

2021 Frost & Sullivan Technology Innovation Leadership Award

The Global OSS/BSS Industry
Excellence in Best Practices

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Congratulations!

Frost & Sullivan is proud to present Netcracker Technology with this year's Best Practices Technology Innovation Leadership Award in the Global OSS/BSS industry.

Frost & Sullivan's global team of Growth Pipeline experts continually identifies and evaluates growth opportunities across multiple industries, technologies, and regions of the world. As part of this ongoing effort, we identify companies that consistently develop growth strategies based on a visionary understanding of the future and effectively address new challenges and opportunities. This approach involves the deployment of best practices and strategic analytics across a value chain. Against this backdrop, Frost & Sullivan recognizes Netcracker Technology for its valuable achievement.

Frost & Sullivan reserves this recognition for companies at the forefront of innovation and growth in their respective industries. These companies consolidate their leadership positions by innovating and creating new products, solutions, and services that meet ever-evolving customer needs. By strategically broadening their product portfolios, leading companies advance the overall market. Driving innovation and growth is a difficult task made even harder by the strategic imperatives forcing change today, such as disruptive technologies, value chain compression, industry convergence, and new business models. In this context, Netcracker Technology's recognition signifies an even greater accomplishment.

Moreover, this recognition is the result of many individuals (employees, customers, partners, and investors) making critical decisions every day to support the organization and contribute to its future. Frost & Sullivan enthusiastically acknowledges and celebrates their contributions.

Once again, congratulations on your accomplishments. We wish you great success!

Sincerely,



Darrell Huntsman
Chief Executive Officer
Frost & Sullivan

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. Netcracker Technology excels in many of the criteria in the Global OSS/BSS industry.

AWARD CRITERIA	
<i>Technology Leverage</i>	<i>Business Impact</i>
Commitment to Innovation	Financial Performance
Commitment to Creativity	Customer Acquisition
Stage Gate Efficiency	Operational Efficiency
Commercialization Success	Growth Potential
Application Diversity	Human Capital

Commitment to Innovation

Netcracker Technology Corporation (Netcracker), founded in 1993 and headquartered in the United States, is a pioneer in innovative new solutions that help more than 250 global mobile operators and service providers address unmet needs and resolve challenges that have been plaguing the telecommunications industry. The company is a wholly-owned subsidiary of NEC Corporation. Its portfolio includes business support systems (BSS), operations support systems (OSS), customer engagement as well as extensive professional services. Few global companies in the vertical industries, including the telecommunications industries truly embody an innovation culture. Netcracker, however, as a subsidiary of NEC, is known for its innovative firsts in OSS/BSS, including bringing a cloud-native, digital-first and microservices-driven approach to the market, and is consistently spending more than its closest competitor on R&D every year. In 2020, the company’s R&D expenditure increased significantly as a percentage of their OSS/BSS revenue to surpass its closest competitor. The company leverages the advantages it enjoys in terms of innovations as a subsidiary of NEC in other related areas. It receives multi-vertical and collaborative support from its parent company, which allows it to avoid having to engage in mergers and acquisitions. Netcracker’s strong continuously growing partner ecosystem, which consists of on-boarded third-party virtual network functions (VNFs) and support of multiple partner-driven business models (which includes B2B2X, resellers, suppliers, distributors, sponsorships and wholesale), is a unique key strength. As OSS/BSS is an area where R&D is spent more on innovating

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products than creating new products, Netcracker's strength in innovation is a competitive advantage when it comes to helping CSPs reduce complexity, innovate quicker, and significantly alleviate deployment and operational costs. Further, with the recent completion of the standards for 5G standalone (SA) in 2H 2020, Netcracker is now a frontrunner in supporting CSPs with network slicing within a single domain or across multiple domains. Etisalat has benefited from the successful implementation of Netcracker's network domain orchestration solution, which has enabled its enterprise customers to experience upgrades in several aspects of the digitization process, including selecting the slice service, managing the slice attributes, and fully automating the slice deployment. The tangible positive results achieved from utilizing Netcracker's network domain orchestration have strengthened the company's position as a leader in the industry. Overall, it is Netcracker's commitment to innovation that has enabled it to achieve successful outcomes.

Commitment to Creativity

Netcracker's solutions help close the gap between customer needs and the available market solutions. The company leverages technology advancements to push the limits of form and function to deliver innovation to the market. For instance, it has updated its cloud-native, digital portfolio for CSPs to optimize return on investments (ROI) and increase revenue for customers. The enhanced portfolio, which is available in modular or suite options, allows ecosystem partners to modify products and services on the fly, potentially expanding their B2B2X market. The updates also allow CSPs that offer a wide range of products and services to extend their customer loyalty programs to any listing. The digital marketplace in NC 2020 integrates both the product catalogue and digital partner ecosystem through an automated process. This enables the cloud-native NC 2020 to help CSPs deliver results and monetize their business models as they move forward in a highly competitive environment. Due to its innovative solutions and capabilities, Netcracker will, without doubt, be able to continue its legacy as a strong player in helping CSPs thrive as the industry moves into the 5G era.

"Netcracker has confidence in the products it has built. It leverages its deep market knowledge and technology innovation leadership to meet customer's needs and expectations."

Mei Lee Quah, Associate Director, ICT Research

Commercialization Success

With the spread of COVID-19 in 2020, Netcracker showed strong competitive market differentiation by swiftly providing support to its customers to help them overcome pandemic-related challenges. Unlike its competitors in the region, Netcracker relied on NEC's strengths and synergies to help CSPs recover and turn the crisis into an opportunity for greater change. With its future-ready innovative solutions,

Netcracker supported CSPs in becoming a one-stop shop for solutions tailored to pandemic-specific requirements. Extending the capabilities of cloud-native, SaaS-based OSS/BSS solutions to pre-onboarding screening, facial recognition, behavioral analytics, video analytics, voice recognition, augmented reality (AR), internet of things (IoT), etc., enabled the fast setup of zero-touch COVID-19-fit environments. Netcracker used technology not only to realign network resources but also to achieve social distancing through functions that can detect high-risk areas and initiate remote billing collection management solutions for those areas. As part of the smart city initiative, it provided pre-screening

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solutions, condition detection, and cloud-based real-time management to ease congestion and crowding and enforce social distancing. Netcracker’s blockchain support also helped CSPs and their partners recover from supply chain disruptions while offering growth opportunities in the form of new business models. Taking on an end-to-end approach from early on is helping Netcracker build credibility in the space, which will be useful when 5G becomes the enabler of

end-to-end solutions that will transform industries. An early indication that this strategy will hit a high success rate in years to come stems from its ability to form strong partnerships that last over the years, such as the recent one it has with du, which is a leading quad-play communications provider in the United Arab Emirates (UAE) that has partnered with Netcracker for its digital transformation and 5G investments monetizing needs. Companies partner with Netcracker as a result of a proven track record of taking new technologies to market.

Financial Performance

Netcracker has confidence in the products it has built. It leverages its deep market knowledge to meet customer needs and expectations. Having already done much of the heavy lifting to innovate its product portfolio in previous years, it is constantly making small changes wherever required to better serve its clients. While for Netcracker this constitutes a fine-tuning of its product portfolio and business strategy, for the industry it serves, these changes lead to significant progress. The impact of the company’s business strategy is reflected in Netcracker’s financial results, with its OSS/BSS revenue showing a year-on-year growth of 11.3% in 2020 despite reduced consumer spending and customer budgets across the globe as a result of the COVID-19 pandemic.

Customer Acquisition

Netcracker takes a practical approach to address unmet needs, and this is helping customers deliver cutting-edge innovative solutions faster with better long-tail monetization in challenging markets. Netcracker builds solutions to bridge market gaps and minimize the risks involved in the transition from a 4G to a 5G network while facilitating business model disruption through unique tools to help communication service providers (CSPs) win more business from the value chain. It ensures cloud platform compatibility with the hybrid, public, and private clouds, enhances platform security even on the public cloud, and enables the necessary analytics with artificial intelligence (AI)/machine learning (ML) tools that allow CSPs to capitalize on the platform. Netcracker’s approach to addressing market needs is a clear departure from the traditional approach, which requires conventional hard selling and lock-in tactics. It helps greatly with new customer acquisition while enhancing customer retention. Netcracker’s consistent delivery track record resulted in 60% to 65% of its customers from 2019 being repeat customers in 2020.

Growth Potential

Automation is a key component of this global shift towards greater digitization. Netcracker manages the complexities faced by CSPs intending to upgrade their systems and achieve sophisticated automation. CSPs can achieve the most out of their business models through multi-cloud deployments, full-scale automation, enhanced customer engagement, and the creation of new markets merely by adopting the Netcracker suite. The company is valued for truly appreciating its relationships with customers, and its technology has a proven track record for efficiency, reliability, and scalability. Large global telco groups such as Deutsche Telekom and Telefonica have had positive experiences with Netcracker's solutions. Deutsche Telekom has adopted Netcracker's network domain orchestration solution to automate its entire transport domain, which has helped it effectively deliver its complex and multi-level portfolio. Telefonica, which has also adopted Netcracker's network domain orchestration solution, achieved full-scale automation in a few weeks. Separately, Netcracker also offers a range of innovative commercial pricing models to meet the needs of customers of all sizes, ensuring customers always get the best price/performance for OSS/BSS. The company offers outcome-based and minimum viable product (MVP) sales models that cater to CSPs' need for guaranteed outcomes in the form of exact solutions, key performance indicators, and timelines. For smaller CSPs that require flexibility with payments and resource growth, Netcracker offers pay-as-you-grow and software-as-a-service (SaaS)-managed services sales models. In 2020, Netcracker extended its product portfolio to provide OSS/BSS as a service, ahead of its competitors that still only offer SaaS for selected products. The SaaS-managed services sales model is specifically well-suited for multi-affiliate deployments, which will become more common with 5G. As a cloud-based model, it stands to benefit from Netcracker's high success rate on cloud-native deals due to the flexibility it allows for CSP transition to the cloud. Frost & Sullivan commends Netcracker's ability to help customers simplify, automate, and prepare for 5G and beyond by offering them the right combination of solutions and sales models to meet their needs.

Conclusion

Netcracker's practical approach to addressing unmet needs is helping customers deliver cutting-edge innovative solutions faster with better long-tail monetization in increasingly competitive and challenging markets. More specifically, its competitive advantage is contributing to global wins and technology leadership in the OSS/BSS space as its ability to help CSPs reduce complexity, innovate quicker, and significantly alleviate deployment and operational costs is well recognized across the globe. With its unique and innovative solutions and capabilities, Netcracker will undoubtedly continue its legacy as a strong player in the market by helping CSPs thrive as the industry moves into the 5G era.

For its strong overall performance, Netcracker Technology earns Frost & Sullivan's 2021 Global Technology Innovation Leadership Award.

What You Need to Know about the Technology Innovation Leadership Recognition

Frost & Sullivan's Technology Innovation Leadership Award recognizes the company that has introduced the best underlying technology for achieving remarkable product and customer success while driving future business value.

Best Practices Award Analysis

For the Technology Innovation Leadership Award, 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 Success: 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 financial performance is achieved in terms of revenues, 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: Commitment to quality and to customers characterize the company culture, which in turn enhances employee morale and retention

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™.

[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

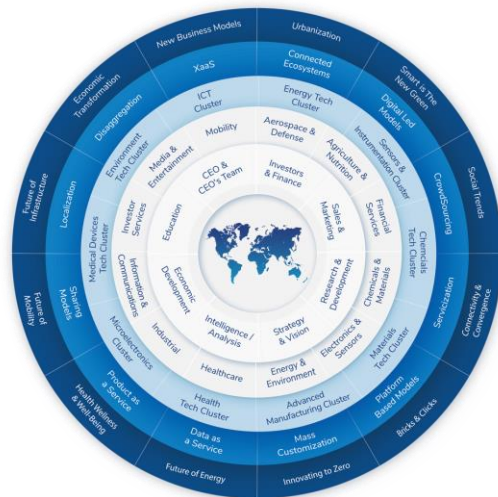


The Innovation Generator™

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:

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



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