telenor

2025 TECHNOLOGY INNOVATION LEADER

Enhancing Customer Impact Through Powerful Technology Integration

RECOGNIZED FOR BEST PRACTICES IN THE GLOBAL CELLULAR IOT INDUSTRY

FROST & SULLIVAN

Table of Contents

Best Practices Criteria for World-class Performance 3

The Transformation of the Cellular IoT Industry 3

Ecosystem Strategy 4

Driving Innovation Through IoT Connect 4

2024 Highlights: eSIM SGP.32, AI, and Cybersecurity 5

Financial Performance 7

Embracing R&D: Test Labs for Next-generation Solutions 7

Conclusion 8

What You Need to Know about the Technology Innovation Leadership Recognition 9

Best Practices Recognition Analysis 9

Technology Leverage 9

Business Impact 9

Best Practices Recognition Analytics Methodology 10

Inspire the World to Support True Leaders 10

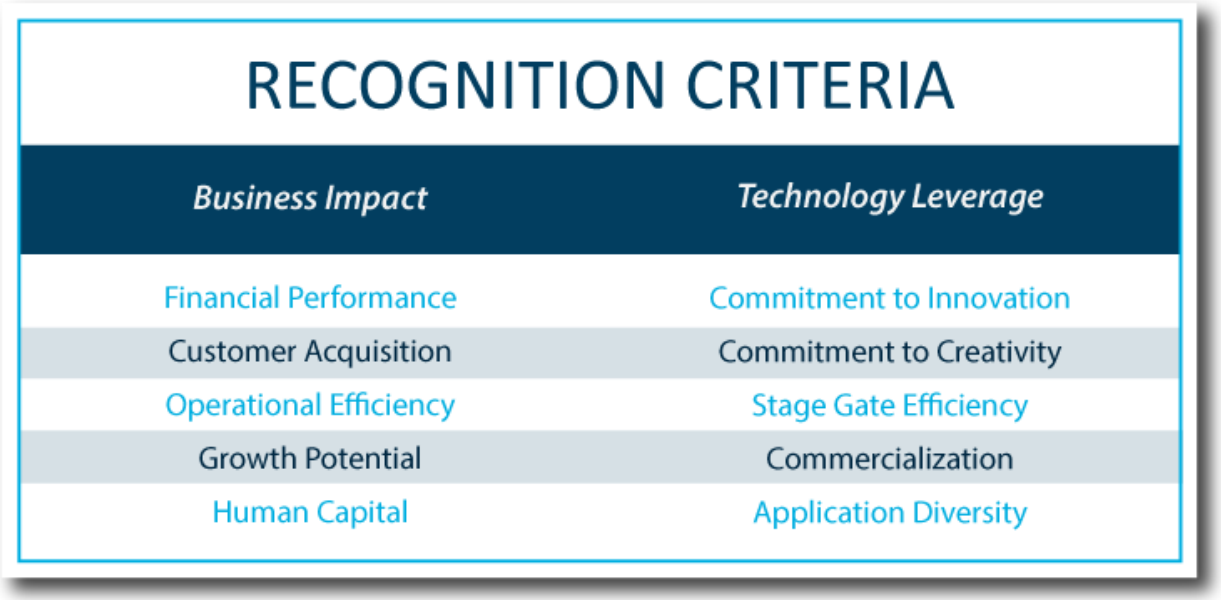
About Frost & Sullivan 11

The Growth Pipeline Generator™ 11

The Innovation Generator™ 11

Best Practices Criteria for World-class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each recognition category before determining the final recognition recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Telenor IoT excels in many of the criteria in the global cellular IoT space.



The Transformation of the Cellular IoT Industry

Organizations with global IoT deployments are struggling to navigate fragmented mobile operator agreements, roaming restrictions, complex contract negotiations with multiple operators and resellers, and difficulties managing their numerous IoT devices.

These challenges demonstrate that, in addition to reliable and cost-efficient cellular IoT connectivity, customers demand other value-added solutions, including:

- Advanced IoT management platforms that enable global management of connected IoT devices with security and simplicity
- Analytical tools that transform data into actionable insights for improved decision-making
- Unified provisioning, monitoring, and support that offer seamless access to multiple cellular IoT networks through one SIM and one contract
- Resilient and carrier-grade infrastructure that enables faster, more tailored IoT solutions using standalone IoT connectivity providers, which have greater control over their value chain, including operations, sales, and contracting, ensuring better management of networks and data, and simplified billing through a single agreement

Telenor Connexion,[1] the primary IoT provider within Telenor Group, is the top global leader in the cellular

[1] In this study, we refer to Telenor Connexion as Telenor IoT.

IoT market, offering one of the world's most extensive IoT connectivity coverage with 500 networks across 200 countries. Beyond its scale, what distinguishes Telenor IoT in the market is that it addresses the aforementioned market needs through a customer-focused approach, innovative technology, 20 years of experience in IoT, and as a standalone company dedicated to IoT. This means that, although it is part of the Telenor Group, it designs its innovative strategy, provides customers with tailored solutions, and, above all, controls its value chain.

Ecosystem Strategy

With 160 years of history, Telenor Group is a leading global operator with 207 million mobile subscribers as of 2024, operating in eight key markets (Norway, Sweden, Denmark, Finland, Thailand, Malaysia, Pakistan, and Bangladesh). The group provides mobile voice and broadband services, fixed-voice, satellite services, and digital products and services. Four of its business divisions offer IoT capabilities: Telenor Nordics and Telenor Asia, which provide regional IoT services and professional services enabled by local Mobile Network Operators (MNOs); Telenor Infrastructure, which offers IoT-based management of infrastructure; and Telenor Amp, which explores new areas such as IoT and security, next-generation networks, and computing. Telenor Amp also encompasses IoT assets, such as Telenor IoT (Connexion), Maritime, which offers IoT solutions for ships, BLDNGs for smart offices, and Tell-u with connected healthcare.

Among the leading enterprises trusting Telenor's IoT managed connectivity solutions (IoT Connect and IoT Complete) are Volvo, Scania, Hitachi Construction Machinery, Husqvarna, and Xylem. IoT Connect provides access to local mobile networks as well as 500 other global networks of strategic partners (e.g., Vodafone, Orange, DT, KPN, Verizon, Vivo, TIM Brasil) to support global roaming. It also provides managed connectivity through global IoT SIM cards, with a single contract, application programming interface (API), roadmap, and invoice. Customers can leverage global roaming without having to create deals with local operators. Additionally, customers can utilize Telenor IoT's seamless access solutions with the Embedded Universal Integrated Circuit Card (eUICC). IoT Complete, launched in Europe in June 2023, is an end-to-end connectivity service that enables businesses to connect their product through standard HW interfaces to the cloud through a single subscription, providing a fast, easy, effortless, and high-quality experience. The subscription encompasses hardware, mobile connectivity, cloud integration, and end-user applications.

Driving Innovation Through IoT Connect

Telenor IoT's leadership stems from its continuous focus on product innovation. Through the introduction of new technology capabilities into its flagship product, IoT Connect, the company has strengthened its competitive edge in the cellular IoT market. IoT Connect offers global IoT connectivity across various cellular technologies. With worldwide subscription via a global SIM, customers can access mobile networks around the world. This connectivity is made possible through roaming, which enables customers to use multiple networks in both their home country and other markets. IoT Connect offers access to various types of networks, including SMS and voice services. Customers can also easily manage their subscriptions through a self-service portal.

Competitors in this market generally offer a multi-SIM approach, which requires different SIM cards in each region, resulting in greater complexity as the enterprise must manage multiple contracts and billing systems. In contrast, the Telenor IoT model eliminates the need to manage multiple SIMs and swap SIMs and profiles, allowing customers to access unified analytics, billing, and provisioning through a single platform.

> *"By embracing an innovative approach, 2025 is becoming a year of financial success for Telenor, reporting 12% year-over-year revenue growth in Q1 2025, mainly driven by a robust increase in its SIM subscription base, which now stands at 22.2 million. The company also surpassed 25 million IoT devices connected globally, achieving 200% customer growth since 2014 and experiencing sustained double-digit revenue growth for over a decade."*
>
> ***– Cecilia Pérez***
> ***Industry Analyst***

In regions with roaming restrictions, Telenor IoT provides access using local IoT platforms. Customers can leverage a single pane of glass for all networks—roaming and local—through a portal and API. The solution streamlines the supply chain, enabling seamless integration of IoT platforms and lowering costs.

IoT Connect also includes managed IoT connectivity, alongside a service portal that provides customers with tools and features to automate the management of IoT devices and data collection. Additionally, remote SIM management allows for the remote control of network profiles. This solution enhances the lifecycle of devices, optimizes supply and logistics with SKU management, and increases security by restricting physical access.

Another feature of IoT Connect is Analytics and Insights, a service that monitors the performance of IoT deployments. Launched in November 2024, this capability identifies actionable insights for deployments (e.g., tracking of device locations, monitoring of coverage gaps), usage analytics (e.g., understanding of how devices are used and identification of trends), performance optimization (e.g., deviations, connectivity issues, and configurational problems), and the possibility to mitigate risks. Customers receive reports and analyses to help them understand data and make informed decisions. This new Analytics and Insights service is based on Telenor's proprietary big data analytics engine developed over the last 8+ years and that is using AI/machine learning to continuously monitor all connected fleets of devices.

As cybersecurity attacks increase, adopting security measures is critical for IoT businesses. According to Frost & Sullivan's 2024 global survey of IoT decision-makers, 41% of respondents cited security and data protection as the major challenge when implementing IoT. Telenor IoT's customers can access 24/7 support and IoT security services that are compliant with the EU General Data Protection Regulation (GDPR) and International Organization for Standardization (ISO) 27001 requirements. Companies can secure their connectivity, data, and devices through different types of access point names (APNs), virtual private networks (VPNs), and remote access solutions.

2024 Highlights: eSIM SGP.32, AI, and Cybersecurity

Over the past 12 months, the company has advanced technological innovations in new fields, including eSIM SGP.32, AI, and cybersecurity. Telenor IoT is one of the first adopters of the new global eSIM standard, SIM Group Permanent 32 (SGP.32), for IoT, which will be incorporated into the company's IoT

offering during the second half of 2025. The new standard, developed by the GSMA in mid-2024, is expected to revolutionize the IoT market by enabling SIM profiles to be remotely managed through a centralized platform. This enables automated updates and provisioning, which are crucial benefits for managing large-scale IoT deployments. Additionally, companies can utilize a single stock keeping unit (SKU) across regions, minimizing logistical complexity and reducing costs. The new standard is optimized for devices with limited power, as it lowers battery consumption while enhancing security and compliance by incorporating robust safeguards for provisioning and managing network profiles.

Telenor IoT's addition of the SGP.32 standard to its offering will give customers the possibility to scale and control massive IoT deployments, which can be integrated with AI-powered monitoring, real-time analytics, and remote SIM management. Enterprises choosing this solution can access seamless interoperability, simplified integration, and security across networks and devices.

> *"Taking a step further, Telenor built Norway's first AI Factory for sustainable AI cloud service in partnership with NVIDIA. The facility enables enterprises to leverage sovereign AI to transform their businesses. Its first customer, Hive Autonomy, is utilizing AI resources to enhance autonomous solutions, making them safer, more efficient, and reliable. With a $9.5 million initial investment, the AI factory also aims to support the development of AI in the Nordic region."*
>
> ***– Cecilia Pérez***
> ***Industry Analyst***

Telenor is also embracing innovation with an AI-first strategy that harnesses the power of data and analytics to enhance customer experience, support new product development, and optimize operations. In October 2024, the company announced a partnership with Google Cloud to leverage its products and solutions, transforming on-premises data platforms into a harmonized, cloud-native data and analytics orchestration platform. Google Cloud's tools, including BigQuery, Vertex AI, and Lokker, will be integrated into Telenor's cloud-native platform, Nova, which enables hyper-personalized customer experiences, operational efficiency, and improved network performance. Furthermore, Google Cloud offers real-time data technologies that allow Telenor to monitor data from its operations and networks, identify patterns and anomalies, and develop AI-based products.

Taking a step further, Telenor built Norway's first AI Factory for sustainable AI cloud service in partnership with NVIDIA. The facility enables enterprises to leverage sovereign AI to transform their businesses. Its first customer, Hive Autonomy, is utilizing AI resources to enhance autonomous solutions, making them safer, more efficient, and reliable. With an initial investment of $9.5 million, the AI factory also aims to support the development of AI in the Nordic region.

The acquisition of Combitech AS, formerly Watchcom Security Group, by Telenor Cyberdefence in July 2024 was another milestone for the company. This acquisition has strengthened the company's position as a leading provider of cybersecurity solutions in Norway, enabling it to expand its customer base and enhance its market presence. Combitech AS has solid expertise in security consulting and penetration testing, which means authorized simulated cyberattacks, as well as cloud-based monitoring and response.

Financial Performance

By embracing an innovative approach, 2025 is becoming a year of financial success for Telenor IoT, reporting 12% year-over-year revenue growth in Q1 2025,[2] mainly driven by a robust increase in its SIM subscription base, which now stands at 22.2 million. The company has also surpassed 25 million IoT devices connected globally, achieving 200% customer growth since 2014 and experiencing sustained double-digit revenue growth for over a decade.

Telenor IoT is also expanding its network to North America and the Middle East, by enabling local access to Verizon's cellular IoT network in the United States and partnering with Saudi Telecom Company (STC) to provide IoT connectivity services in Saudi Arabia by 2025.

Embracing R&D: Test Labs for Next-generation Solutions

Telenor IoT's expertise is driven by its continuous investment in research and development. In 2024, the company launched an extended test lab in Karlskrona, Sweden, to test products, devices, and applications in a controlled radio environment, allowing customers to detect malfunctions in both hardware and software before launching their products. Customers using this lab can access base stations from all four Nordic Telenor networks (Sweden, Norway, Denmark, and Finland) from a single location and test technologies such as 5G, NB-IoT, and LTE-M in replicated real-world scenarios.

Additionally, the company offers a test package for eUICC to verify the compatibility of devices with the IoT platform. In June 2025, the company announced an upgrade of its test lab. The new capabilities introduced include an additional test cell tower for testing connectivity and handover (switching between different network cells), enhanced radio capabilities for detailed testing, a global positioning system (GPS) for testing in various locations, and an improved power analyzer for monitoring the power consumption of devices. What makes this lab game-changer is that it is prepared to cater to the needs of massive IoT deployments that require massive cellular IoT technologies (NB-IoT and LTE-M), as well as technologies such as LTE Cat1 bis, 5G SA, Voice over Long-term Evolution (VoLTE), and emergency call (eCall). Applications, including connected vehicles, manufacturing automation, and smart metering, increasingly demand these technologies.

In March 2025, Telenor established a 5G standalone Lab in Gothenburg for 5G services, such as network slicing and network APIs. This lab complements the Karlskrona facility, enabling customers to test 5G capabilities and AI technologies in real-world settings, all in the exact location. This lab enables the testing of applications such as AI-driven predictive maintenance and warning systems, real-time monitoring, and work safety. Furthermore, it is crucial for exploring 5G's features of low latency, high speed, and high throughput in the use cases of drones, self-driving cars, and edge AI. The initiative was supported by the Telenor Group, research institutes such as TECoSA, as well as key partners including Telenor Sverige AB, Telenor IoT, Hewlett Packard Enterprise, Red Hat, HP, Intel, Nokia, and Vintner.

[2] Telenor Group Q1 2025 Report: Telenor Connexion AB annual reports.

Conclusion

Telenor IoT is a leader in the global cellular IoT market because it addresses market needs such as complexity, roaming restrictions, and a fragmented ecosystem with a customer-oriented approach, technology innovation, and 20 years of experience in IoT. As a standalone company dedicated to IoT, the company designs its innovative strategy, provides customers with tailored solutions, and controls its value chain.

Thanks to its innovative approach based on eSIM, 5G, and AI, a growth-oriented vision, and a dedicated team of 200 IoT experts, Telenor IoT reached a milestone of 25 million IoT SIMs deployed globally in 2025. The offer of carrier-grade IoT connectivity, spanning 4G, 5G, NB-IoT, and LTE-M, based on more than 500 networks across 200 countries, along with the provision of an advanced managed IoT connectivity platform featuring strong remote provisioning and monitoring capabilities, is generating a remarkable customer base and driving revenue growth.

With leading customers trusting Telenor's IoT solutions, including Volvo, Scania, Hitachi Construction Machinery, and Husqvarna, the company is experiencing sustainable financial and connectivity growth, surpassing 25 million IoT connections by 2025.

For its strong overall performance, Telenor IoT is presented with Frost & Sullivan's 2025 Global Technology Innovation Leadership Recognition in the cellular IoT industry.

© Frost & Sullivan 2025

What You Need to Know about the Technology Innovation Leadership Recognition

Frost & Sullivan's Technology Innovation Leadership Recognition is its top honor and recognizes the market participant that exemplifies visionary innovation, market-leading performance, and unmatched customer care.

Best Practices Recognition Analysis

For the Technology Innovation Leadership Recognition, Frost & Sullivan analysts independently evaluated the criteria listed below.

Technology Leverage

Commitment to Innovation: Continuous emerging technology adoption and creation enables new product development and enhances product performance

Commitment to Creativity: Company leverages technology advancements to push the limits of form and function in the pursuit of white space innovation

Stage Gate Efficiency: Technology adoption enhances the stage gate process for launching new products and solutions

Commercialization: Company displays a proven track record of taking new technologies to market with a high success rate

Application Diversity: Company develops and/or integrates technology that serves multiple applications and multiple environments

Business Impact

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

Customer Acquisition: Customer-facing processes support efficient and consistent new customer acquisition while enhancing customer retention

Operational Efficiency: Company staff performs assigned tasks productively, quickly, and to a high-quality standard

Growth Potential: Growth is fostered by a strong customer focus that strengthens the brand and reinforces customer loyalty

Human Capital: Leveraging innovative technology characterizes the company culture, which enhances employee morale and retention

Best Practices Recognition Analytics Methodology

Inspire the World to Support True Leaders

This long-term process spans 12 months, beginning with the prioritization of the sector. It involves a rigorous approach that includes comprehensive scanning and analytics to identify key best practice trends. A dedicated team of analysts, advisors, coaches, and experts collaborates closely, ensuring thorough review and input. The goal is to maximize the company's long-term value by leveraging unique perspectives to support each Best Practice Recognition and identify meaningful transformation and impact.

		VALUE IMPACT	
STEP		WHAT	WHY
1	**Opportunity Universe**	Identify Sectors with the Greatest Impact on the Global Economy	Value to Economic Development
2	**Transformational Model**	Analyze Strategic Imperatives That Drive Transformation	Understand and Create a Winning Strategy
3	**Ecosystem**	Map Critical Value Chains	Comprehensive Community that Shapes the Sector
4	**Growth Generator**	Data Foundation That Provides Decision Support System	Spark Opportunities and Accelerate Decision-making
5	**Growth Opportunities**	Identify Opportunities Generated by Companies	Drive the Transformation of the Industry
6	**Frost Radar**	Benchmark Companies on Future Growth Potential	Identify Most Powerful Companies to Action
7	**Best Practices**	Identify Companies Achieving Best Practices in All Critical Perspectives	Inspire the World
8	**Companies to Action**	Tell Your Story to the World (BICEP*)	Ecosystem Community Supporting Future Success

*Board of Directors, Investors, Customers, Employees, Partners

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 Generator™

Frost & Sullivan's proprietary model to systematically create ongoing growth opportunities and strategies for our clients is fueled 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 6 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:

- Megatrend (MT)
- Business Model (BM)
- Technology (TE)
- Industries (IN)
- Customer (CU)
- Geographies (GE)

