



Tech Mahindra Recognized as the

2021

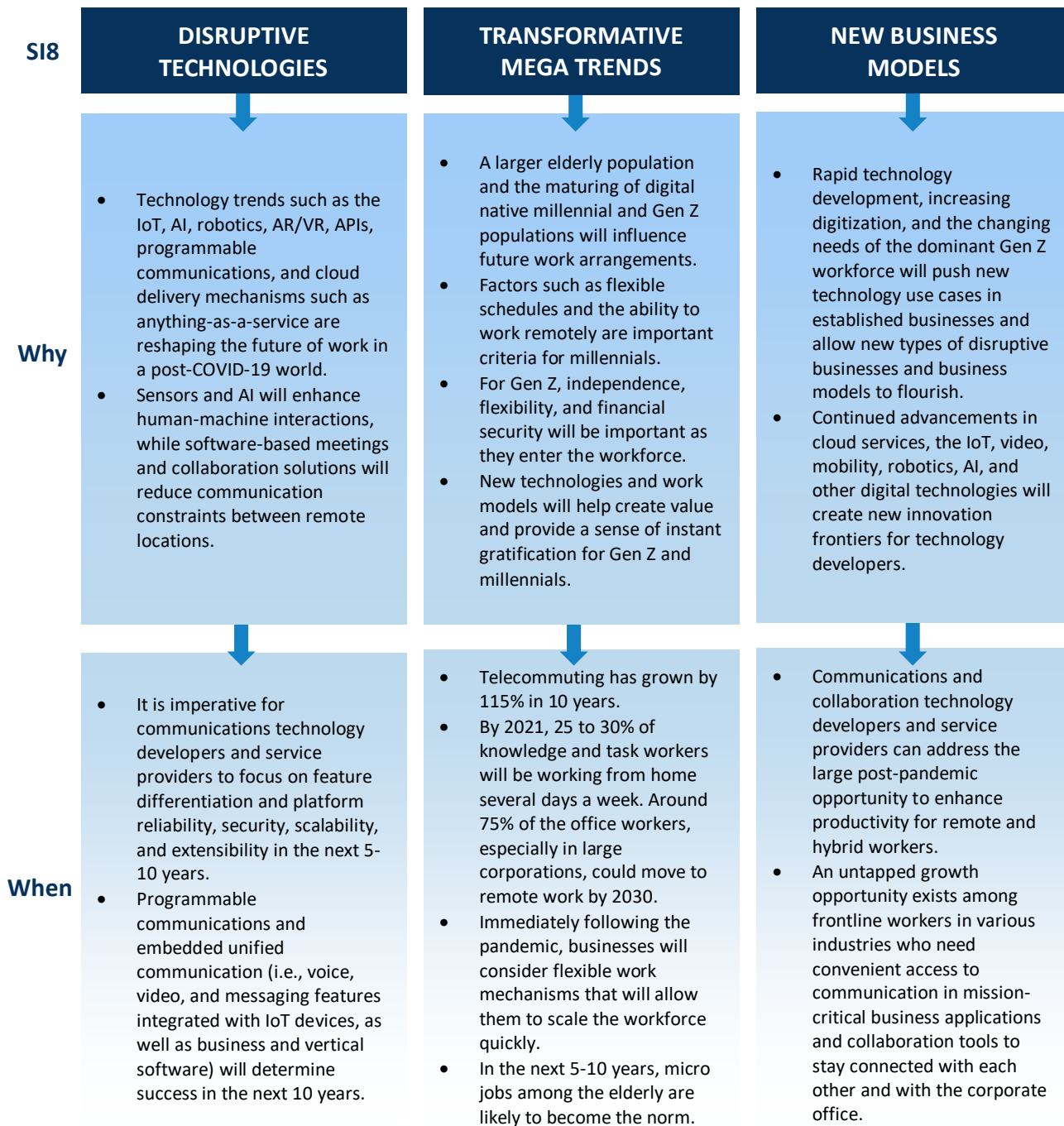
Company of the Year

Indian Digital Transformation in Logistics
and Railroads Industry

Excellence in Best Practices

Strategic Imperatives

Frost & Sullivan identifies three key strategic imperatives that impact the connected work industry: disruptive technologies, transformative Mega Trends, and new business models. Every company that is competing in the connected work space is obligated to address these imperatives proactively; failing to do so will almost certainly lead to stagnation or decline. Successful companies overcome the challenges posed by these imperatives and leverage them to drive innovation and growth. Frost & Sullivan's recognition of Tech Mahindra is a reflection of how well it is performing against the backdrop of these imperatives.



Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Tech Mahindra excels in many of the criteria in digital transformation in the logistics and railroads space.

AWARD CRITERIA	
<i>Visionary Innovation & Performance</i>	<i>Customer Impact</i>
Addressing Unmet Needs	Price/Performance Value
Visionary Scenarios Through Mega Trends	Customer Purchase Experience
Implementation of Best Practices	Customer Ownership Experience
Leadership Focus	Customer Service Experience
Financial Performance	Brand Equity

A Transformational Journey driven by Technology, Innovation, and Expertise: Journey so far

Digitalization of the rail industry is continuously bringing new digital solutions to improve customers' safety and convenience. Railway infrastructure should be built with future capable technology to cope with the changing digital environment and be readily susceptible to upgrades.¹ The railroad industry

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- Ruman Ahmed, Best Practices Research Analyst

experiences roadblocks in terms of integrating systems, reducing operational costs, optimizing the usage of rail infrastructure, and meeting safety and security compliance. Tech Mahindra addresses these industry challenges with its acute focus on building strong domain expertise and extensive rail knowledge, amalgamated with technology and business processes. With decades of experience in this segment globally and awareness of the industry trends, the company anticipates and quickly adapts to the industry's changing needs, making it a robust system integrator (SI) due to its extensive association with large rail operators and original equipment manufacturer (OEM) customers base.

¹ Global Rail Outlook, 2019 (July 2019, Frost & Sullivan)

Tech Mahindra is focused and determined to make rail organizations nimble by integrating multiple diverse systems, leveraging joint capacity and capabilities, expending technology across wayside & onboard devices, central office systems, signaling & communications to meet the ever-changing customer demands. The company has extensive railroad experience that expands through the railroad industry's breadth and depth, including digital transformation and modernization, positive train control (PTC), Internet of Things (IoT), cloud and infrastructure, product engineering, signaling and circuit design, and safety reliability. Tech Mahindra has built its railway portfolio brick by brick as a holistic practice with more than 20 years of experience and 200 engagements, turning the segment into a dedicated rail unit by growing the domain knowledge and competencies embedded with futuristic technology.

The company has built strong industry relationships with organizations that are focused exclusively or are also in the railroad industry and major railroad operators and OEMs. North American Railroads have been busy implementing FRA mandated PTC implementation during the last decade. Tech Mahindra has played a pivotal role in supporting PTC integration, testing and implementation through several OEMs and rail industry engagements, in building a PTC enabled rail network. The company has built several asset accelerators like the IoT platform, real-time reliability monitor, PTC diagnostics, PTC messaging protocol analyzer, and remote operations management platform, blending it with a layer of transformation and modernization by bringing in the components of expertise, consulting, product engineering, support, and sustenance. Frost & Sullivan notes that Tech Mahindra is well-positioned to cater to the unmet customer requirements and industry challenges of the railroad industry with its extensive and robust domain knowledge, expertise, and strong industry relationships with a layer of technology, which gives it a distinctive advantage.

The logistics industry faces the challenge of being least mature from the technology adoption point of view compared to other sectors where technology has enabled easier and simple access to certain applications and processes. Tech Mahindra addresses this challenge with the elements of partnerships, expertise, and technology-driven by artificial intelligence (AI) or machine learning (ML). Tech Mahindra has over 25 years of experience in the supply chain and logistics industry with a strong consulting team, which forms its logistics unit's backbone. The company derives its strength from partnerships with major transportation management companies; Tech Mahindra designed and built transportation management products behaving as a SI for these companies.

Most of the transportation management companies have become cloud-enabled; however, in the past, these companies had on-premise operations. Tech Mahindra has the entire gamut of understanding product development, product management, and product configuration in the core transportation management segment, giving it a competitive advantage. The company has developed deep expertise in helping customers build and manage logistics networks, which provides customers the flexibility to plug and play to develop their logistics network in different markets while assisting customers in improving efficiency and productivity on core processes using engines that are AI or ML driven. Tech Mahindra strengthened its position by building solid customer relationships and developing joint solutions for the customers, with a customer base that includes four of the top 10 logistics service providers. The company's core differentiation in the logistics industry is its acute focus and ability to build technology-

led services and solutions with the critical element of new-age technologies such as IoT and analytics. It addresses the concern around operational efficiency and interoperability, improves operational efficiency by providing end-to-end visibility, and offers information technology platforms that can be personalized based on customer and industry requirements across geographies and multiple business lines. Frost & Sullivan notes that Tech Mahindra is transforming the logistics industry with its comprehensive services and emerging technology by focusing on enhancing the customer experience and satisfaction.

Differentiated Offerings addressing Unmet Needs creating a Distinctive Advantage: Overall Global Scope

PTC is a fail-safe mechanism designed to prevent accidents caused by equipment failure, misaligned and damaged tracks, and human error. Any irregularity in the train's movement, such as operating beyond safe speed limits, track misalignment, unexpected entry into maintenance areas, and potential collisions into other trains, are detected by the system, sending a warning to the locomotive engineer. When the operating conditions do not change, PTC brings the train to a safe stop, thus preventing any major calamities.

PTC implementation is complex and revolves around the data exchange to ensure the safety of operations. The system must perceive the discrepancies in operating conditions by acquiring information on the number of railcars and locomotives in the trainset, weight, the geography of the path, safe operating speeds in all landscapes, a safe distance from other trains, and timing of stops. PTC integrates an onboard system, a wayside system, and a back-office server to accomplish these tasks.² For PTC to succeed across all railroads with seamless interoperability, it was important to formulate standardized PTC requirements, in which Tech Mahindra played a critical role

Tech Mahindra had a first-mover advantage as it supported mission-critical applications, business processes, development of test tools, PTC testing, and project management with experience in all four segments of PTC implementation. PTC implementation was done by various product and OEM vendors. As SI, Tech Mahindra was instrumental in working across its railroad operator and OEM customer engagements; building integrations, lab testing, field testing and supporting PTC roll-outs.

Tech Mahindra built and tested integrations with the PTC back office server. PTC back office server is a crucial PTC component, as this segment is responsible for key decision making. It communicates with the wayside and locomotives, and based on various variables such as track data, movement authority, signal status, etc. then decides whether to enforce or not.

PTC Testing was a mammoth effort put forth by Tech Mahindra, an effort widely acknowledged across the industry, testing every bit of the process from dispatch, back office server, communication, wayside, and onboard. Tech Mahindra addresses the railroad industry's critical unmet needs and its customers with its expertise, railroad-specific offerings, and SI knowledge by implementing best-in-class practices with an acute focus on enhancing customer experience, which gives it a competitive advantage. Tech Mahindra modernized wayside diagnostics for a rail company, which combines real-time and historical

² *Global Rail Outlook, 2019 (July 2019, Frost & Sullivan)*

data from wayside devices to predict potential asset failures, giving it a competitive advantage. The company developed the interface to monitor alerts picked through track sensors that include wheel impact load detectors (WILD), hot box detectors (HBD), hot wheel detectors (HWD), acoustic bearing detectors (ABD), etc. The data for every wheel is sent to the railroad's operation center through a robust & secure messaging platform. The operation center monitors the train status and processes alerts that helps in better decision making and train dispatching actions. The company has designed a modern version of the wayside diagnostic system interface. The system helped in increasing safety and security, reducing breakdown time, reducing train schedule variability, and improving asset optimization. With this solution, Tech Mahindra modernized the wayside diagnostic system that enables its customer in better decision making due to problems detected early on. Untoward wear and tear in the bearings, such as hot bearing damage, has been the cause of derailments in the past.

Railroads are still relying on legacy systems and infrastructure, which is close to 20 to 30 years old. The operating railroads have undertaken modernization initiatives to refresh its legacy systems. Tech Mahindra has embarked on the journey of transforming and modernizing several railroads using new-age technologies and implementing best-in-class practices with an acute focus on enhancing customer experience. With its unique design thinking, experience design, using reverse engineering with a top-down and bottom-up approach, the company analyses business processes, old systems' code and business logic to build a product backlog. Tech Mahindra uses new-age technologies such as big data, analytics, automation, DevOps, and behavior-based research to digitally transform the industry.

Frost & Sullivan appreciates the company for being the game-changer in its continuous efforts for transforming the railroad industry with technology, innovation, and thinking ahead. Tech Mahindra submitted an industry proposal, a futuristic plan for the next-gen railcar monitoring system, presenting the design of sensors that will revolutionize the wayside, especially as the railcars have with no power supply or limited power supply. These sensors would be beneficial for energy harvesting created through vibrations. The company has created a differentiated position in the market through its dominance in all four PTC segments and leadership in digital rail solutions, making it a partner of choice for railroad modernization.

Tech Mahindra offers unique next-gen logistics solutions such as connected freight, connected warehouse, intelligent brokerage, and connected vehicles built on the strong foundation of technology such as advanced analytics, robotic process automation (RPA), AI/ML, IoT, fifth generation technology (5G), and few others. The company adds a level of distinctive advantage with its unique in-house platforms, MILES and PRISM. Tech Mahindra designed MILES to measure vehicle telematics, and this platform further helps in location tracking and preventive maintenance. PRISM is a highly flexible and configurable plugin designed for enterprise resource planning in the supply chain areas, enhancing visibility.

“Tech Mahindra has developed deep expertise in helping customers build and manage logistics networks, which provides the customer the flexibility to plug and play in order to develop their logistics network in different markets while assisting customers to improve efficiency and productivity on core processes using engines that are AI or ML driven.”

- Ruman Ahmed, Best Practices Research Analyst

The industry’s primary challenge in freight is to manage the hubs and networks efficiently, as most of these warehouses rely on legacy infrastructure and technology. Tech Mahindra tackled this problem with its connected freight solution, which helps customers transform their environments digitally and operate efficiently. Connected warehouse solutions provide real-time visibility to each warehouse process by capturing and analyzing actionable insights, which in turn increases the efficiency as a small glitch or

downtime would lead to a significant loss for these warehouses. Connected vehicle solutions provide IoT-based monitoring, advanced analytics, and automation for real-time visibility and traceability. Intelligent brokerage solutions facilitate efficient customs and freight brokerage through RPA, AI-based, and enhanced compliance management tools. Lane density visualization is a crucial solution for freight and truck operators as it determines the operators’ capability, pricing, ability to service their customers, which is directly dependent on the visibility the operators hold on lane density. Tech Mahindra addressed this critical unmet need of its customer, a large global logistics service provider. The customer required visibility into the network and mapping anticipated sequences of freight with a tool to assign freight by lane to achieve full optimization greater density. The company successfully enhanced fleet utilization at lane by 15% and across the network by 9% with increased warehouse space utilization around 7% using technology such as data model designed for consolidated repository using MILES and self-service analytics using PRISM. Tech Mahindra designed a unique solution that deals with the customer’s critical demands by improving efficiency, increasing space utilization and capacity with better route planning, and increased profitability through user-friendly and easily configurable systems, giving it a distinctive edge.

Brexit has created significant limitations which will impact brokerage solutions of logistics service providers. Tech Mahindra handled this hurdle with its next-gen custom brokerage services, giving it a first-mover advantage in the industry. The company has in-house expertise in the brokerage segment integrating it with technology such as AI, automation, and RPA. Using Bots and AI, the company is automating business processes to reduce inefficiency and the rate of errors. Tech Mahindra has strong relationships with the top two leading RPA providers, which led to developing this intelligent solution that replicated manual processes. Tech Mahindra has created a unique value proposition with its next-gen custom brokerage solutions giving it a competitive advantage over peers. The company’s digital freight matching, an AI-based matching engine solution, designed to overcome the industry challenges faced by transportation and freight companies, which is manually matching carriers to load done by sales representatives. The solution resulted in an improved conversation rate of matches and improved employee productivity.

The global pandemic COVID-19 brought the world to a halt, affecting the health of millions and causing sudden deaths; there has been a tremendous demand for vaccines. In such scenarios, there should be complete visibility of the entire distribution process of vaccines and easy backtracking of distribution for

any untoward incidents or investigation reasons. Tech Mahindra is working closely with the United Nations Children's Fund, as it faced low visibility around backtracking of vaccines and the overall process, which often leads to missed orders, shortage, and spoilage due to limited data sharing with no information on inventory levels. Tech Mahindra addressed this with its unique solution, vaccine ledger, a Blockchain-based traceability platform giving it a first-mover advantage. The solution gave real-time information availability, data validation, and connected all stakeholders behaving as a single console with actionable insights for better planning. Tech Mahindra is well-positioned as it meets the unmet requirements of its customers with solutions that have given it a first-mover advantage, achieving leadership in the market from a technology and innovation standpoint.

Enterprises are embarking on the journey towards digital transformation to keep up with customers and the industry's ever-changing needs, which means transforming existing infrastructure and networks; new-age solutions require higher bandwidth and availability, 5G can solve this by providing customized intelligent connectivity. In the logistics industry, some of the warehouses and network hubs reside on legacy infrastructure and technology with poor connectivity; Tech Mahindra envisions the adoption of 5G and private Long Term-Evolution as the segment's game changers in terms of improving efficiency and productivity. The company recently hosted the 5G Digital Conclave, particularly for the logistics segment, the one challenge discovered was the return on investment with asset retirement activity. Tech Mahindra analyzed the concerns related to 5G from an overall perspective, starting from cost and pricing, which are critical and has partnered with various OEMs and telecom providers, giving them broad expertise from the network to connectivity and spectrum, strengthening the 5G backbone.

Delivering Superior Customer Experience

Frost & Sullivan notes that Tech Mahindra's highly engaged executive team and close attention to detail give it a competitive advantage. The company focuses on enhancing performance for clients and the end-customer journey with a dedication to constant improvement. Tech Mahindra is improving the customer experience and is keen on achieving customer satisfaction with its maturity in delivery, solutions and services, and expertise. Tech Mahindra pays attention to customer-centricity with its customer-centricity office. The customer-centricity office is committed to tracking the critical customer escalations and requirements and expedites the necessary actions required to meet the customer's demands. Tech Mahindra also conducts customer surveys such as net promoter score and customer as promoter score through the third party to understand the customer concerns and alignment with their requirements, ensuring customer satisfaction. The company gives utmost priority to customer feedback received through feedback survey tools and account-level feedback obtained from CXOs or key decision-makers. Tech Mahindra is engrossed in ensuring day-to-day quality and performance by performing frequent and granular reviews of programs across several metrics with the executive team highly involved.

Foundation for Success

Tech Mahindra is determined to change its customer-centric approach through intelligent and connected services deriving significant and feasible experiences. The company mainly focuses on innovation, digital transformation, and providing solutions aligned to improve business operations and

transform customers' business processes through innovative products and service propositions. Tech Mahindra's strong footprint and significant investments in labs and center of excellence with well-proven solutions have helped it achieve leadership in the market. The company is transforming the railroad and logistics industry with digital experimentation and rapid transformation with solutions synced with technology and expertise. The company ideates on creating differentiated omni-channel touchpoints and shifting focus from a siloed approach to support the entire buyer journey. Tech Mahindra is strategically evolving by expanding its businesses and geographical footprint by aligning its solutions with its unique vertical strategy. The company is dedicated towards innovation while focusing on giving its customers a connected and robust experience.

Conclusion

Tech Mahindra is transforming the railroad industry with its acute focus on building strong domain expertise, a combination of extensive rail knowledge amalgamated with technology and business processes. The company's solid expertise in this segment globally and awareness of the industry trends helped it anticipate and quickly adapt to the industry's changing needs, making it a robust system integrator with an extensive alliance with large rail operators and original equipment manufacturers.

Tech Mahindra has years of experience in the supply chain and logistics industry with a strong consulting team, which forms its logistics industry's backbone. The company's core differentiation in the logistics industry is its ability to build technology-led services and solutions with new-age technologies.

Tech Mahindra is transforming the railroad and logistics industry with digital experimentation and rapid transformation with solutions synced with technology and expertise. The company is strategically evolving by expanding its businesses and geographical footprint by aligning its solutions with its unique vertical strategy. The company is dedicated towards innovation while focusing on giving its customers a connected and robust experience. With its high-quality solutions, commitment to innovation, and expertise, Tech Mahindra earns Frost & Sullivan's 2021 India Company of the Year Award for digital transformation in the logistics and railroads industry.

What You Need to Know about the Company of the Year Recognition

Frost & Sullivan's Company of the Year Award is its top honor and recognizes the market participant that exemplifies visionary innovation, market-leading performance, and unmatched customer care.

Best Practices Award Analysis

For the Company of the Year Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Visionary Innovation & Performance

Addressing Unmet Needs: Customers' unmet or under-served needs are unearthed and addressed by a robust solution development process

Visionary Scenarios through Mega Trends:

Long-range, macro-level scenarios are incorporated into the innovation strategy through the use of Mega Trends, thereby enabling first to market solutions and new growth opportunities

Leadership Focus: Company focuses on building a leadership position in core markets and on creating stiff barriers to entry for new competitors

Best Practices Implementation: Best-in-class implementation is characterized by processes, tools, or activities that generate a consistent and repeatable level of success

Financial Performance: Strong overall business performance is achieved in terms of revenue, revenue growth, operating margin, and other key financial metrics

Customer Impact

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers proudly own the company's product or service and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and high quality

Brand Equity: Customers perceive the brand positively and exhibit high brand loyalty

About Frost & Sullivan

Frost & Sullivan is the Growth Pipeline Company™. We power our clients to a future shaped by growth. Our Growth Pipeline as a Service™ provides the CEO and the CEO's growth team with a continuous and rigorous platform of growth opportunities, ensuring long-term success. To achieve positive outcomes, our team leverages over 60 years of experience, coaching organizations of all types and sizes across 6 continents with our proven best practices. To power your Growth Pipeline future, visit Frost & Sullivan at <http://www.frost.com>.

The Growth Pipeline Engine™

Frost & Sullivan's proprietary model to systematically create on-going growth opportunities and strategies for our clients is fuelled by the Innovation Generator™. [Learn more.](#)

Key Impacts:

- **Growth Pipeline:** Continuous flow of Growth opportunities
- **Growth Strategies:** Proven Best Practices
- **Innovation Culture:** Optimized Customer Experience
- **ROI & Margin:** Implementation Excellence
- **Transformational Growth:** Industry Leadership



The Innovation Generator™

Our six analytical perspectives are crucial in capturing the broadest range of innovative growth opportunities, most of which occur at the points of these perspectives.

Analytical Perspectives:

- **Mega Trend (MT)**
- **Business Model (BM)**
- **Technology (TE)**
- **Industries (IN)**
- **Customer (CU)**
- **Geographies (GE)**

