

FROST & SULLIVAN



中華電信
Chunghwa Telecom

2022 COMPANY OF THE YEAR

*TAIWAN
DATA CENTER SERVICES INDUSTRY*

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. Chunghwa Telecom excels in many of the criteria in the data center services 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

Chunghwa Telecom

Founded in 1996 and headquartered in Taipei, Chunghwa Telecom is a top provider of data center services in Taiwan. The company’s leading innovations empowering higher efficiency and enhanced monitoring have given Chunghwa Telecom best-in-class customer satisfaction and unmatched regional brand equity.

In 2021, Frost & Sullivan recognized Chunghwa Telecom for its strong value brand and customer service commitment and remains impressed with the company’s continuing innovation and sustained leadership.

A Leader’s Path

The need for security in information communication technology systems and vital infrastructure has increased hyperscale data centers that are highly stable and scalable to various applications. The Chunghwa Telecom vision centers on customization based on clients’ needs to increase value. It connects deep-seated domain and operational knowledge with advanced colocation solutions and data center services to deliver services specific to a customer’s specific data service requirements.

Chunghwa Telecom understands the importance of data and platform security. It integrates comprehensive security solutions, including distributed denial-of-service, integrated project services, firmware, and web application firewall services to ensure customer data security. Chunghwa Telecom provides a complete data center solution by combining all resources such as fixed line, submarine cable connectivity, mobile (4G and 5G), internet, and data center services such as colocation and network and cloud capabilities. Furthermore, the company built its security operation center with artificial intelligence

(AI) capabilities to monitor and detect internet traffic and avoid internet attacks, providing additional data security. With a legacy of data center services leadership, the company's compelling value proposition underpins its sustained success.

Chunghwa Telecom was built on a foundation of innovation. As such, the company invests in advanced data center innovations, including using electromagnetic air-cooling systems. These cooling systems use high-efficiency power and air conditioning equipment, such as Active Magnetic Bearing Chiller (with variable speed pumps), cooling water towers, and speed fans. It uses hot and cold containers to increase the temperature set point at the cold aisle in data centers. Chunghwa Telecom's data centers remain at

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*- Kriti Yadav,
Industry Analyst, ICT*

more stable temperatures, eliminating downtimes and increasing value from temperature-use and power-use stability. Over time, the company will continue to improve IDC power consumption efficiency by replacing old and inefficient equipment with high-efficiency and energy-saving equipment.

Moreover, sudden anomalies can cause front-end display errors and affect the data center personnel operation; leveraging its AI capabilities, Chunghwa Telecom eliminates these errors to improve stability and reduce

overall facility delays. Its Integrated Dashboard monitoring systems allow for increased data visualization for key performance indicators such as power consumption and temperature. The AI technology provides temperature improvement suggestions and simulation models with implementation by a deep neural network and recurrent neural network solutions.

As a result, customer experience increased value from reduced air conditioning power and increased power and temperature stability across rack lines. The alarm preprocess uses historical data points to predict future trends through the LSTM Autoencoder and perform difference detection to evaluate and notify the administrator of obstacle points. Finally, Chunghwa Telecom's AI solutions monitor and detect internet traffic to avoid external internet attacks, providing an additional level of cybersecurity.

Guaranteed Satisfaction through End-to-end Customer Service

Chunghwa Telecom goes beyond its extensive expertise and best-in-class capabilities, with customer value as a strategic imperative. Through the years, the company has earned a sterling reputation supporting customers' paths towards data reliability and security with the increased value from energy efficiency and cost reduction. Unlike competitors, Chunghwa Telecom builds its services, collaborating closely with various stakeholders and partners to evolve alongside market needs and trends. Chunghwa Telecom places customer satisfaction at its core and has developed its product and service offerings to provide customers with complete, efficient, and high-quality services. Many hyperscale customers' requirements are more extensive than just colocation, power, and space; they need a fixed line, submarine, and network trunk. Chunghwa Telecom hosts a broad line of capabilities enabling the company to tailor solutions to clients' unique requirements.

Additionally, the company focuses on providing convenient service to customers and has 691 physical service centers, including 447 regular stores and 244 franchises globally, with 15 customer service centers in Taiwan alone. The company has approximately 2,300 customer service staff, ensuring customer needs are met quickly and efficiently. As a result, Chunghwa Telecom reports service satisfaction rates of 4.75 out of 5 in 2021, with an overall satisfaction rate of 83.9% and a 100% satisfaction rate in data coverage¹.

A Foot in the Present and an Eye on the Future

Since its inception, Chunghwa Telecom's sterling reputation and customer-centric framework led to its coveted preferred partner status. Over the years, it added a range of new customers to its established base. Frost & Sullivan believes the company is well-positioned to drive the data services space into its next

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**- John Sisemore,
Best Practices Research Analyst**

growth phase, capturing market share and sustaining its leadership in the coming years.

Chunghwa Telecom notices a market shift towards environmental, social governance focus driven by the governmental compliance requiring 5% of power from green power. The company commits to empowering environmental sustainability for customers and plans to buy or build solar devices to align with this regulation. Additionally, the company created its Environmental Sustainability Task Force to incorporate short-, mid-, and long-term environmental sustainability, net-zero

emission, and energy and carbon reduction goals into its operational plan². Chunghwa Telecom commits to leveraging renewable energy and has begun to purchase renewable energy to achieve this goal, with plans to continue purchasing as needed.

Conclusion

Depending on their size and overall goals, customers have widely varying needs from data centers. As such, competitors within the data center services industry need a comprehensive portfolio of technology and service options that can customize to customers' specific needs. Overall, Chunghwa Telecom addresses these unmet needs with a strong leadership focus that incorporates customer-centric strategies and exemplifies best practice implementation. The company's focus on flexibility leads it to maintain a broad portfolio of technology and service solutions, ensuring customers receive a high return on investment. Finally, as the company commits to innovation, customers will experience long-term value as it continuously upgrades legacy equipment with more efficient equipment integrated with artificial intelligence to safeguard data security and optimize power requirements. The company remains a trusted partner, earning a reputation for offering the overall best in the data center services industry. With its strong overall performance, Chunghwa Telecom earns Frost & Sullivan's 2022 Taiwan Company of the Year Award in the data center services industry.

¹ <https://www.cht.com.tw/en/home/cht/esg/customer-care/customer-relationship-management>

² <https://www.cht.com.tw/en/home/cht/esg/environmental-sustainability/environmental-strategy-and-goal>

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 ongoing growth opportunities and strategies for our clients is fuelled by the Innovation Generator™.

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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:

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

