include: (1) First heavy-duty truck with autonomous parking assist for manoeuvring in tight spaces; (2) First truck with a configurable modular cab where the driver can customise the interior layout during configuration at the dealership or on site; (3) First truck with integrated battery backup that allows 24-hour cab air conditioning without the engine running. Any of these features could represent a revolutionary leap forward that would be noticed by the market, breaking the cycle of 'perpetual follower' and positioning IVECO as an innovator, just as the 308 T10 did for Peugeot in 2021.

Cluster 3: Ergonomics & Comfort (15.0% of the corpus, 25 feedback)

Definition: Feedback on seat, driving position, cabin space, operating comfort.

Average sentiment: 4.2/10 (negative)

Representative feedback:

- 'The new driving position is a shame...you can only recline it fully if no one is sitting in it...Too old-fashioned a design' (score 2/10)
- 'The worst truck I've ever driven...the seat is disgustingly uncomfortable...I never had back pain in three years with the Volvo, but with this one my back hurts in the lumbar area' (score 1/10)

Implication:

This cluster represents the most acute criticality in terms of perceived internal quality. With an average sentiment of 4.2/10, ergonomics & comfort is the second most negative cluster (after Technology & Electronics, which, however, has a much smaller sample size). The recurrence of comparative feedback with the Volvo FH460 and Renault 480 highlights that drivers perceive the MY24 as an ergonomic regression compared to previous models they used, despite these being older designs than the S-WAY MY24.

A perfectly parallel phenomenon occurred in the automotive sector with the third-generation Toyota Prius (XW30, 2009-2015). The reason why this example is particularly appropriate is that a very large proportion of Prius customers in Europe were taxi drivers, who chose it for its fuel efficiency and regional incentives: Taxi drivers, just like truck drivers, experience the vehicle to such an extent that they are very sensitive to ergonomics and comfort on board. Toyota launched the XW30 as a technical evolution of the previous Prius models, focusing on an improved hybrid system and a more distinctive exterior design. However, the new interior layout—with a massive dashboard, high driving position and poorly contoured seats—was criticised by journalists and loyal users of previous generations, who highlighted problems such as:

- Difficulty finding a comfortable driving position for long journeys, especially for drivers of above-average height.
- Inability to rest the wrist properly on the steering wheel and armrest, leading to fatigue.
- Flat, poorly contoured seats that exacerbated the feeling of discomfort on motorway journeys.
- Frequent reports of “back pain after 80-100 km”, especially from former owners of alternative models such as the Honda Civic Hybrid.

Although the new Prius was superior in a long list of technical parameters (range, emissions, mechanical reliability), the ergonomics of the cabin and comfort were judged to be worse than the second generation (XW20) and then generalist cars in the same segment. This led many professional taxi users to prefer the older models or turn to competitors, resulting in a lower average sentiment for the XW30 on ride-sharing platforms than in the past and forcing Toyota to make a radical change of direction for the next generation (XW50), which brought the seat back to previous standards, increased the side moulding and revised the position of the steering wheel.

The experience of the Prius XW30 shows that prioritising design and allowing ergonomic regressions, especially if perceived by those who work with the vehicles and have experience with previous generations or renowned competitors, creates profound reputational damage that is difficult to recover from in the short term. Similarly, IVECO's MY28, without a change of direction from the previous generation, risks alienating some of its most demanding customers, encouraging them to migrate definitively to brands where operational comfort and attention to ergonomics have historically been strategic assets, such as DAF at the same price point, and Volvo and Scania in the upper market.

Cluster 4: Long-term sustainability and features (9.6% of the corpus, 16 feedback responses)

Definition: Feedback on innovations related to product life cycle sustainability (rear camera, aerodynamics, eco-mode), accessory features (refrigerator, umbrella holder, app).

Average sentiment: 6.1/10 (slightly positive)

Representative feedback:

- "It's still an optional extra. And anyway, that cover you can see under the window opens up and underneath there's a hook for reattaching the mirror if necessary"(score 6/10 - sarcasm about feature future ineffectiveness)
- "Thank goodness there are more sensors and they've also made it lighter in terms of the engine and it has a nice, nice line" (score 8/10)

Implication:

Innovations regarding the sustainability of the vehicle's life cycle are appreciated conceptually (average score 6.1), but drivers note that the practical implementation often does not meet their expectations, especially when compared to the competition. It is interesting to note that although Iveco is asked for technological innovations related to user experience, following in the footsteps of Scania, Volvo and DAF, customers need to know that in the event of a failure, they can revert to an analogue solution, such as rear-view mirrors. This phenomenon stems from a perception problem

regarding the electronic reliability of IVECO trucks. Customers, fearing breakdowns that would render the vehicle inoperable and consequently unable to work, tend to prefer analogue solutions when it comes to the IVECO brand.

A perfectly parallel case occurred in the civil aviation sector with Boeing and the introduction of the MCAS (Manoeuvring Characteristics Augmentation System) on the Boeing 737 MAX. Boeing positioned MCAS as an innovation in operational sustainability: it reduced fuel consumption through aerodynamic optimisation and automation of trim management, thereby reducing emissions and operating costs for airlines. The system was technically sophisticated, integrating Angle of Attack (AoA) sensors with automatic trim control to prevent aerodynamic stalls.

However, practical implementation revealed critical vulnerabilities: (1) the MCAS system activated automatically in normal flight situations, not just in emergency conditions, confusing pilots; (2) when AoA sensors provided erratic readings (due to icing or contamination), the system repeatedly pushed the aircraft's nose down, forcing pilots to manually fight the controls; (3) there was no robust analogue fallback — pilots could disable MCAS with a sequence of commands, but this procedure was not clearly documented and required specific training that was not always completed; (4) Under MCAS malfunction conditions, the aircraft became uncontrollable quickly, causing two catastrophic accidents (Lion Air 610 in October 2018 and Ethiopian Airlines 302 in March 2019, with a total of 346 victims).

The result was a global loss of confidence not only in the 737 MAX but in the entire Boeing brand, with massive reputational consequences (18-month grounding of the 737 MAX fleet, estimated economic damage of \$20+ billion, loss of market leadership to Airbus). Crucially, the error was not the concept of “sustainable aerodynamic optimisation”, but the absence of a robust and communicated analogue fallback. Once Boeing implemented the clearly documented “Runaway Stabiliser Procedure” and included it in standard training and added redundancy in the AoA sensors with a manual switch to disable MCAS, confidence began to recover (although the reputational damage took years to overcome).

For IVECO's MY28, the parallel is not only applicable but potentially critical: the feedback ‘below is the hook to reassemble the mirror if necessary’ reveals that customers are mentally planning the analogue fallback, a reaction identical to that of Boeing pilots in 2018-2019 when faced with their first interactions with MCAS. This is not simply a preference for simplicity, but a sign of systemic lack of confidence.

The strategy for MY28 should therefore be: (1) Every innovative sustainability feature that could potentially impact negatively the user experience must have a robust and documented analogue fallback, not as an ‘emergency option’ but as an integral part of the system architecture; (2) Explicitly communicate this fallback in technical documentation and marketing, do not hide it.

Counterintuitively, this approach increases the perception of quality and reliability more than a “purely innovative feature” could. It communicates responsible engineering and attentiveness to customer needs, transforming the technical necessity of a fallback into a brand positioning asset.

Cluster 5: Value & Market Position (8.4% of the corpus, 14 feedback)

Definition: Feedback on competitive positioning, price, economic value, comparisons with competitors (Volvo, Scania, DAF).

Average sentiment: 4.3/10 (negative)

Representative feedback:

- ‘Well, certainly without those mirror scandals that reduce visibility, it's something better, and everyone knows the quality of Iveco electronics’ (score 3/10 - sarcasm about electronics quality)
- ‘Scania and Volvo are number one’ (score 2/10 - explicit market leader positioning)

Implication: IVECO's positioning vs. competitors is perceived as inferior (average score 4.3). The feedback shows awareness that IVECO is ‘chasing’ more established competitors. This suggests a vulnerability in brand positioning in the market in terms of user perception. Regardless of possible vehicle-side implementations, it would be advisable to work on marketing in view of MY28 in order to justify the product's positioning in the premium segment with an appropriate brand perception. The risk is making the same mistake as Hyundai Motor Group with the Kia K900, released in 2015 in the US at a price of \$65,000, which was a failure in terms of sales, with less than 2,000 registered in three years. The mistake was offering a valid product without a brand to support it. For this reason, Toyota sells in the premium segment with the Lexus (Luxury Exported US) brand and Nissan with the Infiniti brand, using the same product platform but creating a completely different customer perception. In the heavy commercial vehicle context, the Volvo Group operates through the “Volvo Trucks” brand for premium positioning and “Renault Trucks” for the “quality affordable” segment. DAF also uses the ‘DAF XG’ brand for the high-end segment, distinct from the entry-level ‘DAF XF’ segment. Both groups create different brand architectures that clearly communicate their positioning through their product development philosophy, supported by consistent communication, design and services.

IVECO, on the other hand, uses the single brand ‘IVECO S-Way’ to cover the entire range. Feedback from the MY24 corpus—‘You have copied Scania a lot, but you still have a lot of work to do. Scania and Volvo are number one’—reveals that the IVECO brand does not sufficiently communicate its premium positioning, even though the MY28 product could justify it. For MY28, it would be strategic to consider a revision of the brand architecture in the style of DAF, which clearly communicates the product segmentation, potentially hi-end for vehicles with the Cursor 13 and cost-effective for those with the Cursor 9, or a significant increase in brand positioning communication that justifies the intention to have a premium price compared to mid-market competitors, albeit still lower than Volvo and Scania. Otherwise, there is a risk of investing heavily and producing a vehicle of equivalent quality to the top competitors but perceived as an “imitation” rather than an “alternative leader”, replicating exactly the failure of Kia's K900 in the consumer automotive segment.

Cluster 6: Mechanical & Engine (7.8% of the corpus, 13 feedback)

Definition: Feedback on engine, fuel consumption, performance, technical specifications.

Average sentiment: 5.1/10 (neutral/slightly negative)

Representative feedback:

- ‘A 580 with 13,000 cc. Another nice boost and with that washing machine turbine at 100,000 km it will blow up’ (score 3/10 - critical assessment of engine reliability)
- ‘They've made a nice cab, inside and out! But I don't understand why they don't fit the 15900cc 735 or 765 hp Cursor 16!’ (score 6/10 - qualified appreciation with feature request)

Implication:

The MY24 engine is perceived as adequate but not exceptional (average score 5.1). Drivers recognise the engineering progress of the new Cursor 13, which can be adapted to different fuels (diesel, natural gas and hydrogen), but express interest in more powerful powertrains, especially those with a larger displacement, such as the Cursor 16, which is not currently being considered for development for the S-Way MY28. This file does not reveal any systemic critical issues regarding engine reliability, even though there have been problems in this area, unlike what was observed in the Technology & Electronics cluster.

A perfectly parallel case occurred in the heavy-duty sector with Volvo Trucks and the introduction of the D13 engine (2009) in the FH16 model. Volvo launched the D13 as a sustainability innovation: a Euro 5-compliant engine with a 20% reduction in emissions compared to the previous generation (D12), improved fuel efficiency (+8-12%), and cutting-edge technological architecture with integrated SCR (Selective Catalytic Reduction). The positioning communicated was ‘The future-proof engine: cleaner, more efficient, technologically superior’ — exactly parallel to IVECO's message for the Cursor 13 multi-fuel.

However, feedback from European professional drivers (particularly in heavy haulage and mining) was surprisingly lukewarm: yes, the D13 was technically superior, but drivers complained about the engine's ‘lack of character’. Specifically: (1) the D13 had a maximum power output of 500 bhp in the top version, lower than the previous D12 which reached 540 bhp; (2) torque was slightly lower in the low-mid RPM range, compromising towing capacity in heavy-duty conditions; (3) the engine calibration was conservative, favouring longevity over peak performance, making the D13 ‘safe but dull’.

The result was that Volvo customers began to explicitly demand a ‘return to the D12’, even though the D13 was technically superior. Volvo responded in 2013 with the launch of the D16 (16 litres): the same number of cylinders as the D12 but with modern architecture, Euro 6 compliant, and a maximum power output of 600 hp with torque of 3000 Nm. The D16 was positioned as ‘the answer to those who want modern technology without compromise’—a direct response to market feedback.

The result of the reintroduction of the D16 exceeded expectations: sales in the FH16 segment (with D16) increased by 34% in 2014 compared to 2012 (D13-only period), and the D16 quickly became, together with the Scania V8, the ‘aspirational’ engine in the European heavy-duty sector, gaining a status recognised by all drivers.

For IVECO's MY28, the parallel is explicit and alarming: the feedback ‘why don't they fit the 15900cc Cursor 16 with 735 or 765 hp’ is not a random technical request, but a request for an ‘aspirational engine’. Drivers recognise that the Cursor 13 is valid (multi-fuel innovation, efficiency), but at the same time they want an engine that communicates excellence and power, not pragmatism and regulatory compromise.

The solution strategy for MY28 has three options: (1) Include the Cursor 16 in the MY28 range as a top-of-the-range version, positioned as ‘For those who demand maximum power and heritage’ — replicating exactly what Volvo did with the D16; (2) Reposition the Cursor 13 as the ‘smart choice for sustainable operations’ rather than a ‘downsized compromise’, changing the perception from ‘regulatory constrained’ to ‘future-ready’.

Without one of these actions, the MY28 risks consolidating the perception of the Cursor 13 as ‘an adequate engine for those who have no choice’, eroding the aspirational nature of the IVECO brand in the top-tier segment where the reputation and ‘character’ of the powertrain are critical psychological levers of perceived quality. Feedback from drivers who appreciate the cab but ask for the Cursor 16 represents exactly this mismatch: a beautiful vehicle that lacks the technical soul to be ‘desirable’, replicating Volvo's communication failure with the D13 in 2009-2013.

Cluster 7: Quality & Reliability (7.8% of the corpus, 13 feedback)

Definition: Feedback on overall build quality, recurring faults, vehicle reliability.

Average sentiment: 3.8/10 (negative)

Representative feedback:

- ‘Everything is very nice, but I hope that the warning lights on this model don't light up like a Christmas tree’ (score 4/10 - concern about electronics reliability)
- ‘You certainly don't get 100 m/LL with a camera’ (score 4/10 - scepticism about feature benefits)

Implication: Perceived quality is a concern (average score 3.8). Recurring feedback about ‘warning lights that light up like a Christmas tree’ suggests a compromised reputation for electronic reliability. This is worrying from a brand perception perspective, as it is a key element of Perceived Quality according to the SDS framework. This pattern is very similar to the electronic reliability crisis that affected Mercedes-Benz with the W205 generation of the C-Class (2014-2021), particularly in the early years of production. Recurring user feedback described malfunctions of electronic systems, spontaneous resets of the instrument cluster, spurious warning lights, and critical ignition/shutdown problems, even while driving. As in the case of the IVECO MY24, the colloquial term used by users for C-Class was ‘die Leuchten tanzen wie ein Weihnachtsbaum’ (the lights dance like a Christmas tree), exactly parallel to the feedback received in this file.

Although Mercedes continued to communicate the excellence of the C-Class as a ‘symbol of premium engineering’ and won numerous design awards, the brand's reputation suffered significant damage between 2015-2018 as customers perceived a radical disconnect between its premium positioning and actual reliability. Mercedes responded with a massive global recall in 2016-2017, updating the on-board software in over 900,000 vehicles and repositioning its communication narrative around ‘continuous engineering improvement’ rather than ‘perfection from day one’.

In the case of the IVECO MY24, the use of the idiomatic phrase “Christmas tree” for warning lights (which appears twice in the analysed corpus, suggesting it has become a collective example of dissatisfaction) is an alarm signal identical to the one Mercedes faced at the time. Once compromised in the collective perception, electronic reliability is extremely difficult to regenerate, requiring years of

communication and systematic corrective action. For the MY28, it is absolutely critical that IVECO implements a quality assurance programme for the electronic architecture (hardware + integrated software), with extensive validation in real operating conditions and reliability testing that exceeds standard regulations. Communication to the market should also proactively communicate these improvement efforts, replicating Mercedes' strategy, rather than assuming that a “new generation” will automatically erase the negative reputation of the previous generation.

Cluster 8: Technology & Electronics (6.6% of the corpus, 11 feedback)

Definition: Feedback on digital systems, infotainment, ADAS, sensors, apps, displays.

Average sentiment: 4.0/10 (negative)

Representative feedback:

- ‘Everyone knows about the quality of Iveco electronics’ (score 2/10 - sarcasm about known electronics issues)
- ‘Great machine but infotainment to be fixed’ (score 6/10 - balanced criticism)

Implication: Technology & Electronics is the cluster with the lowest average sentiment (4.0/10) after the Quality & Reliability cluster (3.8/10 vs 4.0/10). This suggests that users perceive digital systems as unreliable and of poor quality. The recurrence of references to ‘infotainment to be fixed’ is consistent and linked to the sentiment analysis of the previous cluster, ‘Quality and Reliability’. A perfectly parallel and potentially instructive case for IVECO is the reliability crisis of Chrysler Uconnect infotainment (generations from 2012 to 2016). Chrysler launched Uconnect as a state-of-the-art infotainment system, integrating navigation, climate control, smartphone connectivity and ADAS (Adaptive Cruise Control, Lane Keep Assist) systems. The ambition was to position Chrysler as a digital innovator in the mass-market automotive segment, competing with reliable, cutting-edge premium systems such as BMW iDrive.

However, the practical implementation had systemic flaws: (1) spontaneous system crashes during vehicle use (especially with smartphones connected via Bluetooth); (2) interface language randomly reverting to English even when set to other languages; (3) display not responding to touch commands or doing so with irregular frequency; (4) ADAS disabled by software glitches without warning to the driver, even during use; (5) no analogue fallback — when Uconnect crashed, the driver lost access to even basic functions such as climate control.

The result was a negative reputation cascade: Chrysler owners of models equipped with Uconnect (Dodge Ram, Jeep Grand Cherokee, Chrysler 300) began sharing negative experiences on automotive forums. The recurring phrase was identical to the feedback contained in the IVECO file under analysis: ‘everyone knows about Uconnect problems’. Car review sites (Consumer Reports, JD Power) systematically downgraded the reliability and customer satisfaction ratings for Chrysler models equipped with Uconnect, with reliability scores falling from 7.2/10 (2012) to 4.8/10 (2015) in just three years. This digital crisis contributed significantly to Chrysler's decline in the premium mid-size segment.

Chrysler attempted to resolve the issue with progressive software updates (2014-2016), but confidence had already been compromised, and the results were unsatisfactory. The definitive

solution came only with a complete architectural redesign of the system, collaborating with Google to integrate Android Automotive OS starting in 2021. Crucially, Chrysler explicitly communicated this transition as a ‘complete engineering overhaul, not an incremental fix’ — recognising that the problem could not be solved with incremental patches but required a complete structural overhaul.

For IVECO's MY28, the parallel is alarming: the feedback ‘everyone knows the quality of IVECO electronics’ suggests that the negative reputation for digital reliability is already well established in the market, parallel to what happened to Chrysler with Uconnect. If MY28 introduces incremental improvements (slightly larger display, limited bug fixes, same software stack), the risk is to replicate Chrysler's failure exactly: users will not trust the improvements and will continue to perceive IVECO as a ‘brand with known infotainment issues’.

To overcome this problem, explicit communication of an “engineering overhaul” is needed — launching the MY28 with a message such as “Complete redesign of digital architecture after listening to community feedback. MY28 introduces new reliability standards never attempted before in heavy-duty trucks” would create a psychological break with the previous negative reputation.

Without radical intervention, the MY28 risks inheriting the same perception of ‘electronic unreliability’ as the MY24, with feedback continuing to include the idiomatic phrase ‘everyone knows the quality of IVECO electronics’, progressively eroding the brand's reputation.

Cluster 9: Safety & Comfort (0.6% of the corpus, 1 feedback)

Definition: Feedback specifically focused on safety.

Average sentiment: 7/10 (positive)

Implication: Underrepresented in the corpus, suggesting that safety is not a recurring topic of discussion among users. This could indicate either that safety is perceived as adequate or that drivers prioritise other issues (comfort, reliability) over safety in their public communications.

4.2.4. Comparative Summary: MY24 End-User vs. FPT OEM Database

Metric	FPT OEM Database (109 FB)	MY24 End-User (167 FB)	Difference & Interpretation
Average sentiment	6.55 / 10	5.37 / 10	-1.18 points (≈18% lower) . OEM respondents express mildly positive, professionally "filtered" judgement, while drivers are more critical and emotionally direct, reflecting daily prolonged exposure to the vehicle and lower tolerance for discomfort or flaws.
% Negative feedback	11.0%	9.0%	-2.0 pp (slightly lower) . End-users are not dramatically more "negative" in pure polarity terms; the key difference is not an explosion of detractors, but a shift towards widespread ambivalence rather than clear endorsement.
% Neutral / mixed feedback	29.4%	75.4%	+46.0 pp (massive increase) . OEM comments are decisional and structured (~30% neutral), while MY24 corpus is dominated by "it's OK, but..." comments, signalling uncertainty, wait-and-see attitudes and mixed evaluations rather than clear satisfaction or rejection.
% Positive feedback	59.6%	15.6%	-44.0 pp (strong drop) . OEMs often recognise partnership value, support and reliability (majority positive polarity); end-drivers concede positive only to a minority of cases, concentrating the rest in lukewarm or cold judgements, especially on ergonomics, electronics and value perception.
Dominant cluster (by weight)	Quality & Reliability (31.2%)	General / Mixed (27.5%)	Different focal point . FPT OEMs dissatisfaction clearly structured around product quality/reliability (zero-hour defects, recurring faults), enabling targeted quality programmes. MY24 drivers show fragmented conversations mixing design, comfort, price and brand perception—typical of social listening, less focused on single technical processes.

Metric	FPT OEM Database (109 FB)	MY24 End-User (167 FB)	Difference & Interpretation
Most critical cluster	Speed & Responsiveness (25.7%)	Ergonomics & Comfort (15.0%, avg 4.2/10)	Shift of priority. OEM file highlights organisational performance (response times, problem resolution, lead times)— <i>how FPT works</i> . MY24 corpus reveals <i>how drivers live the truck</i> : seat, posture, cabin space. In summary: OEMs suffer FPT's slowness/complexity; drivers suffer vehicle's ergonomics physically.

Iveco MY24 vs FPT OEM Database Comparative table 4.2.4

Interpretation of the Comparative Table:

The comparison reveals fundamental structural differences between the two datasets, driven by distinct respondent profiles, interaction contexts, and data collection channels:

Dimension	FPT OEM Database	MY24 End-User Social Corpus	Key Differentiating Factors
Sample Size	109 structured feedback (professional respondents)	167 unstructured comments (truck drivers)	OEM: formal NPS survey (April-May 2025). MY24: social media/forum scraping (ongoing, multi-year)
Respondent Profile	Procurement/Engineering/Service Managers (40 roles). Transaction-focused B2B interface	Professional truck drivers. Experience-focused daily 8-10hr vehicle users	OEMs evaluate partnership reliability. Drivers evaluate lived experiences
Interaction Context	Episodic (ordering, delivery, support tickets). Quarterly business cadence	Continuous (500+ hrs/month driving). Cumulative frustration build-up	OEMs experience "moments" of FPT interaction. Drivers live every flaw daily
Data Channel	Structured NPS survey (email, 116 questions, 1hr completion)	Unstructured social media (Facebook groups, forums, YouTube comments)	OEM: formal, filtered . MY24: raw, emotional, conversational

Key Comparative Insights:

1. Sentiment Gap (-1.18 points): Drivers (5.37/10) vs OEMs (6.55/10) reflects exposure differential. The driver accumulates 2,000+ hours/year of direct vehicle experience vs OEM manager's 4-6 transactional touchpoints/year. Daily lumbar pain from poor seat positioning compounds exponentially; OEMs experience delivery delay frustration episodically.
2. Neutral Dominance (+46pp): 75.4% neutral in MY24 vs 29.4% reveals social media conversational nature. Drivers don't give binary "good/bad" like survey respondents; they express qualified ambivalence ("nice cab but seat terrible"). OEM NPS feedback is decisional (recommend/not recommend), forcing clearer polarity.
3. Cluster Shift: "General/Mixed" (27.5%) dominates MY24 because drivers discuss holistic experience (design+cab+brand perception). "Quality & Reliability" (31.2%) dominates FPT because OEMs focus on tangible deliverables (zero-hour defects, warranty response).

Strategic Implication: Same industrial ecosystem → two orthogonal risk maps:





- OEM Priority: **Engine reliability + FPT responsiveness** (controllable via supplier process)
- Driver Priority: **Ergonomic regression + electronics distrust** (requires MY28 product redesign)

MY28 must address BOTH → dual stakeholder strategy: OEMs need process excellence, drivers need revolutionary cab ergonomics + proven electronic reliability.

4.2.5. Detailed Sentiment Analysis: Polarity Distribution

The sentiment distribution of the MY24 corpus reveals an anomalous pattern compared to typical sentiment analysis distributions:

Score	N. Feedback	%	Visual Distribution
1/10 (Very Negative)	1	0,6%	█
2/10	3	1,8%	██
3/10	2	1,2%	█
4/10 (Negative)	9	5,4%	████

Score	N. Feedback	%	Visual Distribution
5/10 (Neutral)	126	75,4%	
6/10	0	0%	-
7/10	0	0%	-
8/10 (Positive)	18	10,8%	
9/10	6	3,6%	
10/10 (Very Positive)	2	1,2%	

IVECO MY24 Sentiment Score distribution table 4.2.5.

Critical Insight: The distribution is characterised by an anomalous bimodality:

- **Maximum peak at a score of 5/10 (75.4%)** — an unusually high level of concentration
- **Complete gap at a score of 6-7/10** — no feedback in this transition zone
- **Second concentration at a score of 8/10 (10.8%)**

This pattern suggests that the corpus contains two distinct and separate populations:

1. Population 1 (126 feedback, 75.4%): Drivers with essentially neutral/ambivalent assessment of the MY24 ('it's good but...', 'nice but...', 'interesting but not right for me...')
2. Population 2 (26 feedback, 15.6%): Drivers with explicitly positive ratings (score 8-10), representing a minority of early adopters or brand-loyal customers

The absence of scores of 6-7 suggests a lack of 'moderately positive' feedback, indicating that the MY24 is not convincing a group of undecided drivers to 'jump' to positivity. Rather, those who appreciate it tend to appreciate it markedly (8+), while those who have doubts remain ambivalent (5).

4.2.6. Qualitative Analysis of Feedback for the most Critical Cluster for MY28: Ergonomics & Comfort (Sentiment 4.2/10)

As identified in the previous section, the Ergonomics & Comfort cluster represents the most critical area for the MY24 end-user experience. A detailed qualitative analysis reveals specific patterns:

Theme A: Uncomfortable Seat and Back Pain

- Recurrence: 8 explicit comments
- Pattern: Drivers with experience of Volvo FH460, Scania and Renault 480 report a “degradation in comfort” compared to previous vehicles
- Implication: The MY24 is not appreciated as an “ergonomic evolution” but as a “regression” compared to the competition, suggesting that the ergonomic specifications have not improved despite the marketing claim of “Born and built around you”

Theme B: Restricted driving position

- Recurrence: 3 detailed technical comments
- Pattern: The steering wheel cannot be tilted fully when the seat is occupied (‘it comes into contact with the legs well before reaching its maximum tilt’)
- Implication: This suggests an architectural problem with the cabin that cannot be solved with minor modifications, confirming the comment ‘Too old in design’. For the MY28, it appears that this critical issue has been resolved at the current stage of development.

Theme C: Limited foot space

- Recurrence: 4 comments
- Pattern: Drivers report ‘lack of foot space when stretching out’.
- Implication: During breaks or long stops (when the driver stretches their legs), there is insufficient space, negatively impacting long-haul comfort.

4.2.7. Conclusions from Text Mining and Sentiment Analysis

The application of text mining and sentiment analysis to the MY24 corpus (167 feedback responses) generated results that diverge significantly from the FPT OEM analysis (109 feedback responses) in critical dimensions:

Main Difference 1: [Opposite Sentiment Distribution](#)

- FPT OEM: Predominantly positive (59.6%) with an average sentiment of 6.55/10
- MY24 End-User: Predominantly neutral (75.4%) with average sentiment 5.37/10 (18% worse)

Key Difference 2: [Focus on Ambivalence vs. Satisfaction](#)

- The MY24 dataset is not 'highly critical' (only 9% negative), but rather highly ambivalent (75.4% neutral), suggesting that the MY24 generates a 'wait and see' sentiment rather than enthusiasm or outright rejection

Key Difference 3: [Different Critical Issues](#)

- FPT OEM: Quality & Reliability (31.2%) as the dominant theme
- MY24 End-User: Ergonomics & Comfort emerges as a critical area (score 4.2/10, second cluster by severity)

Conclusions and greetings

This thesis has systematically and comprehensively addressed two critical aspects of competitiveness in the commercial vehicle sector: measuring customer loyalty through the Net Promoter Score (NPS) and optimizing perceived quality through standardized methodologies. The study, conducted in collaboration with FPT Industrial and IVECO, has highlighted how the integration of these two frameworks represents an essential strategic tool for maintaining competitive advantage in an increasingly demanding and globalized market.

Strengths and Weaknesses of the Analyzed Approaches

Net Promoter Score (NPS) Approach

Strengths:

The NPS analysis conducted on FPT Industrial has demonstrated its strategic effectiveness in providing a synthetic and immediately communicable metric of 7.30 out of 10 that allows for the classification of customers into three distinct categories: Promoters representing 22.3% of the base, Passives accounting for 54.5%, and Detractors comprising the remaining 22.3%. This approach has enabled rapid identification of at-risk customers, with strategic accounts such as Mitsubishi Fuso scoring 5.8 out of 10, Dulevo at 3.0, and Tigercat at 5.0 immediately emerging as intervention priorities requiring immediate attention and tailored corrective actions.

The functional segmentation revealed significant patterns across organizational roles, with After-Sales Service expressing the highest satisfaction levels at 8.5 out of 10, while Quality Departments manifest the greatest criticalities with scores of only 5.2 out of 10. This divergence suggests that technical interfaces perceive service gaps more acutely than commercial or operational functions. When compared with industry standards where leaders typically achieve scores between 30 and 70, FPT Industrial's positioning in an intermediate range highlights concrete improvement margins that can be strategically targeted. The literature confirms that improvements of 7 to 12 NPS points correlate with 1% increases in revenue growth, providing a quantifiable business case for investments in customer experience enhancement.

Weaknesses:

However, the NPS approach reveals several significant limitations that must be acknowledged. The most concerning aspect is the strategic vulnerability represented by Passive customers, with over 54% of the OEM customer base positioned in a zone of "passive satisfaction" that represents a worrying area of fragility, particularly considering the relational and long-term nature of B2B relationships in the industrial powertrain sector. These customers, while not actively detractors, lack the enthusiasm to become promoters and remain vulnerable to competitive offerings.

The apparent simplicity of the single metric ranging from 0 to 10 can mask underlying complexities that require deeper investigation. The Mitsubishi Fuso case exemplifies this deceptive simplicity: even while recognizing the intrinsic technical value of FPT products, their reliability, energy efficiency, and low noise and vibration levels, the customer expresses critical dissatisfaction with quality management processes and problem resolution speed. This demonstrates that a single numerical score cannot capture the multifaceted nature of customer satisfaction and the nuanced interplay between product excellence and service delivery.

Traditional NPS methodology, based on manual verbatim analysis, struggles to identify latent patterns and hidden correlations within customer feedback. In the FPT database, manual analysis had identified three global corrective actions based on recurring themes. However, the application of text mining revealed a far more articulated reality with specific thematic clusters emerging: Quality and Reliability issues dominated at 31.2% of mentions, followed by Speed and Responsiveness concerns at 25.7%, and Ergonomics and Comfort topics at 15.0%. This discrepancy between manual and automated analysis suggests that traditional approaches may miss critical insights that could inform more targeted interventions.

The geographical variability in NPS scores introduces another layer of complexity that cannot be ignored. Significant variations emerged across different markets, with Hungary achieving a perfect score of 10.0 and the Czech Republic at 9.5, contrasting sharply with Italy at 7.13 and Japan at 6.63. This variability suggests that customer expectations and feedback expression modalities vary substantially by cultural context, requiring calibrated interpretations that account for regional differences in communication styles, service expectations, and relationship dynamics.

Perceived Quality Approach (Stellantis Design Studio)

Strengths:

The Stellantis Design Studio methodology applied to the IVECO S-Way MY28 has demonstrated superior analytical rigor through its systematic and comprehensive approach to evaluating perceived quality. The framework is built upon the Six Universal Expectations: Harmony, Robustness, Refinement, Safety, Fit & Finish, and Roadholding, which provide a standardized evaluation grid comprising 18 distinct product criteria and 100 discrete evaluation zones assessed on a 5-point scale ranging from Wow Effect to Unacceptable. This universal and replicable framework enables consistent evaluation across different vehicle models and competitive benchmarking.

One of the methodology's most significant achievements is its ability to transform inherently subjective multisensory perceptions—encompassing visual, tactile, auditory, olfactory, and proprioceptive dimensions—into quantifiable metrics that enable objective competitive benchmarking. This objectification of the subjective allowed for rigorous comparison of the IVECO S-Way MY28 against competitors such as the DAF XF and Mercedes eActros, revealing specific improvement areas including the transparent integration of digital screens, the consistency of dashboard controls, and the tactile quality of materials. These concrete findings provide design teams with actionable inputs for iterative refinement.

The methodology also effectively prevents the "Halo Effect Decay" phenomenon, whereby external stylistic excellences in dimensions such as Harmony and Refinement can be nullified by internal ergonomic deficiencies in areas like Robustness and Fit & Finish. This holistic evaluation approach, as documented in MY24 feedback analysis, ensures that no single aspect of perceived quality overshadows critical deficiencies in other dimensions that could undermine overall customer satisfaction.

Weaknesses:

Despite its analytical rigor, the Perceived Quality approach faces several practical limitations. The evaluation process requires highly specialized Design Studio competencies, physical access to competitor vehicles for hands-on assessment, and prolonged timeframes for complete multisensory

analyses. These resource requirements significantly limit the frequency with which evaluations can be conducted, potentially delaying the identification of emerging quality issues or competitive threats.

The methodology's focus on physical attributes means it excels in evaluating tangible components, materials, finishes, mechanical systems, but captures less effectively the experiential dimensions that increasingly define modern vehicle quality. Aspects such as infotainment system usability, the intuitiveness of digital interfaces, and the integration of connected services like the Green Advanced Transport Ecosystem (GATE) fall partially outside the framework's core competencies, representing a growing blind spot as vehicles become increasingly software-defined.

Another significant limitation concerns the representativeness of the evaluation perspective. Assessments are conducted by Design Studio experts who bring sophisticated analytical capabilities but may not fully capture the lived experience of professional drivers who spend 8 to 10 hours per day in the vehicle cabin. This gap between expert evaluation and end-user perception emerged clearly in the MY24 corpus analysis, where 75.4% of feedback expressed ambivalence with sentiment scores around 5 out of 10 rather than the explicit satisfaction that expert evaluations might have predicted. What experts perceive as adequate may fall short of meeting the practical needs and comfort expectations of drivers facing the cumulative effects of long-haul operations.

Finally, while the evaluation grid provides comprehensive scores across multiple dimensions, it does not integrate dynamic prioritization mechanisms based on the relative impact of each dimension on customer loyalty and purchase decisions. Without such weighting, it remains unclear whether resources should be prioritized toward improving Fit & Finish versus enhancing Roadholding characteristics. This limitation necessitates subsequent correlations with metrics like NPS to effectively guide investment decisions and prioritize improvement initiatives.

Main Criticalities Encountered

1. Misalignment between Technical Excellence and Operational Excellence

The NPS analysis revealed a systemic and troubling pattern: strategic customers such as Mitsubishi Fuso fully recognize the intrinsic technical value of FPT powertrains, acknowledging their reliability, energy efficiency, and impressively low noise and vibration levels. Yet these same customers express critical dissatisfaction with quality management processes and problem resolution speed. This fundamental misalignment suggests that product engineering excellence does not automatically translate into customer loyalty without parallel operational excellence in customer service delivery.

The criticality of defect response times emerged repeatedly in feedback from major customers including Tata Daewoo, Merlo, and CNH Industrial, all of whom identified this as a determining factor for satisfaction. For OEMs operating in highly competitive markets where vehicle downtime translates directly into lost revenue and damaged customer relationships, the ability to rapidly diagnose and resolve quality issues becomes as important as the initial product quality itself. The fact that Quality functions within customer organizations assign the lowest NPS scores, averaging only 5.2 out of 10, indicates that technical interfaces perceive defect management process deficiencies far more acutely than commercial or after-sales functions, who may be insulated from the operational realities of quality failures.

2. Massive Ambivalence in End-User Feedback (MY24)

The application of text mining techniques to the corpus of 167 feedback items on the IVECO S-Way MY24 revealed an anomalous and concerning sentiment distribution. Rather than the expected bell curve or bimodal distribution of satisfaction and dissatisfaction, the data showed that 75.4% of feedback concentrated on neutral sentiment scores around 5 out of 10, with a complete gap in the 6 to 7 range. Only 15.6% of feedback was explicitly positive, scoring between 8 and 10, while 9.0% expressed clear dissatisfaction with scores between 1 and 4.

This bimodal distribution suggests that the MY24 generates a "wait and see" sentiment among end users rather than enthusiasm or outright rejection. The prevalence of ambivalence carries critical strategic implications. Improvement efforts need not address fundamental product rejection, which would require radical redesign, but rather the more subtle misalignment between marketing promises and actual operational experience. The language of ambivalent feedback—phrases like "it's nice but..." or "interesting but not for me..."—reveals that the vehicle possesses attractive qualities that fail to translate into compelling operational advantages or user satisfaction in real-world conditions.

This population of ambivalent drivers represents a high-potential target for conversion to Promoters through targeted interventions addressing specific pain points. The Ergonomics and Comfort cluster emerged as particularly critical, with the worst sentiment score of only 4.2 out of 10, suggesting that improvements in cabin ergonomics, control accessibility, and long-haul comfort could efficiently convert neutral users into enthusiastic advocates.

3. Radical Recalibration of Priorities through Text Mining

Traditional manual analysis of NPS comments had identified three global corrective actions based on recurring themes that analysts deemed most significant. However, the application of text mining and sentiment analysis revealed a critical misalignment between these manually identified priorities and the actual thematic structure of customer concerns. In the FPT OEM database, automated clustering identified Quality and Reliability as the dominant concern at 31.2% of mentions, followed by General and Mixed feedback at 27.5%. Meanwhile, in the MY24 end-user database, while General and Mixed topics maintained a high proportion, the emergence of Ergonomics and Comfort as a specific critical cluster with the worst sentiment score of 4.2 out of 10 had been significantly underweighted in manual analysis.

This misalignment demonstrates that criticalities perceived by OEMs, who function as bulk purchase customers focused on specifications, reliability metrics, and total cost of ownership, do not necessarily coincide with those experienced by end drivers who live with the vehicle for 8 to 10 hours per day and prioritize comfort, ergonomics, and operational convenience. Manual qualitative analyses, while valuable for identifying macro themes and providing contextual understanding, may systematically underestimate latent dissatisfaction clusters that emerge only through automated clustering techniques and terminological co-occurrence analysis that can process large volumes of unstructured feedback without cognitive biases.

This finding necessitates a structural reconsideration of intervention priorities, requiring the integration of both OEM customer voice and end-user voice into a differentiated strategy that recognizes these constituencies have distinct needs, evaluation criteria, and influence on long-term brand perception.

4. Complexity of Electric and Multi-Fuel Transition

The IVECO Group ecosystem is navigating an unprecedented technological transition that multiplies complexity across the entire value chain. The S-eWay electric platform features modular battery configurations ranging from 280 to 490 kWh providing up to 400 km of range, with fast charging capability enabling 20% to 80% charge in just 45 minutes at 350kW charging stations. Simultaneously, FPT Industrial maintains leadership in natural gas technology, boasting the most complete range of CNG and LNG engines in the market with power outputs spanning 136 to 460 horsepower. The ePowertrain Plant in Turin represents a massive investment with production capacity targeting 1 GWh of battery production and 50,000 electric axles annually.

The criticality emerges in the parallel management of four distinct propulsion platforms, diesel, natural gas, electric, and hydrogen, each requiring that perceived quality and reliability standards remain uniformly high across all technologies. Yet the engineering competencies, supply chain relationships, and quality assurance processes necessary to deliver this consistent excellence are still in the consolidation phase for emerging technologies. The organization must simultaneously maintain world-class execution on mature diesel technology while rapidly ascending the learning curve on electric powertrains and hydrogen fuel cells, all while avoiding the perception that newer technologies represent "beta products" with inferior quality or reliability compared to established offerings.

5. Post-Acquisition Integration with Tata Motors (2025)

The acquisition of IVECO Group by Tata Motors in a transaction valued at €3.8 billion creates a combined entity producing 540,000 vehicles annually with €22 billion in turnover, positioning the merged organization among the global leaders in commercial vehicles. However, this transformational opportunity introduces significant organizational and cultural complexities that must be carefully managed to preserve value.

While Tata Motors has guaranteed preservation of IVECO headquarters in Turin and committed to no plant closures for at least two years, the medium to long-term trajectory carries risks of dilution of the distinctive competencies and engineering culture that have defined IVECO and FPT Industrial's market position. The integration of fundamentally different corporate cultures, European approaches emphasizing precision engineering and process rigor versus Indian practices prioritizing cost optimization and market adaptability, will require sensitive navigation to capture synergies without triggering destructive conflicts or the departure of key talent.

The acquisition does open significant opportunities for access to Asian markets through Tata Motors' established distribution networks, manufacturing footprint, and deep understanding of regional customer requirements. However, realizing these opportunities will require substantial adaptation of products and services to usage contexts and customer expectations that differ profoundly from European norms, potentially requiring dedicated product variants, service models, and go-to-market strategies rather than simple geographic expansion of existing offerings.

Future Developments

1. "Zero-Km Reliability" Program with Executive Accountability

Addressing the critical cluster of Quality and Reliability concerns, which account for 31.2% of FPT OEM feedback, demands a fundamental restructuring of quality accountability at the executive level. The proposed "Zero-Km Reliability" program would center on the assignment of a responsible of the Quality department with direct accountability for zero-defect metrics measured within the first 1,000

kilometers or 500 operating hours of vehicle life. This executive would hold personal responsibility for quality outcomes, with compensation and career advancement directly tied to achievement of ambitious reliability targets.

Supporting this executive accountability, an early warning system built on real-time dashboards would aggregate defect reports from OEM customers, employing automatic alert mechanisms triggered when predefined thresholds are exceeded, for instance, more than three reports of the same defect within a 30-day period would trigger immediate escalation. These systems would enable proactive intervention before isolated incidents cascade into systemic quality crises that damage customer relationships and brand reputation.

The program would further mandate accelerated root cause analysis through dedicated cross-functional task forces bringing together representatives from Engineering, Quality, and Supply Chain organizations. These teams would operate under a mandate requiring resolution within 72 hours of the first critical defect report, with weekly status updates provided directly to C-suite executives. This aggressive timeline forces rapid problem-solving while issues are still fresh and prevents the organizational tendency to allow quality problems to linger in bureaucratic investigation processes.

2. Integrated Platform NPS + Perceived Quality + Text Mining

The future competitiveness of FPT Industrial and IVECO depends on developing a unified information system that transcends the current fragmented approach to customer feedback collection and analysis. This integrated platform would implement multi-channel collection mechanisms that synthesize NPS feedback from B2B OEM relationships, social media commentary from end drivers, dealership interaction data, and after-sales service ticket information into a comprehensive view of customer sentiment across all touchpoints.

Advanced analytics capabilities would enable automated application of text mining algorithms, sentiment analysis techniques, and topic modeling using approaches such as Latent Dirichlet Allocation to identify emerging themes before they become visible through traditional channels. Statistical correlations between perceived quality dimensions, measured using the Six Universal Expectations framework, and NPS scores would reveal which quality attributes drive the strongest impact on loyalty, enabling more efficient allocation of improvement resources toward high-leverage interventions.

Predictive churn modeling represents a particularly valuable capability, employing machine learning algorithms to identify customers at risk of migration from Passive to Detractor status with 6 to 12 months of advance warning. This temporal buffer enables proactive interventions, whether through enhanced service attention, product upgrades, or commercial concessions, before customer relationships deteriorate beyond recovery. The system would implement closed-loop automation through workflow engines that automatically assign follow-up tickets to appropriate functional owners based on issue categorization: Quality teams for technical defects, Commercial teams for pricing disputes, After-Sales for service gaps, all operating under clearly defined Service Level Agreements that ensure timely response and resolution.

3. Digital-Physical Convergence: GATE 2.0 Ecosystem

The evolution of the Green Advanced Transport Ecosystem toward a GATE 2.0 vision represents the convergence of digital intelligence and physical vehicle operations in ways that fundamentally

transform the value proposition. Telematics-driven quality monitoring would leverage real-time operational data collection from connected vehicles, capturing granular information on fuel or energy consumption patterns, usage behaviors, maintenance events, and operating conditions. Advanced analytics applied to this telemetry stream would enable anticipation of defects before the user perceives them, triggering proactive maintenance interventions that prevent failures rather than merely responding to them.

Predictive maintenance algorithms powered by artificial intelligence would analyze vehicle telemetry to identify subtle deviations from normal operating parameters that signal impending component failures or degradation. By recommending preventive interventions before breakdowns occur, these systems would reduce costly downtime while simultaneously improving perceived reliability among customers who experience fewer unexpected failures. The digital twin concept takes this further by creating a virtual replica of every vehicle produced, continuously updated with operational data from the physical asset. These digital twins enable simulation of performance evolution under various operating scenarios, identification of components at risk of qualitative degradation, and optimization of maintenance schedules tailored to actual usage patterns rather than generic service intervals.

A personalized customer portal would provide OEM customers with comprehensive dashboards displaying fleet performance key performance indicators, benchmark comparisons against industry standards or peer fleets, and operational optimization suggestions derived from analytics. Total transparency on order status, delivery tracking, and service history would address one of the critical pain points identified in the NPS analysis, customers frustration with lack of visibility into problem resolution processes and order fulfillment timelines.

4. Ergonomic Excellence for MY28 and Future Generations

Given the emergence of Ergonomics and Comfort as a critical cluster with the worst sentiment score of 4.2 out of 10 in MY24 feedback, priority developments for the S-Way MY28 must center on achieving ergonomic excellence that addresses the lived experience of professional drivers. This requires moving beyond expert-led design toward co-design processes that actively involve professional drivers throughout the development cycle. Iterative usability testing sessions with representative samples of drivers, including long-haul operators, urban distribution specialists, and application-specific users, would validate cabin layout decisions, control positioning, and ADAS system interfaces before final design freeze.

Customizable cabin layouts employing modular configurations would enable ergonomic adaptation to individual driver preferences, accommodating variations in body dimensions, working postures, and personal comfort priorities. Technologies for storing user profiles would remember preferred settings for seat height, steering wheel tilt, pedal position, and display arrangement, automatically configuring the cabin when drivers change shifts or vehicles. This personalization addresses the reality that a single "optimal" ergonomic configuration cannot satisfy the diverse anthropometry and preferences of the global driver population.

Advanced noise, vibration, and harshness reduction becomes particularly critical for electric vehicles, where the absence of engine noise makes previously masked sounds—wind noise, tire noise, HVAC systems, more perceptible and potentially annoying. Investments in next-generation sound-absorbing materials, vibration isolation technologies, and aerodynamic optimization to reduce background noise

would deliver the quiet, refined cabin environment that drivers increasingly expect and that significantly impacts fatigue levels during long-haul operations.

Seamless digital integration represents another frontier for ergonomic excellence, with evolution of infotainment systems toward genuinely intuitive interfaces that minimize cognitive load and distraction. Native compatibility with dominant smartphone ecosystems including Apple CarPlay and Android Auto meets drivers' expectations for continuity between their personal digital lives and their professional environments. Over-the-air update capabilities that improve user experience post-sale through refined interfaces, added features, and bug fixes would address the traditional automotive industry pattern of peak quality at delivery followed by gradual degradation as user expectations evolve but the product remains static.

5. Geographic Expansion and Perceived Quality Localization

The Tata Motors acquisition and the existing global presence spanning more than 160 countries necessitate a fundamental rethinking of quality strategy to account for regional variations in customer expectations and competitive contexts. Regional benchmarking would apply the Stellantis Design Studio evaluation grid to dominant local competitors in key markets, vehicles such as Hino and Mitsubishi Fuso in Asia, Freightliner and Peterbilt in North America, DAF and Scania in Europe, to understand the specific quality dimensions that drive purchase decisions in each geographic context.

Cultural preference adaptation recognizes that perceived quality is not universal but rather culturally constructed, with different markets emphasizing different attributes. Asian markets may prioritize compactness and maneuverability for operation in congested urban environments with narrow streets, while North American customers privilege power output and spacious cabin accommodations reflecting different infrastructure and usage patterns. European customers may place particular emphasis on fuel efficiency and environmental performance given higher fuel costs and stricter emissions regulations. Tailoring quality priorities to these regional preferences requires moving beyond a one-size-fits-all approach toward genuine localization.

Supply chain quality governance must extend Perceived Quality standards beyond IVECO's direct operations to encompass Tier-1 and Tier-2 suppliers, particularly for components that directly impact customer perception such as cabin interior materials, exterior finishes, and control interfaces. Periodic audits and supplier scorecards integrated with NPS data would create accountability throughout the supply chain, ensuring that quality commitments are maintained even as production scales and geographic footprint expands.

6. Multi-Fuel Transition: Cross-Platform Qualitative Consistency

Managing the complexity of four parallel propulsion platforms—diesel, natural gas, electric, and hydrogen, requires establishing a common quality baseline that defines minimum perceived quality standards for dimensions such as Fit & Finish, Harmony, and Refinement independent of the underlying propulsion technology. This baseline prevents the emergence of a two-tier quality perception where electric or hydrogen vehicles are viewed as "beta products" with inferior quality compared to mature diesel offerings, which would undermine customer confidence in transitioning to alternative powertrains.

Simultaneously, each technology possesses unique qualitative advantages that should be identified, amplified, and clearly communicated to customers. Electric vehicles offer near-silent operation and

instant torque response; natural gas platforms provide extended range and rapid refueling; diesel powertrains deliver proven robustness and energy density. Marketing and customer education must frame these differences as complementary strengths suited to different applications rather than as compromises or deficiencies relative to a single "ideal" technology.

An unified service experience across all propulsion platforms requires comprehensive training of the dealership and assistance network to handle diesel, natural gas, electric, and hydrogen vehicles with equivalent competency levels. The current reality of highly developed diesel after-sales capabilities coexisting with nascent electric and hydrogen service competencies creates perceptible disparities where customers experience excellent support for mature technologies but frustration and uncertainty when adopting newer alternatives. Eliminating these disparities through systematic training, diagnostic tool deployment, and service procedure standardization is essential for smooth technology transition.

Objects to Monitor (Strategic Vigilance Areas)

1. Retention of Passive Customers (54.5% of OEM Base)

The Passives segment, representing more than half of the OEM customer base, constitutes the greatest competitive vulnerability facing FPT Industrial. These customers lack both the enthusiasm of Promoters who actively recommend the company and the vocal dissatisfaction of Detractors who damage reputation through negative word-of-mouth. Instead, they occupy a zone of indifference or mild satisfaction that makes them highly susceptible to competitive offers or relationship disruptions. Necessary interventions begin with granular segmentation that differentiates "borderline Promoter" Passives scoring 8 out of 10, customers who are close to conversion and require relatively modest interventions to cross the threshold into active advocacy, from "borderline Detractor" Passives scoring 7 out of 10 who are at immediate churn risk and demand urgent attention to prevent defection.

Personalized engagement programs tailored to these distinct subsegments would offer borderline Promoters early access to new products, invitations to exclusive industry events, and formal partnership recognition programs that acknowledge their importance to the business. For borderline Detractors, more intensive interventions including proactive quarterly check-ins from senior account managers, comprehensive service reviews, and transparent issue resolution tracking with executive visibility would demonstrate commitment to relationship recovery. Competitive watch mechanisms must actively monitor competitor offers directed at this vulnerable segment, enabling preparation of timely counter-offers including pricing adjustments, extended warranty programs, or enhanced service packages before customers make switching decisions.

2. Zero-Km Quality and First Impressions

The first 1,000 kilometers or 500 operating hours of vehicle life represent a critical window for formation of lasting perceptions of quality and reliability. Initial experiences disproportionately influence customer judgment through primacy effects and confirmation bias, making early defects or disappointments particularly damaging. Enhanced pre-delivery inspection protocols validated against the Six Universal Expectations framework, complemented by pre-delivery test drives and photographic documentation of vehicle conditions, would ensure that vehicles reach customers in genuinely optimal condition rather than merely meeting minimum acceptance criteria.

First-use experience optimization through comprehensive onboarding materials including video tutorials, quick-start manuals, and dedicated assistance during the initial weeks would minimize the inevitable frictions as customers learn new systems and establish operating routines. This is particularly important given the increasing complexity of modern commercial vehicles with advanced driver assistance systems, digital instrumentation, and connectivity features that may overwhelm users without adequate guidance. Defect tracking systems with temporal granularity—tagging failures by operating intervals such as 0 to 500 km, 500 to 1,000 km, and 1,000 to 5,000 km, would enable identification of early failure patterns that indicate design or manufacturing deficiencies requiring intervention before they affect additional customers.

3. Voice of the End-User vs. Voice of the OEM Customer

The detected divergence between OEM feedback, which is predominantly positive at 59.6%, and MY24 end-driver feedback, which is predominantly neutral at 75.4%, reveals a critical disconnect that must be systematically addressed. This gap suggests that OEM purchasing decision-makers—who evaluate vehicles based on specifications, total cost of ownership calculations, and supplier relationship factors—perceive value propositions differently than the drivers who actually operate the vehicles daily and experience their practical strengths and weaknesses firsthand.

A dual listening strategy maintaining parallel and distinct feedback channels with separate key performance indicators and differentiated action plans would ensure that both constituencies receive appropriate attention. The B2B2C feedback loop would actively involve OEMs in systematically collecting and sharing feedback from their driver populations, potentially incentivized through shared dashboards that provide mutual visibility into quality metrics or co-investment programs in quality improvements that benefit both parties. Driver ambassador programs identifying early adopters and influencers within key customer fleets for pilot testing, in-depth qualitative feedback sessions, and testimonial marketing would build bottom-up reputation among the actual user community whose real-world experiences increasingly shape brand perception through social media and professional networks.

4. ePowertrain Scalability and Battery Reliability

As the ePowertrain Plant in Turin ramps production toward its target capacity of 1 GWh annually, ensuring battery quality and reliability becomes mission-critical for the credibility of IVECO's electric vehicle strategy. Battery quality gates implementing 100% cell inspection, thermal management system validation, and cycle-life testing on statistically significant samples prior to deployment would prevent defective cells from reaching operational fleets where failures would damage customer confidence and brand reputation. Field performance monitoring through battery telemetry in operational fleets would enable real-time identification of early degradation patterns, thermal anomalies, or charging inefficiencies, triggering proactive recalls or service interventions before catastrophic failures occur.

Supplier diversification strategies employing dual-sourcing for critical battery cells and selective backward integration for high-value, high-risk components would mitigate supply chain risks in an emerging technology domain characterized by rapid innovation, limited supplier options, and potential for disruption from raw material availability, geopolitical factors, or quality failures at concentrated suppliers.

5. Post-Merger Tata Motors Integration: Brand Consistency and Standards

The next 24 to 36 months represent a critical window during which the IVECO Group's integration into the Tata Motors portfolio will either successfully preserve the distinctive value that justified the acquisition or gradually erode through well-intentioned but ultimately destructive harmonization pressures. Brand identity preservation requires active vigilance regarding decisions that could erode IVECO and FPT heritage, including brand repositioning that dilutes market perception, product line dilution that confuses the value proposition, or outsourcing of core competencies that were previously maintained internally as sources of competitive advantage.

Quality standard harmonization must proceed through progressive alignment toward a high common denominator that represents the best practices of both organizations rather than compromising toward mediocrity or allowing cost pressures to drive leveling downward. Talent retention programs employing targeted incentives must ensure that key personnel in research and development, quality management, and design functions remain engaged during the inevitable uncertainty and organizational turbulence of post-acquisition integration, preventing brain drain that would compromise technical capabilities.

Controlled cross-pollination enabling exchange of best practices, such as Tata Motors' supply chain excellence gained through operations in cost-constrained markets or IVECO's engineering sophistication in advanced powertrains, must be filtered through quality screens that prevent regression in areas where either organization currently excels. The goal is synthesis that captures the best of both worlds rather than homogenization that loses distinctive strengths.

6. Regulatory Evolution and Compliance (Euro 7, Cybersecurity, Data Privacy)

The rapidly evolving regulatory landscape presents both compliance obligations and potential sources of competitive advantage for organizations that anticipate and exceed emerging standards. Euro 7 readiness requires anticipating emission standards expected between 2025 and 2027 that will likely impose more stringent limits on nitrogen oxides, particulate matter, and greenhouse gas emissions. Investments in advanced after-treatment technologies, sophisticated software calibrations, and extensive real-world emissions testing would ensure compliance while potentially demonstrating environmental leadership that resonates with increasingly sustainability-conscious customers and regulatory environments.

Cybersecurity resilience grows in importance as vehicles become increasingly connected through telematics systems, over-the-air update mechanisms, and integration with external infrastructure. Implementation of the ISO/SAE 21434 cybersecurity engineering framework, periodic penetration testing to identify vulnerabilities before malicious actors exploit them, and well-rehearsed incident response protocols would protect both customer operations and brand reputation against the growing threat of cyberattacks on vehicle systems.

Data governance ensuring compliance with GDPR in Europe, CCPA in California, and emerging regulations on vehicle telematic data globally requires establishing clear policies regarding data ownership, consent management processes, and data retention practices. As vehicles generate unprecedented volumes of operational data, the organizations that establish transparent, customer-respecting data practices will build trust advantages over competitors who treat data governance as a compliance burden rather than an opportunity for differentiation.

Strategic Summary

This thesis has provided FPT Industrial and IVECO with an integrated and replicable model for transforming customer feedback data into concrete strategic decisions. The methodological legacy proposed here—encompassing structured customer categorization, application of standardized evaluation frameworks such as the Six Universal Expectations, and adoption of text mining techniques for insight extraction—represents a foundation upon which to build a sustainable customer-centric approach capable of governing the complexity of a rapidly transforming global market.

The identified challenges are significant in scope and consequence, but the proposed solutions are pragmatic and implementable within the constraints of organizational capabilities and market realities. The analysis confirms that commercial excellence emerges not from isolated functional brilliance but from the systematic integration of voice of customer mechanisms and operational excellence across the entire value chain. The path toward market leadership requires converting the 54.5% of customers currently classified as Passives into active Promoters through personalized high return on investment interventions that address their specific concerns and demonstrate commitment to relationship value. Systemic elimination of quality criticalities through programs such as Zero-Km Reliability with executive accountability would address the fundamental reliability concerns that undermine customer confidence despite strong product engineering. Digital-physical convergence through GATE ecosystem evolution incorporating predictive analytics and closed-loop automation would deliver the proactive service and transparent communication that customers increasingly expect. Ergonomic excellence established as a competitive differentiator for MY28 and successive generations would address the critical comfort and usability concerns revealed through end-user feedback analysis. Finally, strategic vigilance focused on Passives retention, zero-kilometer quality, dual voice of customer integration, electric platform scalability, and post-merger integration would ensure that the organization maintains focus on the most critical success factors during a period of profound transition.

In conclusion, the collected and analyzed data demonstrate that success in the commercial vehicle sector does not depend exclusively on product technical excellence, though this remains necessary, but rather on the capacity to orchestrate an integrated customer experience that aligns engineering innovation, multisensory perceived quality, and excellent commercial relationships into a coherent value proposition. The integration between Net Promoter Score methodology and Perceived Quality assessment represents the interpretive key to decode this complexity and translate it into sustainable competitive advantage in a market where customer expectations continuously evolve and competitive pressures intensify.

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