

FROST & SULLIVAN

BEST PRACTICES

AWARDS

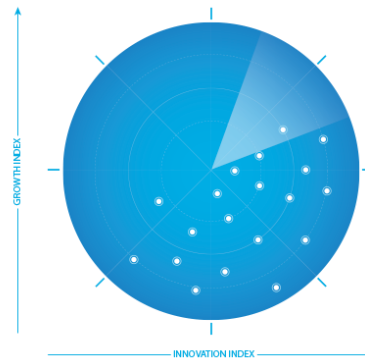
FROST & SULLIVAN

BEST
2020 PRACTICES
AWARD



**2020 GLOBAL US HEALTHCARE DATA
INTEROPERABILITY GROWTH, INNOVATION
& LEADERSHIP FROST RADAR AWARD**

FROST RADAR™



CONGRATULATIONS!

Frost & Sullivan is proud to present IBM with this year's Frost Radar™ Best Practices Award for Growth, Innovation & Leadership Excellence in US Healthcare Data Interoperability market.

Frost & Sullivan's global team of analysts and consultants continuously research a wide range of markets across multiple industries and locations. As part of this ongoing research, we identify companies that consistently develop new growth strategies based on a visionary understanding of the future, and thus more effectively address new challenges and opportunities. This involves extensive primary and secondary research across the entire value chain of specific products and services. Against the backdrop of this research, Frost & Sullivan recognizes IBM for these valuable achievements.

This recognition is strictly reserved for companies that are market leaders and are at the forefront of growth and innovation. These companies consolidate or grow their leadership position by continuously innovating and creating new products and solutions that serve ever-evolving customer needs. These companies are also best positioned to expand the market by strategically broadening their product portfolio. Achieving Growth, Innovation & Leadership (GIL) is never an easy task, but it is one made even more difficult considering today's intensely competitive environment, customer volatility, economic uncertainty, and rapid technology evolution. In this context, IBM's receipt of this Award signifies an even greater accomplishment.

Moreover, this recognition is the result of many individuals (employees, customers, and investors) making daily choices to support the organization and meaningfully contribute to its future. Frost & Sullivan enthusiastically acknowledges and celebrates these achievements.

Once again, congratulations on your accomplishments and we wish you great success in the future.

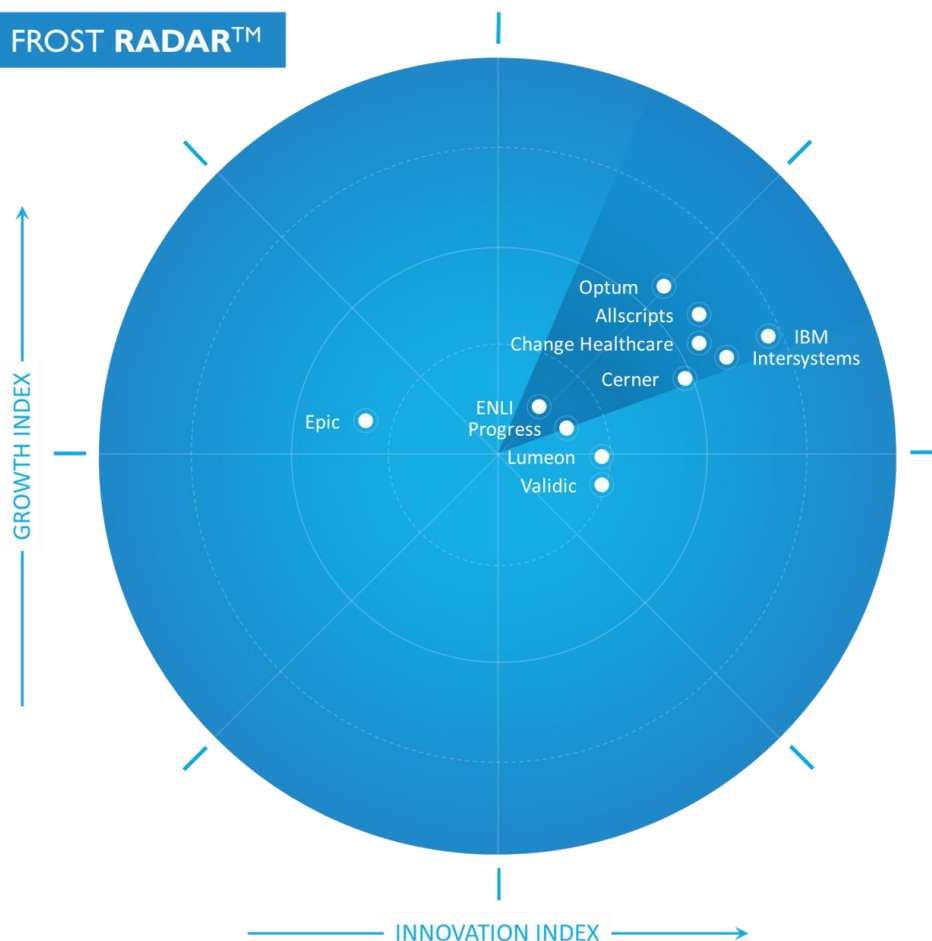
Sincerely yours,

Darrell Huntsman
Chief Executive Officer
darrell@frost.com

The Frost Radar™

US Healthcare Data Interoperability Market, 2020

FROST RADAR™



Source: Frost & Sullivan

In a field of 50 US-based industry participants, Frost & Sullivan has independently ranked the top 11 companies in the above Frost Radar™ analysis.

The key parameters independently analyzed by Frost & Sullivan include:

- Innovation Scalability
- R&D
- Product Portfolio
- Mega Trends Leverage
- Customer Alignment
- Growth Pipeline
- Vision and Strategy
- Sales and Marketing
- Revenue Growth
- Market Share Growth

Frost & Sullivan studies related to this independent analysis:

- *Global Healthcare Interoperability Market, Forecast to 2024 (K418-48)*

The Growth Environment

- The global healthcare data interoperability market is valued at \$4.92 billion in 2020, and the US market is projected to contribute \$3.3 billion (67.07%).
- However, Frost & Sullivan expects the US market to record lower-than-estimated revenue growth in 2020 due to COVID-19, which has restrained chief information officer (CIO) interest in undertaking cost-intensive and long-term data interoperability projects. Instead, CIOs are prioritizing other IT investments, including healthcare artificial intelligence (AI) for CDSS, patient access management, telehealth, teleradiology, and digital command centers for specific departments and episodes of care.
- Frost & Sullivan analysts also expect departmental interoperability within a health system to remain quite significant during the pandemic as it facilitates the personalization of administrative, clinical, and financial intervention based on a patient's own history of COVID-19 or proximity to regional hotspots.
- Moreover, reporting of quality outcomes will continue to be an important aspect of all value-based care contracts. As such, care coordination solutions that are aided by data interoperability features and help stratify patient risk for infectious diseases, benchmark outcomes, and virtually report these metrics to multiple payers in real time will gain traction.
- Payers will also use these solutions extensively to manage member performance and proactively reach out to patients looking to gain knowledge about health reimbursement plans during the pandemic (such as provisions for complimentary coverage, 100% reimbursement, and additional incentives).
- ICT companies aim to democratize patient information at a national level through progressive data interoperability solutions that aid visionary innovation in the field of clinical research for antibodies, biomarkers, clinical trials, immunotherapy, the Internet of Medical Things (IoMT), and vaccines.
- These companies' own R&D investments in data interoperability, coupled with support from large health systems and government agencies, will bring about some degree of spend equilibrium in the market and may restore revenue growth to pre-pandemic levels by the end of 2020.

Frost Radar™ Growth, Innovation & Leadership Award

IBM

Growth

- Frost & Sullivan applauds the way that IBM's growth strategy is properly transforming the US healthcare ecosystem.
- The company's pioneering infrastructure approach enables end-to-end data interoperability not only through point solutions (VNA solutions to archive DICOM and non-DICOM images, for example), but also through infrastructure capability that can convert disparate patient data into a single source of truth. It can also make source systems compatible with each other - so that cognitive tools can be applied to them for holistic data-driven decision making.

Innovation

- IBM's FHIR Server supports the open-source Java implementation of HL7 FHIR R4 specifications. Its other competitors are allowed to use its FHIR Server and leverage its benefits, which is a groundbreaking approach to innovation.
- Moreover, the company supports some large health systems and HIT companies by helping them to archive patient information in the desired format and to visualize care plans and quality outcomes at the patient, provider, and community levels.

Next Steps

- IBM's FHIR Server will help neutralize concerns regarding the privacy and the security of open API-based data interoperability solutions.
- The server should truly enable interdisciplinary patient engagement and support a wide range of healthcare stakeholders to personalize medical intervention at scale and in real time through cognitive capabilities.

What is the Frost Radar™?

Companies to Action – Benchmarking Future Growth Potential

What is it?

A robust analytical tool that benchmarks companies' innovation focus and growth performance in a given market.

How is it built?

Through in-depth analysis built on Frost & Sullivan's 360-degree research methodology (primary and secondary research) and objective rating of companies in a given market.

Why do you need it?

To understand how companies benchmark against each other in their ability to innovate and grow against a backdrop of industry transformation.

What will it accomplish?

Companies can gain an objective, independent perspective of their innovation and growth strategies, including their robustness, effectiveness, relative competitive strength, and implications for their long-term success.

How to use it?

The Frost Radar™ is a dynamic tracking tool that offers frequent rating and positioning of companies that are leading the industry in growth, innovation, or both.

What does it mean to be on the Frost Radar™?

Companies have been chosen to be in the Frost Radar™ because they have proven themselves to be worthy by demonstrating excellence in growth, innovation, or both, and are able to translate that into proven solutions that benefit their clients. At times, companies with high market share may not place on the Radar. Companies are chosen because they are already doing great things or are poised to do great things.

Growth, Innovation & Leadership Award

The Growth Innovation Leadership (GIL) best practice award is bestowed on companies that are market leaders at the forefront of innovation. These companies consolidate or grow their leadership position by continuously innovating and creating new products and solutions that serve the evolving needs of the customer base. These companies are also best positioned to expand the market by strategically broadening their product portfolio.

Frost Radar™ – Benchmarking Future Growth Potential

2 Major Indices, 10 Analytical Ingredients, 1 Platform

Vertical Axis – The Growth Index

Growth index is a measure of a company's growth performance and track record, along with its ability to develop and execute a fully aligned growth strategy and vision; a robust growth pipeline system; and effective market, competitor, and end-user focused sales and marketing strategies. The elements of this index include:

- **GI1: Market Share (previous 3 years):** This is a comparison of a company's market share relative to its competitors in a given market space for the previous 3 years.
- **GI2: Revenue Growth (previous 3 years):** This is a look at a company's revenue growth rate for the previous 3 years in the market/ industry/category that forms the context for the given Frost Radar.
- **GI3: Growth Pipeline:** This is an evaluation of the strength and leverage of a company's growth pipeline system to continuously capture, analyze and prioritize its universe of growth opportunities.
- **GI4: Vision and Strategy:** This is an assessment of how well a company's growth strategy is aligned with its vision. Are the investments the company is making in new products and markets consistent with the stated vision?
- **GI5: Sales and Marketing:** This is a measure of the effectiveness of a company's sales and marketing efforts in helping it drive demand and achieve its growth objectives.

Horizontal Axis – The Innovation Index

Innovation index is a measure of a company's ability to innovate products/services/solutions (with a clear understanding of disruptive Mega Trends) that are globally applicable, are able to evolve and expand to serve multiple markets, and are aligned to customers' changing needs. The elements of this index include:

- **II1: Innovation Scalability:** This determines whether an organization's innovations are globally scalable and applicable in both developing and mature markets, and also in adjacent and non-adjacent industry verticals.
- **II2: Research and Development:** This is a measure of the efficacy of a company's R&D strategy, as determined by the size of its R&D investment and how it feeds the innovation pipeline.
- **II3: Product Portfolio:** This is a measure of a company's product portfolio, focusing on the relative contribution of new products to its annual revenue.
- **II4: Mega Trends Leverage:** This is an assessment of a company's proactive leverage of evolving, long-term opportunities and new business models, as the foundation of its innovation pipeline.
- **II5: Customer Alignment:** This evaluates the applicability of a company's products/ services/ solutions to current and potential customers, as well as how its innovation strategy is influenced by evolving customer needs.