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Private Equity Project
Investment Committee Paper on Applus+ - Market Analysis

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Abstract

The Testing, Inspection, and Certification (TIC) industry plays a vital role in ensuring safety, quality, and compliance across sectors. This paper analyzes Applus+ Services, S.A.'s strategic initiatives to drive growth and profitability within the TIC market. Through a combination of product mix realignment, operational improvements, and strategic acquisitions, Applus+ focuses on high-margin segments like Laboratories and Non-Destructive Testing (NDT). The analysis highlights the company's ability to capitalize on industry megatrends, including sustainability, digitalization, and globalization. By leveraging financial flexibility and operational efficiencies, Applus+ is well-positioned to deliver sustainable value creation and meet evolving market demands.

Keywords

LBO, Private Equity, TIC, Leverage, Capital structure, Returns, Market, Company

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1 Group Part

1.1 Introduction

Applus+ Services, S.A. is a global leader in Testing, Inspection, and Certification (TIC), helping companies across the world ensure safety, quality, and compliance. In a rapidly changing world, where stricter regulations, globalization, and the energy transition are reshaping industries, the TIC market is more critical than ever. Valued at €253 billion in 2023, it's expected to grow steadily at 4.5% annually through 2030. Applus+, with operations in over 70 countries, combines deep technical expertise and a wide range of services to support industries like energy, automotive, aerospace, and infrastructure.

The company is organized into four key divisions. Energy & Industry is the largest, offering inspections, non-destructive testing, and consultancy to improve safety and efficiency in areas like renewables, oil and gas, and infrastructure. Automotive plays a key role in vehicle inspections and emissions testing, adapting as the industry moves toward electric and self-driving vehicles. IDIADA helps automotive manufacturers design and test new products, with cutting-edge facilities in Spain and China driving innovation. Finally, the Laboratories division provides material testing, cybersecurity assessments, and product certifications, supporting industries like aerospace, healthcare, and electronics.

Applus+ earns over half its revenue in Europe, where strong regulatory frameworks and a focus on sustainability create steady demand for its services. But it's not stopping there. The company is expanding into high-growth regions like Asia-Pacific and the Americas, where industrial growth, infrastructure projects, and new regulations are accelerating the need for TIC expertise. Financially, Applus+ has delivered consistent growth, with revenue increasing at an average of 3.8% per year between 2017 and 2023. This success comes from a mix of strong customer relationships, organic growth, and smart acquisitions. The company has maintained healthy

EBITDA margins of 16.3%, driven by efficiency improvements and a focus on innovation. By embracing digital tools, improving operations, and staying ahead of industry trends, Applus+ is well-positioned to capture new opportunities and deliver long-term value.

At its core, Applus+ is about helping businesses navigate complexity. Whether it's ensuring a wind farm runs safely, certifying a new car model, or testing materials for cutting-edge technology, Applus+ provides the trust and expertise companies rely on to succeed in a fast-changing world. With its global reach, technical excellence, and forward-thinking approach, Applus+ isn't just keeping up with change — it's helping to shape it.

1.2 Company Overview

Applus+ Services, S.A. is a leading global provider of Testing, Inspection, and Certification (TIC) services, with a focus on safety, quality, and regulatory compliance. Located in more than 70 countries and employing 26,770 people, the company serves diverse sectors, including energy, automotive, aerospace, and infrastructure, through its four key divisions: Energy & Industry, Automotive, IDIADA, and Laboratories (Applus+, 2023).

The Energy & Industry division, which generates 53% of the company's revenue, focuses on non-destructive testing (NDT), inspections, and consultancy. It plays a vital role in ensuring asset integrity and operational efficiency across sectors such as renewables, oil & gas, and infrastructure. Through advanced NDT technologies, Applus+ detects structural weaknesses and ensures compliance with strict safety standards (Applus+, 2023b).

The Automotive division, contributing 19% of revenue, specializes in vehicle inspections, emissions testing, and homologation services. Long-term partnerships with regulators and manufacturers provide stability, while advancements in electric and autonomous vehicle technologies position Applus+ as a key partner in driving automotive innovation (Applus+, 2023b).

The IDIADA division, responsible for 16% of revenue and partially owned (20%) by the Catalonian government, focuses on automotive product development and testing. Its exclusive management of the IDIADA Automotive Testing Center enables global manufacturers to advance electric and autonomous vehicle technologies, supported by state-of-the-art infrastructure in Spain and China (Applus+, 2023b).

The Laboratories division, generating 12% of revenue, provides advanced material testing, cybersecurity evaluations, and product certifications. It caters to high-demand sectors such as aerospace, electronics, and healthcare, benefiting from investments in emerging fields like 5G and cybersecurity testing (Redondo, 2024).

Applus+ maintains a geographically diversified revenue stream, with Europe contributing 53%, followed by the Americas (22%), Asia-Pacific (13%), and the Middle East & Africa (12%) (Applus+, 2023b). Through a strategic mix of technical expertise, innovation, and tailored solutions, Applus+ continues to meet the growing demands of global customers, positioning itself for sustainable growth in emerging markets and industries.

1.3 Market Overview

The TIC sector ensures product, system, and process compliance with regulatory standards, particularly in industries like automotive, aerospace, pharmaceuticals, and energy. TIC services testing for performance, inspection for quality, and certification for regulatory adherence—play a vital role in facilitating global trade and reducing manufacturers' compliance risks (Value of TIC Sector, 2020, p. 5; Persistent, 2024, p. 5). The TIC market was valued at €253 billion in 2023, with a projected CAGR of 4.5%, driven by outsourced services (60%) and rising demand in key regions, particularly Asia-Pacific (APAC), which leads growth with a 6.1% CAGR due to industrialization and infrastructure investments. Europe remains stable, driven by stringent

regulations and sustainability initiatives, while North America and emerging markets like the Middle East show steady growth (EY-Parthenon, 2023, p. 3; Bryan Garnier, 2023, p. 7).

Key industries driving TIC demand include automotive, aerospace, oil and gas, and renewable energy. The automotive sector is growing rapidly, fueled by electric vehicles (EVs) and stricter emissions standards, with TIC market revenues expected to reach €28.6 billion by 2030 (Bryan Garnier, 2023, p. 9). Aerospace relies on TIC for fleet modernization and material testing, while oil and gas demand focus on operational expenditure for life-extension projects and infrastructure maintenance (Houlihan Lokey, 2023, p. 8). Renewable energy, especially wind and solar, continues to expand TIC's role in ensuring safety and performance standards, particularly in Europe and APAC (IEA, 2024).

The sector's growth is driven by regulatory pressures, globalized supply chains, sustainability initiatives, and technological advancements. Stricter safety and environmental standards create consistent demand, while technologies like IoT and AI enable remote inspections and predictive maintenance, improving efficiency and cost-effectiveness (Persistent, 2024, p. 4; Houlihan Lokey, 2023, p. 5). Global players such as SGS, Bureau Veritas, and Applus+ dominate the fragmented market, where high barriers to entry and economies of scale limit competition. Notably, Applus+ stands out with a CAGR of ~9%, outperforming the industry average while maintaining competitive margins (Bryan Garnier, 2023, p. 11; EY-Parthenon, 2023, p. 7).

1.4 Historical Financials

Applus+ has delivered consistent financial performance from FY17 to FY23, driven by steady revenue growth, operational efficiencies, and strategic acquisitions. Total revenue grew at a CAGR of 3.8%, reaching €2.06 billion in FY23. This growth reflects a good recovery from pandemic disruptions, robust contract renewals, and an aggressive M&A strategy. Notably, the

Laboratories segment demonstrated the fastest growth with a CAGR of 21.6%, contributing 12% of total revenue in FY23. The Automotive segment grew at a moderate CAGR of 3.4%, while the Energy & Industry division, the largest revenue contributor at 53%, expanded at a more modest CAGR of 1%. Organic growth reached 9.7% in FY23, complemented by 2.1% inorganic growth from mid-sized acquisitions (Applus+, 2017–2023).

Applus+ maintained strong profitability, with gross margins consistently in the 89%–91% range. In FY23, the company reported an EBITDA margin of 16.3%, reflecting improvements through cost controls, operational efficiencies, and a focus on high-value services. EBIT margins remained stable at 7%–8%, showcasing strong operating performance despite inflationary challenges. Effective cost management has kept staff expenses, the largest cost category, steady at 54%–57% of revenue. Furthermore, working capital efficiency improved significantly, with working capital reduced to -1.6% of revenue in FY23 through optimized supplier terms and enhanced collection processes (Applus+, 2017–2023).

On the balance sheet, total assets grew to €2.44 billion in FY23, primarily driven by acquisitions and investments in intangible assets. Net debt increased to €1.6 billion, reflecting the company's strategic use of leverage to fund growth initiatives. Despite the debt increase, the net leverage ratio remained manageable at 4.9x, supported by consistent cash generation. Return on capital employed (RoCE) stabilized at 7%–8%, reflecting disciplined capital allocation. Liquidity remained strong, with a current ratio of 1.2x–1.3x, ensuring the company's short-term financial stability (Applus+, 2017–2023).

Applus+ delivered robust cash flow performance, with unlevered free cash flow (UFCF) rising to €267 million in FY23. The cash conversion ratio improved significantly post-pandemic, reaching 96% in FY23, highlighting efficient working capital management and disciplined investments. Capital expenditures remained low due to Applus+'s capital-light approach, with

investments primarily directed toward intangible assets and digital solutions to support high-margin segments like Laboratories and Automotive (Applus+, 2017–2023).

Overall, Applus+ has successfully positioned itself for sustainable growth through revenue diversification, margin expansion, and disciplined capital deployment. Strategic acquisitions, combined with operational efficiency, have enabled the company to mitigate inflationary pressures while maintaining strong profitability and liquidity. This financial resilience underscores Applus+'s ability to navigate market challenges and capitalize on opportunities within high-value, high-growth segments (Applus+, 2017–2023).

1.5 Investment Thesis

Applus+ is well-positioned for international expansion through a strong financial foundation, strategic acquisitions, and operational improvements. With €267million in free cash flow and 16.5% EBITDA margins in 2023, the company maintains financial flexibility to pursue growth. Applus+ targets mid-sized, high-margin acquisitions in the fragmented TIC market, focusing on Laboratories and Non-Destructive Testing (NDT).

Product mix realignment involves divesting low-margin Oil & Gas CapEx and redirecting investments into high-growth sectors such as aerospace, electronics, and cybersecurity. Simultaneously, operational improvements, including ERP systems, data analytics, and automation, aim to reduce costs and enhance efficiency, achieving significant staff cost reductions over five years. These initiatives collectively project a 24% IRR and 2.2x MoM in the base case.

1.6 Business Plan

Applus+´ business plan focuses on driving significant revenue and EBITDA growth through a combination of organic expansion, strategic acquisitions, operational improvements, and

targeted investments. Over the holding period, revenue is projected to grow by €1.7 billion to €1.36 billion by FY31, while EBITDA increases sharply from €363 million in 2024 to €759 million in 2029, reflecting a cumulative margin improvement of 5.6%. This growth is primarily driven by shifts in the product mix, favoring Laboratories and IDIADA, which offer higher margins and growth potential.

The plan integrates a three-year add-on acquisition strategy involving Guardian Electrical (in 2026), EMTEK (in 2027), and NDT Global (in 2028). These acquisitions are expected to add €121 million to EBITDA, driven by higher target margins of up to 44.2% post-integration. Additionally, operational improvements, such as enhanced digital capabilities and predictive maintenance technologies, contribute a 2.3% EBITDA margin increase. Redeploying resources from low-growth Oil & Gas CapEx into high-margin sectors like NDT Laboratories further improves margins by 1.2%.

To support growth, the plan emphasizes sustainable CapEx investments and efficient cash flow management. Total CapEx is set to double, reaching €164 million in FY29, with a focus on maintenance and strategic growth initiatives. Net cash flow is projected to increase from €11 million in 2023 to a peak of €218 million in 2028, enabling deleveraging and improved Debt Service Coverage Ratios (DSCR). The financing strategy incorporates moderate leverage, EBITDA of 4.1x, with Net Debt/EBITDA declining to 1.1x by FY30, ensuring covenant compliance and financial stability.

1.7 Value Creation

The value creation strategy for Applus+ revolves around three interconnected pillars: strategic acquisitions, product mix realignment, and operational improvements, designed to drive sustainable growth, improve profitability, and enhance competitive positioning. The first pillar,

strategic acquisitions, focuses on targeting mid-sized, high-margin businesses that align with Applus+'s core segments, particularly in Laboratories and Non-Destructive Testing (NDT). Acquisitions such as NDT Global, Guardian Electrical, and EMTEK aim to consolidate fragmented markets, strengthen compliance and testing capabilities, and expand exposure to high-growth regions like China. These acquisitions are projected to contribute €122 million to EBITDA by exit while enhancing overall margins through the integration of complementary, high-value services.

The second pillar, product mix realignment, emphasizes shifting resources away from commoditized and low-growth segments, such as Oil & Gas CapEx, into sectors offering stronger margins and growth opportunities. This includes increased focus on Laboratories, Renewables, and IDIADA, the latter of which is well-positioned to capitalize on the rising demand for electric vehicle (EV) and autonomous vehicle testing. By aligning with emerging trends in sustainability, cybersecurity, and regulatory compliance, this strategy aims to achieve a 5% revenue increase and a 1% improvement in overall profitability over the holding period, further diversifying Applus+'s market exposure and mitigating systematic risks.

The third pillar, operational improvements, seeks to drive efficiency through the implementation of advanced digital technologies and process optimizations. Key initiatives include scaling AI-based data analytics, robotic process automation, and remote inspections, which streamline service delivery, enhance productivity, and reduce costs. These measures are expected to increase revenue per employee by 7.6% and decrease labor costs per employee by 1%. By aligning operational metrics, such as labor costs and revenue per full-time employee (FTE), with industry benchmarks, Applus+ can achieve a leaner and more competitive operational structure.

Collectively, the integration of these three strategies provides Applus+ with a clear roadmap for value creation. Strategic acquisitions drive inorganic growth and margin improvement,

while product realignment and operational enhancements ensure long-term sustainability and resilience. This approach positions Applus+ to capitalize on industry megatrends, optimize resource allocation, and deliver strong financial and operational outcomes for stakeholders.

1.8 Valuation & Returns

The valuation for the Applus+ leveraged buyout (LBO) combines intrinsic and comparable methodologies to ensure a robust and realistic enterprise value. Using trading comparables, past transactions, discounted cash flow (DCF), and (LBO) models, the valuation converges at €3.6 billion, based on a weighted EV/EBITDA multiple of 10.0x. The trading comparables derive a median EV/EBITDA range of 7.0x–12.4x, while past transactions within the TIC sector indicate a median multiple of 8.0x. The DCF method, incorporating a WACC of 5.77% and terminal multiple of 10.9x, further supports this range. The LBO valuation focuses on entry multiples that align with achieving a 3.0x MoM for investors, emphasizing a realistic leverage structure.

The sources and uses of funds reflect a conservative 60/40 equity-to-debt split, balancing financial flexibility with operational stability. Total funding amounts to €3.67 billion, including €1.48 billion in senior Term Loan B debt at 4.1x EBITDA and €2.19 billion in equity contributions. This structure ensures robust covenant ratios, maintaining a minimum DSCR above 1x and net debt/EBITDA reducing to 2.0x at exit. Debt repayments, primarily through strong operating cash flow, are supported by the gradual deleveraging of the business.

Exit projections in 2029 reveal significant returns for investors and management. Investors achieve a 2.8x multiple on invested capital (MoM) and an internal rate of return (IRR) of 23%, while management realizes a 20.4x MoM due to a combination of performance incentives and sweet equity. The primary drivers of value creation are EBITDA growth (+€3.0 billion, 50%),

deleveraging (+€2.8 billion, 40%), and revenue expansion from both organic and inorganic strategies. Multiple arbitrage contributes marginally, reflecting a moderate increase in exit multiples. The final equity value of €8.1 billion underscores the success of the strategy, highlighting EBITDA margin improvement and operational efficiency as key enablers of value creation.

1.9 Exit and Due Diligence

The exit strategy for the LBO of Applus+ focuses on a strategic divisional sale, leveraging the standalone value of its key business units: Energy & Industry, Laboratories, and Automotive & IDIADA. This approach projects a consolidated exit multiple of 10.4x EV/EBITDA by FY2029, with the Laboratories division acting as the key driver of valuation due to its high margins, stable cash flow, and significant growth potential, commanding a premium 11.0x multiple. The Energy & Industry division, contributing 47% of total EBITDA, is projected to achieve a 10.7x multiple, primarily driven by appetite for renewables. In contrast, the Automotive & IDIADA division, accounting for 26% of EBITDA, is expected to yield a lower 9.5x multiple due to slower growth in the automotive sector.

Among the exit options evaluated, a strategic divisional sale is deemed the preferred approach. This method offers premium valuations by allowing strategic buyers to integrate standalone divisions into their portfolios, maximizing synergies while minimizing antitrust risks. Compared to a full company sale, this approach aligns with Applus+'s segmented value proposition, particularly in high-growth divisions like Laboratories. While alternatives such as an IPO offer high visibility, liquidity, and potential for attractive public valuations, they pose challenges such as regulatory complexity, high costs, and market volatility. A secondary sale to private equity buyers, though feasible, is deprioritized due to its lower long-term stability and reduced alignment with Applus+'s scale.

The due diligence for Applus+ highlights key risks across market growth, financial stability, workforce shortages, regulatory compliance, and ESG factors. Commercial risks include misjudging growth in renewables and lagging in digital transformation, requiring targeted research and technology investments. Financial risks such as overestimated forecasts and debt covenant breaches demand deeper analysis of R&D and CAPEX cash flows. Operationally, workforce gaps in renewables and digital testing could hinder competitiveness. Regulatory and ESG challenges, including stricter environmental laws, may increase compliance costs and disrupt operations if not proactively managed. Addressing these risks is crucial to ensure Applus+ maintains market leadership and long-term stability.

2 Market Analysis – Moritz Marco Hoock

2.1 Market Overview

2.1.1 Introduction TIC Sector

The TIC sector refers to the conformity assessment of products, systems, or processes against established standards playing a to vital role in supporting hygiene, safety, and sustainability in modern industries. It ensures that regulatory standards are met, particularly in highly regulated sectors such as automotive, pharmaceuticals, and food production (Value of TIC Sector, 2020, p. 5). These services enable global trade by building trust between manufacturers, regulators, and consumers through independent, third-party evaluation. Testing verifies the strength, functionality, and performance of products and services, while inspection focuses on validating compliance with quality and safety standards for manufactured products or ones already in use. Lastly, certification ensures conformity with international standards, which is essential for market access and consumer protection (Value of TIC Sector, 2020, p. 6; Persistent, 2024, p. 5).

TIC services are critical for risk transfer in supply chains, as they reduce liabilities for manufacturers and provide assurance to end-users. As Volkmar Schott aptly states in one of our conducted expert calls, “Every product, every service out there needs TIC services; the demand is endless… It’s incredibly stable” (Interview Volkmar Schott, 2024, p. 3).

2.1.2 General Market Insights

The TIC market was valued at approximately €253 billion in 2023, with a projected CAGR of 4.5%, reaching €353 billion by 2030 (EY-Parthenon, 2023, p. 3). Approximately 60% of TIC services are outsourced to third-party providers, with the remainder conducted in-house or mandated by government agencies. This highlights the growing preference for specialized, cost-effective solutions provided by independent TIC organizations (Houlihan Lokey, 2023, p. 6). Looking at the market share, testing constitutes the largest segment, generating €125 billion (50% market share) in 2023, followed by inspection with a market share of 35% (€88 billion) and certification (€38 billion) (Oaklins, 2022, p. 4).

2.1.3 Market Insights by Geography

The global TIC market is characterized by significant regional differences in growth rates and demand drivers. While Europe and North America remain established markets, Asia-Pacific (APAC) is emerging as the fastest-growing region due to rapid industrialization and urbanization (EY-Parthenon, 2023, p. 4). The Middle East & Africa (MEA) and South America, while smaller in size, show potential in specific sectors such as infrastructure, renewables, and agriculture (Bryan Garnier, 2023, p. 11).

As noted, APAC leads in growth, with a 6.1% CAGR expected for 2023–2030, followed by Europe (4.6%), North America (3.1%), MEA (4.1%), and South America (2.4%) (EY-Parthenon, 2023, p. 8). The regional dynamics are driven by diverse factors such as regulatory

stringency, industrial activity, and infrastructure development. Here, variations reflect local economic and technological trends (Interview Volkmar Schott, 2024, p. 6).

2.1.3.1 Regional Market Dynamics

Europe

Europe's mature TIC market is primarily driven by stringent regulatory frameworks and the European Green Deal's strong emphasis on sustainability. The region experiences robust demand across key sectors, including automotive, aerospace, and energy-related industries, particularly renewables. Additionally, the rise of industrial automation and advanced manufacturing practices further heightens the need for TIC services (EY-Parthenon, 2023, p. 7). In 2023, Europe generated approximately €71 billion in TIC revenues, with a projected compound annual growth rate (CAGR) of 4.6% through 2030 (Bryan Garnier, 2023, p. 10). This stability is reinforced by consistent regulatory requirements across industries, especially in the automotive and energy sectors. Europe's leadership in sustainability and decarbonization continues to drive significant demand for TIC services, particularly in renewables and energy-efficient technologies (IEA, 2024).

Asia-Pacific

As the fastest-growing TIC market, with a projected CAGR of 6.1% for 2023–2030, the Asia-Pacific (APAC) region's expansion is driven by urbanization, industrialization, and its role as a global manufacturing hub (EY-Parthenon, 2023, p. 5). Leading economies such as China and India play a pivotal role, particularly in automotive production, electronics, and heavy industries, creating substantial demand for certification and compliance testing (Persistent, 2024, p. 7).

The adoption of Industry 4.0 technologies, including automation and smart manufacturing, further enhances the relevance of TIC services across the region. Additionally, APAC's increasing investments in infrastructure development and renewable energy projects ensure

sustained growth in the demand for testing, inspection, and certification services (Bryan Garnier, 2023, p. 9).

North America

Valued at approximately €60 billion in 2023, and growing at a CAGR of 3.1% through 2030, North America is mostly driven through its high activity in the energy sector, particularly oil & gas, and the growing adoption of emerging technologies such as electric vehicles (EVs) and smart city initiatives (Interview Jordi Redondo, 2024, p. 6).

The region's focus on environmental compliance and safety standards, especially in automotive and aerospace, contributes to consistent demand for TIC services. Renewables, although smaller compared to Europe, are gaining traction with investments in wind and solar projects (IEA, 2024).

Middle East & Africa (MEA)

The Middle East and Africa (MEA) region presents both opportunities and challenges for the TIC market. Key growth drivers include infrastructure development, urbanization, and the ongoing efforts to diversify oil-dependent economies (Bryan Garnier, 2023, p. 11). Demand for TIC services is primarily concentrated in oil & gas, where life-extension projects and pipeline inspections are critical, alongside growing momentum in construction and renewable energy sectors. However, geopolitical instability and regulatory inconsistencies can act as significant barriers to growth (Interview Matt Stead, 2024, p. 7).

South America

In South America, the TIC market is the smallest globally, with moderate growth projected at a CAGR of 2.4% through 2030 (Bryan Garnier, 2023, p. 10). Economic diversification, particularly into agriculture and renewable energy, is driving demand for TIC services. Infrastructure projects in countries such as Brazil and Chile further contribute to the increasing need for inspection and certification (Interview Terry Lafferty, 2024, p. 8).

Nevertheless, the region faces notable challenges, including political instability and inconsistent regulatory enforcement, which can hinder market growth. Despite these hurdles, TIC services remain critical in industries such as mining, where adherence to safety and compliance standards is becoming increasingly essential (Persistent, 2024, p. 6).

2.2 End Market by Industry

TIC services span all stages of product lifecycles, from design and development to production and ongoing maintenance. However, the growth of the TIC market is different across industries, reflecting variations in regulatory intensity, technological complexity, and market maturity. Among the markets, automotive, aerospace, oil & gas, and renewable energy are some of the most prominent sectors, as they face tight compliance standards and rapidly evolving technical requirements (Bryan Garnier, 2023, p. 10). These industries account for a large share of TIC market revenue, supported by megatrends like sustainability, digitalization, and globalization (EY-Parthenon, 2023, p. 4).

Automotive Industry

The automotive sector is one of the most dynamic areas within the TIC industry, driven by the increasing complexity of vehicle systems and the enforcement of stricter regulations. Key growth factors include the transition to electric vehicles (EVs), advancements in autonomous driving technologies, and the implementation of green emissions standards (McKinsey, 2024). While routine inspections provide a stable baseline for revenue, their contribution to market growth remains limited due to slower development in regulation and demand. Testing, certification, and inspection services are essential to ensure safety, reliability, and regulatory compliance across various areas, such as battery performance and advanced driver-assistance systems (ADAS) (EY-Parthenon, 2023, p. 7).

The global automotive TIC market is projected to expand significantly, growing from €17.5 billion in 2023 to €28.6 billion by 2030, at a compound annual growth rate (CAGR) of 7.3%. This accelerated growth is primarily driven by the rising adoption of EVs and hydrogen-powered vehicles, which require comprehensive testing and certification for energy storage systems, charging infrastructure, and emissions compliance (Bryan Garnier, 2023, p. 9).

Transportation and Aerospace

In transportation and aerospace, TIC services are crucial for ensuring safety, efficiency, and reliability. Key drivers include fleet modernization, increased air travel, and advancements in lightweight materials such as composites. The latter require specialized testing to meet performance and safety standards, leading to a price premium (Airbus, 2021; Oliver Wyman, 2024). Maintenance, Repair, and Overhaul (MRO) services also generate significant demand, as aging fleets require ongoing inspections to maintain airworthiness.

The market is valued at €17.6 billion in 2023, and is forecasted to grow to €24.9 billion by 2030, at a CAGR of 5.1% (EY-Parthenon, 2023, p. 6). Aerospace companies increasingly rely on non-destructive testing (NDT) techniques, such as ultrasonic and X-ray inspections, to verify the structural integrity of safety-critical components. Moreover, testing for emissions reduction and efficiency improvements is also becoming a key focus area (Bryan Garnier, 2023, p. 10).

Oil and Gas

Although Oil & Gas is generally dcreasing, TIC services are strongly demanded in the Operating Expenditures sector regarding already constructed infrastructure (OPEX). Pipeline inspections, non-destructive testing, and life-extension projects for aging infrastructure are curcial for maintaining safety and environmental compliance (IEF, 2024; Houlihan Lokey, 2023, p. 8).

The oil & gas TIC market is projected to grow from €22.9 billion in 2023 to €26.6 billion by 2030, at a CAGR of 1.8% (EY-Parthenon, 2023, p. 8). Regulatory compliance, particularly

around environmental standards, drives most of the demand, as companies aim to minimize liability and maintain operational efficiency. Life-extension projects, involving advanced techniques like ultrasonic testing and corrosion monitoring, are becoming a key focus in APAC and the Middle East (Interview Matt Stead, 2024, p. 7).

Power & Utilities

Power & Utilities are one of the fastest-growing markets for TIC services, driven by global decarbonization efforts and the increasing adoption of clean energy technologies. Wind turbines, solar panels, and grid infrastructure require extensive certification and testing to ensure reliability, safety, and long-term performance (IEA, 2024). Infrastructure upgrades, such as smart grids and energy storage systems, further expand the amount of TIC services in this sector (USGBC, 2024).

The Power & Utilities TIC market is expected to grow at a CAGR of 3.8%, driven by significant investments in Europe, APAC, and North America. These regions account for most renewable energy projects, with stringent certification requirements ensuring that projects meet safety and performance standards (Bryan Garnier, 2023, p. 11). As the global electricity demand continues to rise, TIC services will play a major role in enabling grid modernization and ensuring the seamless integration of renewable sources (IEA, 2024).

2.3 Competitive Landscape

The industry is shaped by multiple competitive forces that define market dynamics and influence the positioning of players like Applus+. Porter's Five Forces framework provides a structured approach to analyze the industry's competitive environment:

Barriers to Entry

Barriers to entry in the TIC industry are high due to high capital-intensity, accreditation requirements, and the need for specialized infrastructure and technical expertise (Bryan

Garnier, 2023, p. 9). Long-term client relationships further increase these barriers, as with length of contract the operational integration of the TIC company into the manufacturers business increases (EY-Parthenon, 2023, p. 8). These factors limit the ability of new entrants to compete effectively, ensuring market stability for established players like SGS, Bureau Veritas, and Applus+.

Supplier & Buyer Power

TIC providers face low supplier power as their services rely on widely available resources like standard testing equipment and commodity materials. By sourcing from multiple suppliers, they minimize dependency on single vendors, maintaining strong negotiating positions (Bryan Garnier, 2023, p. 10). The value TIC companies offer stems from their technical expertise and certification processes rather than scarce inputs. Buyer power varies by industry. In high-volume sectors like oil & gas, buyers have significant leverage to push for price reductions (Interview Matt Stead, 2024, p. 6). Conversely, in regulated industries such as aerospace and automotive, buyer power is limited due to the critical need for compliance and the lack of viable alternatives (Houlihan Lokey, 2023, p. 7).

Threat of Substitutes

The threat of substitutes in the TIC market is low because compliance, safety, and regulatory requirements cannot be replaced or bypassed. While technological innovations such as IoT and AI have automated certain inspection tasks, these tools are often integrated into TIC services rather than replacing them (Persistent, 2024, p. 6). As a result, TIC firms remain indispensable in providing independent verification and certification, ensuring sustained demand for their services.

Industry Rivalry

The global market is predominantly led by giants such as SGS, Bureau Veritas, Applus+, Intertek, DEKRA, and TÜV Rheinland, which collectively account for approximately 20% of

the market. This relatively modest market share highlights significant fragmentation and corresponding opportunities for consolidation (Oaklins, 2022, p. 5). These firms leverage economies of scale to achieve EBITDA margins ranging between 20% and 25%. However, their growth rates remain moderate, aligning closely with the industry average of 4.9% (Bryan Garnier, 2023, p. 11). Notably, Applus+ distinguishes itself with an impressive CAGR of approximately 9%, significantly surpassing the industry average. Despite its comparatively smaller revenue of €2.1 billion, Applus+ attains margins comparable to those of much larger competitors, demonstrating exceptional operational efficiency and a capacity to compete effectively within niche markets. This unique positioning underscores Applus+'s agility in seizing profitable market opportunities while maintaining robust performance (EY-Parthenon, 2023, p. 8).

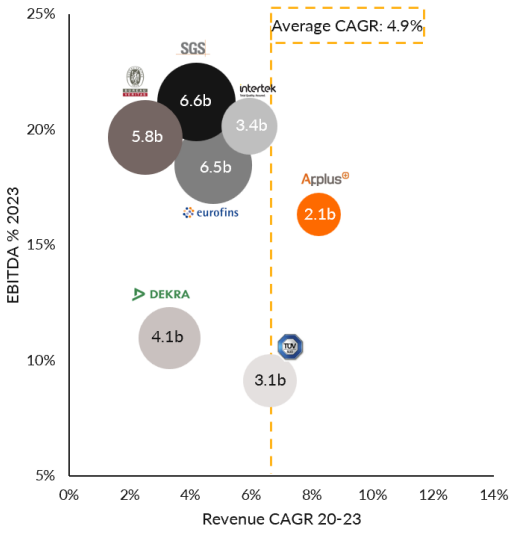

Figure 1- Competition Scatter Plot

The TIC industry remains highly competitive, with global leaders such as SGS, Bureau Veritas, Intertek, and TÜV facing considerable pressure from smaller regional firms, particularly in commoditized segments like food testing (EY-Parthenon, 2023, p. 7). Consolidation trends exacerbate this competition as larger firms acquire smaller ones to expand their market reach. Nevertheless, the significant market fragmentation presents opportunities for differentiation

through specialized expertise and superior service quality (Bryan Garnier, 2023, p. 9). The analysis further underscores an inverse relationship between size and growth: larger players such as SGS and Bureau Veritas focus on maintaining margin stability rather than pursuing rapid expansion, whereas smaller firms like Applus+ prioritize high growth to capture greater market share.

2.4 Value Chain Analysis

TIC services play a crucial role in the development and launch of new products by ensuring compliance, mitigating risks, and enhancing quality throughout the product lifecycle. During the design phase, TIC providers contribute through risk analysis, supplier selection, and regulatory planning, which is particularly valuable in new or international markets where manufacturers may lack local expertise. Early involvement fosters transparency and helps avoid costly non-compliance issues later (Bryan Garnier, 2023, p. 12).

In the manufacturing phase, TIC providers conduct supplier assessments, pre-shipment inspections, and materials testing to guarantee product quality—an especially critical aspect in complex supply chains. Non-destructive testing (NDT) methods, such as ultrasonic and X-ray inspections, are indispensable for ensuring the reliability of mission-critical components (Persistent, 2024, p. 6). TIC providers also oversee product testing, verify safety and environmental compliance, and issue certifications required for market entry (EY-Parthenon, 2023, p. 7).

Certification serves as the final step, confirming that products meet established safety and performance standards. If any issues arise, TIC providers assist manufacturers in addressing non-compliance and retesting, ensuring that certifications can ultimately be issued (TIC Council, 2023, p. 8).

Existing Products and Services

For existing products, TIC services play a key role in maintaining compliance with safety and performance standards through regular inspection, maintenance, and re-certification. Scheduled checks address critical factors such as material wear, degradation, and system obsolescence, effectively replacing earlier development and manufacturing processes (Bryan Garnier, 2023, p. 12). In sectors such as aerospace and energy, periodic inspections utilizing non-destructive testing (NDT) methods are essential to extending the operational life of infrastructure and minimizing failure risks (Interview Terry Lafferty, 2024, p. 6).

Re-certification is particularly important in industries like oil & gas and renewables, where evolving technologies and regulations necessitate frequent updates to safety requirements (Persistent, 2024, p. 7). Additionally, predictive maintenance tools, such as data analytics and failure modeling, enable manufacturers to proactively manage risks, optimize maintenance schedules, and enhance operational efficiency (Houlihan Lokey, 2023, p. 5).

Shifting Compliance Risks

TIC services enable manufacturers to transfer compliance risks to independent certifiers, reducing liability and ensuring impartial validation of product conformity. This is particularly critical in regulated industries such as automotive and aerospace, where non-compliance can result in significant financial and reputational consequences (Bryan Garnier, 2023, p. 10). By acting as third-party validators, TIC providers ensure adherence to safety, environmental, and quality standards while bridging the gap between manufacturers and regulators. This risk transfer allows manufacturers to focus on core activities, such as innovation and production, while leveraging TIC providers' expertise to enhance product quality and strengthen supply chain credibility, reassuring stakeholders of compliance and safety (EY-Parthenon, 2023, p. 9).

2.5 Growth drivers in the TIC industry

The industry is propelled by a combination of regulatory pressures, technological innovation, and evolving market demands. These growth drivers reinforce the sector's stability and resilience over time, making it indispensable for global industries.

Rising Regulatory Requirements

Regulatory requirements are a fundamental driver of growth within the TIC industry. Governments across the globe are implementing increasingly stringent safety, environmental, and quality standards to address emerging risks in critical sectors such as pharmaceuticals, food, and automotive. This growing regulatory complexity ensures sustained demand for TIC services, even during economic downturns (Value of TIC Sector, 2020, p. 6).

For example, compliance with international safety protocols for medical devices or adherence to environmental standards for emissions testing underscores the essential role of TIC services in regulated industries (Persistent, 2024, p. 5). Volkmar Schott further characterizes the industry as "ultra-stable," highlighting its resilience, which is reinforced by the persistent and entrenched nature of regulatory requirements in driving demand (Interview Transcription, 2024, p. 3).

Globalized Supply Chains

The globalization of supply chains has introduced considerable fragmentation and complexity, creating a growing need for uniform quality standards. As companies increasingly source components from multiple countries, TIC services play a vital role in verifying compliance across varied and often complex regulatory frameworks (Houlihan Lokey, 2023, p. 6). This heightened reliance on TIC providers to manage cross-border compliance underscores their critical function as key facilitators of international commerce (TIC Council, 2020, p. 8).

Sustainability Focus

Sustainability has emerged as a major driver of TIC sector growth. Companies increasingly seek certifications to demonstrate their alignment with environmental goals such as carbon

neutrality and renewable energy adoption. For example, renewable energy projects, including wind turbines and solar farms, rely heavily on inspection and certification for operational safety and efficiency (Persistent, 2024, p. 6). This growing emphasis on sustainability positions TIC firms as crucial partners in facilitating the global energy transition (Value of TIC Sector, 2020, p. 7).

Technological Advancements

Sustainability has become a significant driver of growth in the TIC sector as companies increasingly pursue certifications to validate their commitment to environmental objectives, such as carbon neutrality and the adoption of renewable energy. For instance, renewable energy projects—such as wind turbines and solar farms—depend extensively on inspection and certification to ensure operational safety and efficiency (Persistent, 2024, p. 6). This rising focus on sustainability underscores the pivotal role of TIC firms as essential partners in advancing the global energy transition (Value of TIC Sector, 2020, p. 7).

End-User Industry Growth

The expansion of TIC-reliant sectors, such as automotive, energy, and aerospace, continues to drive demand. The automotive industry, for instance, requires extensive testing and certification for electric vehicles and autonomous driving systems. Similarly, energy projects—including traditional oil and gas and renewable initiatives—depend on TIC services for safety and compliance (EY-Parthenon, 2023, p. 3).

Urbanization and Infrastructure Projects

Urbanization and large-scale infrastructure projects further propel the TIC sector's growth. Construction activities, particularly in emerging markets, require rigorous inspection and certification to meet safety and quality standards. This trend is particularly prominent in APAC, where industrial growth outpaces regulatory development, sustaining demand above GDP trends (Value of TIC Sector, 2020, p. 8).

Stability of the TIC Sector

The historical resilience of the TIC sector during economic downturns underscores its remarkable stability. Even in times of reduced industrial activity, the need for compliance and quality assurance persists. Essential services, such as inspections of existing infrastructure and product testing for consumer goods, ensure steady revenue streams (Houlihan Lokey, 2023, p. 6). This inherent stability, coupled with the sector's critical role in regulated industries, positions the TIC sector as future-proof, even amidst economic uncertainty (Interview Transcription, 2024, p. 3).

2.5.1 Trends and Future Outlook

The growth of the TIC sector is driven by sustainability, technological innovation, and globalization. Sustainability initiatives, such as the European Green Deal and global decarbonization targets, are generating substantial demand for TIC services. Certifications for renewable energy projects, including wind turbines and hydrogen infrastructure, are essential to achieving energy transition goals, positioning TIC providers as key enablers of global environmental progress (IEA, 2024). Technological advancements, including IoT, AI, and blockchain, are reshaping the TIC industry. These innovations enable remote inspections, predictive analytics, and cost-effective operations, particularly in safety-critical sectors such as aerospace and energy (Persistent, 2024, p. 6). By integrating these technologies, TIC firms enhance operational efficiency and expand their service offerings.

Additionally, globalization and increasingly complex supply chains further amplify the demand for TIC services. As companies operate across borders, independent certification plays a critical role in ensuring regulatory compliance, mitigating risks, and facilitating international trade (Houlihan Lokey, 2023, p. 7). With its proven resilience to economic fluctuations and its ability

to adapt to emerging challenges, the TIC industry is well-positioned for sustained relevance and long-term growth.

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DECLARATION

I hereby declare that this thesis represents my own work which has been done after registration for the degree of Master of Finance (or PhD as appropriate) at Nova SBE and has not been previously included in a thesis or dissertation submitted to this or any other institution for a degree, diploma or other qualifications.

I have read the University's current research ethics guidelines and accept responsibility for the conduct of the procedures.

Name and Student ID: Moritz Marco Hoock (58958)

Signature: 

Date: 17/12/ 2024