

F R O S T & S U L L I V A N

FROST & SULLIVAN BEST PRACTICES AWARD

HEALTHCARE DATA MANAGEMENT - NORTH AMERICA

Technology Innovation 2019



FROST & SULLIVAN

2019

BEST
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Background and Company Performance

Industry Challenges

In the digitization landscape, stakeholders in the healthcare industry, including digital health companies, app developers, and consumers, are becoming more aware of critical health data and its importance to their businesses and customers. Traditional health data management systems are inefficient in creating value from individual health data. For example, health data is highly sensitive, heavily regulated, and constantly evolving, making it difficult for enterprises to gain meaningful insights for personalized healthcare. In addition, patient data is stored in siloes across various data storage systems that lack interoperability with one another, thus affecting business efficiency levels, impacting operating costs, and resulting in poor patient care.

Healthcare enterprises face challenges when accessing data using conventional methods because of the multiple servers for data storage that are protected behind firewalls and because of limitations in data sharing. Large-scale data sharing is essential in the healthcare sector, especially with analytics vendors and external billing systems. In many instances, systems facilitate peer-to-peer (P2P) data sharing but lack the ability of many-to-many data sharing, thus limiting the business efficiency.

Furthermore, hackers are exploring advanced threats and new ways to conduct data breaches; therefore, data security using traditional firewalls remains a concern for healthcare stakeholders. Internal security breaches, where data is stolen or misused by healthcare employees, is a big challenge for hospitals. Regulations, such as General Data Protection Regulation (GDPR) and Health Insurance Portability and Accountability Act (HIPAA), are necessary, but they affect data sharing among stakeholders because of privacy issues, thereby making the healthcare industry less efficient.

Technology Attributes and Future Business Value

Industry Impact

Founded in 2014, Colorado-based, BurstIQ has developed an innovative blockchain-based platform to manage and address data-related challenges in the healthcare industry. The company offers an enterprise-level blockchain platform that is HIPAA and GDPR compliant and leverages the convergence of technologies seamlessly, such as blockchain, advanced security, Big Data capabilities, and machine intelligence. This technology convergence enables healthcare businesses and individuals to gain insights from the global health data, providing them with an efficient way of managing and monetizing this data.

Frost & Sullivan appreciates BurstIQ's leadership initiative in transforming the conventional ways of managing health data and enabling healthcare enterprises to manage, analyze, and share sensitive patient health data securely. With increasing

volumes of health data, Frost & Sullivan believes that BurstIQ's proprietary blockchain platform will have a significant impact on the healthcare industry in the long term.

Visionary Innovation

BurstIQ developed its technology platform to meet enterprises' future demands in the health Big Data arena by providing a unified, scalable architecture that improves the access to comprehensive health data. Through a unified data repository, this platform drives decision support systems and defines research and clinical trial attributes, thereby impacting business-to-business (B2B) products and services, such as insurance plans, reimbursements, and biotech-related processes.

In terms of competitors, the major differentiating factor for BurstIQ is the following three core capabilities: innovative data securing approach, smart contract-enabled complex data rights management, and artificial intelligence for continuous learning. Furthermore, while similar offerings from competitors have overcome blockchain scalability concerns through data storage and off-chain analytics, they are limited by their lack of a comprehensive data security approach and a faster query response capability. In contrast, BurstIQ's blockchain-based Big Data platform, through on-chain queries and analytics, enables faster queries, improves data security, and ensures the analysis of all health data. BurstIQ's platform processed over 25 billion data points during its first year of operation.

BurstIQ leverages a private, permissioned, and immutable ledger for each person and integrates it with a Big Data engine, enabling the platform to conduct chain data management, analytics, and machine learning to derive value from data for the healthcare business ecosystem.

According to Frost & Sullivan analysis, BurstIQ's innovative capability of enabling multi-owner definitions and privacy permission rules, while handling the critical health data of each individual, will make the company a popular choice among stakeholders in the healthcare industry.

Scalability and Application Diversity

BurstIQ developed its technology platform to map and meet healthcare customers' secure data management needs, with the ability to scale the platform in the future using collaborative integration capabilities and through new health ecosystems. The company's platform architecture consists of the following data management service layers: Secure Data Grid, LifeGraph™, and Ecosystem.

- Secure Data Grid, through BurstChain™, provides seamless sharing, end-to-end data rights management, and secure data storage.
- LifeGraph unifies individuals' personal health data in one place, and access to patient data is managed and updated through smart contracts.

- Ecosystem enables collaborations, partnerships, and marketplaces for new data-sharing models and personalized healthcare powered by health wallet.

BurstIQ's technology offerings serve all healthcare ecosystem stakeholders, comprising healthcare institutions, data partners, unions, insurance providers, government agencies, researchers, and biopharma companies. BurstIQ helps customers develop a health ecosystem that enables individuals or end users to control and monetize their own data. In addition, the company helps third-party vendors develop their own products and services, enabling partnerships between healthcare stakeholders for creating new business opportunities and new care models, testing research hypotheses, and optimizing healthcare process operations. Through BurstIQ's ecosystem, researchers and biopharma companies can directly interact with individuals for clinical research studies. Moreover, insurers can roll out new, personalized benefits through the platform, and various major healthcare partners can use the technology through a platform-as-a-service (PaaS) subscription model.

Frost & Sullivan appreciates that BurstIQ's proprietary blockchain-based health data platform empowers digital healthcare ecosystem participants with access to new data sources to enhance and optimize business workflows, revenue recovery, and other use cases. The combination of machine learning-enabled analytics and blockchain enables companies to improve their outcomes and reduce their operating costs by enhancing personalized care services, providing better care coordination, and offering valuable insights.

Human Capital and Growth Potential

BurstIQ's CEO and founder, Frank Ricotta, holds numerous patents in the fields of cyber security and machine intelligence and specializes in scaling start-ups to new heights. Mr. Ricotta has more than 30 years of experience in multiple industries, including defense, healthcare, cyber security, and finance. His industry expertise brings immense knowledge to BurstIQ, enabling tremendous growth potential for the company, in terms of technology development.

A dedicated team conducts cutting-edge research in machine learning and Big Data and fosters a proprietary blockchain technology model, thus offering a strong competitive advantage. BurstIQ has positioned itself as a solid participant with its next-generation blockchain-based health data platform for enterprises.

Frost & Sullivan recognizes BurstIQ as an active research and development force that is bolstering its technology development and commercialization activities by creating a collaborative ecosystem. Frost & Sullivan is particularly impressed that BurstIQ's platform ensures compliance with regulatory requirements and can securely manage the evolving nature of health data. In the long term, the company's strong human capital, leadership team, and collaborative ecosystem will help it thrive in this competitive environment.

Conclusion

The healthcare industry is undergoing a rapid shift toward digital transformation, especially in patient care. Blockchain technology can potentially solve health data management challenges, and BurstIQ, through its blockchain-based novel technology architecture, is making a significant and transformative impact on the fast-evolving healthcare industry.

Through its health singularity technology platform, BurstIQ is revolutionizing and solving the traditional challenges of sharing and accessing patient data. By leveraging blockchain, Big Data analytics, and machine learning, the company is creating value for the healthcare industry by assembling, evaluating, analyzing, and sharing patient data.

With its strong overall performance, BurstIQ has earned Frost & Sullivan's 2019 Technology Innovation Award in the North American healthcare data management industry.

Significance of Technology Innovation

Ultimately, growth in any organization depends on finding new ways to excite the market and maintaining a long-term commitment to innovation. At its core, technology innovation, or any other type of innovation, can only be sustained with leadership in 3 key areas: understanding demand, nurturing the brand, and differentiating from the competition.



Understanding Technology Innovation

Technology innovation begins with a spark of creativity that is systematically pursued, developed, and commercialized. That spark can result from a successful partnership, a productive in-house innovation group, or a bright-minded individual. Regardless of the source, the success of any new technology is ultimately determined by its innovativeness and its impact on the business as a whole.

Key Benchmarking Criteria

For the Technology Innovation Award, Frost & Sullivan analysts independently evaluated 2 key factors—Technology Attributes and Future Business Value—according to the criteria identified below.

Technology Attributes

- Criterion 1: Industry Impact
- Criterion 2: Product Impact
- Criterion 3: Scalability
- Criterion 4: Visionary Innovation
- Criterion 5: Application Diversity

Future Business Value

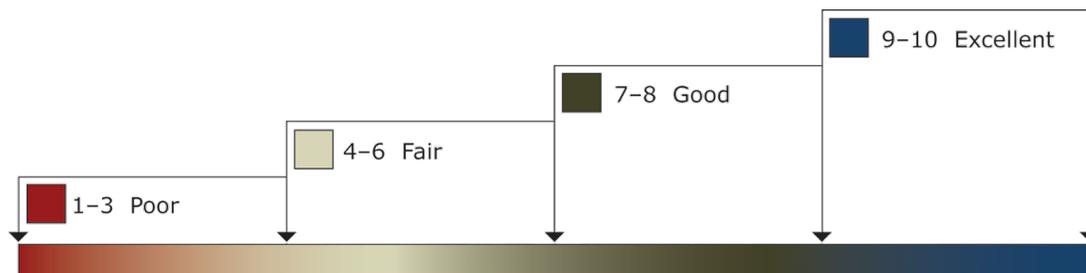
- Criterion 1: Financial Performance
- Criterion 2: Customer Acquisition
- Criterion 3: Technology Licensing
- Criterion 4: Brand Loyalty
- Criterion 5: Human Capital

Best Practices Award Analysis for BurstIQ

Decision Support Scorecard

To support its evaluation of best practices across multiple business performance categories, Frost & Sullivan employs a customized Decision Support Scorecard. This tool allows research and consulting teams to objectively analyze performance according to the key benchmarking criteria listed in the previous section, and to assign ratings on that basis. The tool follows a 10-point scale that allows for nuances in performance evaluation. Ratings guidelines are illustrated below.

RATINGS GUIDELINES



The Decision Support Scorecard considers Technology Attributes and Future Business Value (i.e., the overarching categories for all 10 benchmarking criteria; the definitions for each criterion are provided beneath the scorecard). The research team confirms the veracity of this weighted scorecard through sensitivity analysis, which confirms that small changes to the ratings for a specific criterion do not lead to a significant change in the overall relative rankings of the companies.

The results of this analysis are shown below. To remain unbiased and to protect the interests of all organizations reviewed, Frost & Sullivan has chosen to refer to the other key participants as Competitor 1 and Competitor 2.

<i>Measurement of 1-10 (1 = poor; 10 = excellent)</i>			
Technology Innovation	Technology Attributes	Future Business Value	Average Rating
BurstIQ	9.5	9.0	9.2
Competitor 2	8.0	8.0	8.0
Competitor 3	7.5	7.0	7.2

Technology Attributes

Criterion 1: Industry Impact

Requirement: Technology enables the pursuit of groundbreaking ideas, contributing to the betterment of the entire industry.

Criterion 2: Product Impact

Requirement: Specific technology helps enhance features and functionalities of the entire product line for the company.

Criterion 3: Scalability

Requirement: Technology is scalable, enabling new generations of products over time, with increasing levels of quality and functionality.

Criterion 4: Visionary Innovation

Requirement: Specific new technology represents true innovation based on a deep understanding of future needs and applications.

Criterion 5: Application Diversity

Requirement: New technology serves multiple products, multiple applications, and multiple user environments.

Future Business Value

Criterion 1: Financial Performance

Requirement: Potential is high for strong financial performance in terms of revenue, operating margins, and other relevant financial metrics.

Criterion 2: Customer Acquisition

Requirement: Specific technology enables acquisition of new customers, even as it enhances value to current customers.

Criterion 3: Technology Licensing

Requirement: New technology displays great potential to be licensed across many verticals and applications, thereby driving incremental revenue streams.

Criterion 4: Brand Loyalty

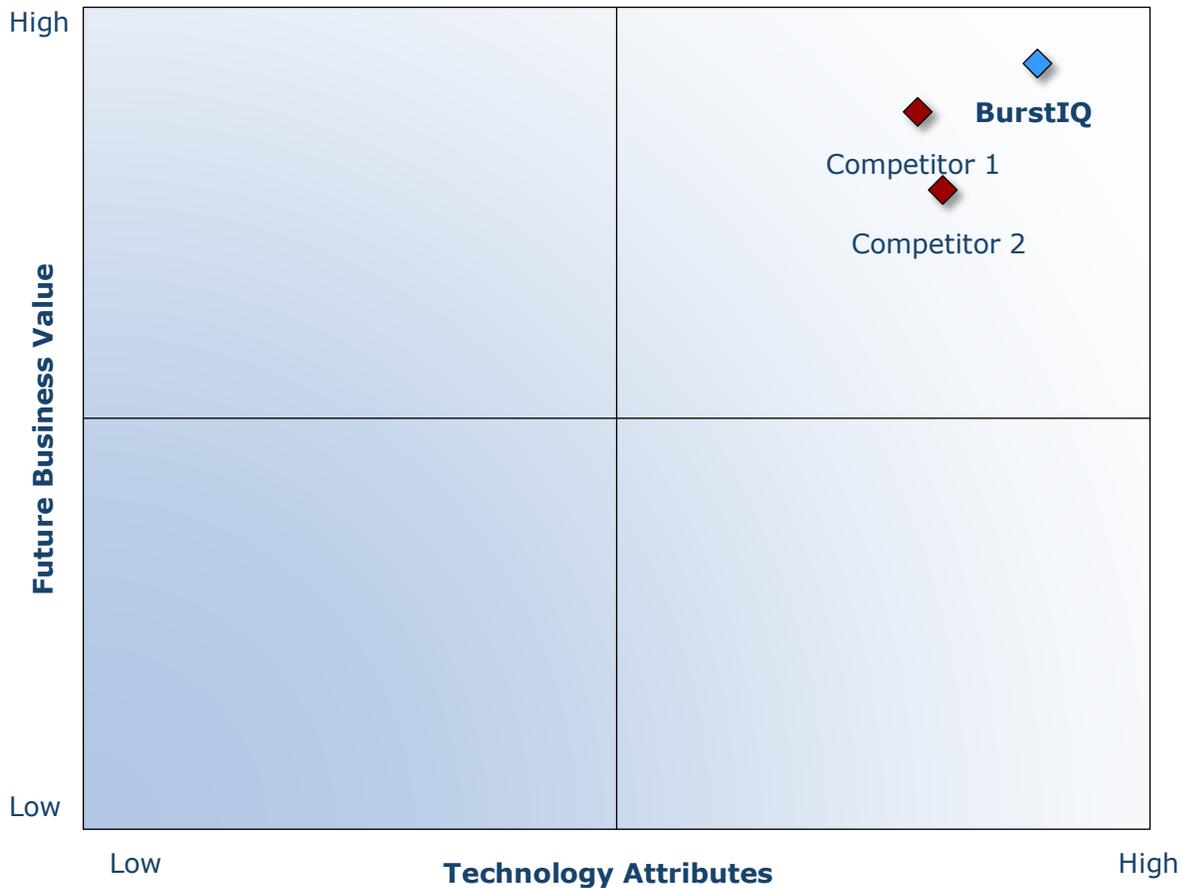
Requirement: New technology enhances the company’s brand, creating and/or nurturing brand loyalty.

Criterion 5: Human Capital

Requirement: Customer impact is enhanced through the leverage of specific technology, translating into positive impact on employee morale and retention.

Decision Support Matrix

Once all companies have been evaluated according to the Decision Support Scorecard, analysts then position the candidates on the matrix shown below, enabling them to visualize which companies are truly breakthrough and which ones are not yet operating at best-in-class levels.



Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan analysts follow a 10-step process to evaluate award candidates and assess their fit with select best practices criteria. The reputation and integrity of the awards are based on close adherence to this process.

STEP	OBJECTIVE	KEY ACTIVITIES	OUTPUT
1 Monitor, target, and screen	Identify award recipient candidates from around the world	<ul style="list-style-type: none"> • Conduct in-depth industry research • Identify emerging industries • Scan multiple regions 	Pipeline of candidates that potentially meet all best practices criteria
2 Perform 360-degree research	Perform comprehensive, 360-degree research on all candidates in the pipeline	<ul style="list-style-type: none"> • Interview thought leaders and industry practitioners • Assess candidates' fit with best practices criteria • Rank all candidates 	Matrix positioning of all candidates' performance relative to one another
3 Invite thought leadership in best practices	Perform in-depth examination of all candidates	<ul style="list-style-type: none"> • Confirm best practices criteria • Examine eligibility of all candidates • Identify any information gaps 	Detailed profiles of all ranked candidates
4 Initiate research director review	Conduct an unbiased evaluation of all candidate profiles	<ul style="list-style-type: none"> • Brainstorm ranking options • Invite multiple perspectives on candidates' performance • Update candidate profiles 	Final prioritization of all eligible candidates and companion best practices positioning paper
5 Assemble panel of industry experts	Present findings to an expert panel of industry thought leaders	<ul style="list-style-type: none"> • Share findings • Strengthen cases for candidate eligibility • Prioritize candidates 	Refined list of prioritized award candidates
6 Conduct global industry review	Build consensus on award candidates' eligibility	<ul style="list-style-type: none"> • Hold global team meeting to review all candidates • Pressure-test fit with criteria • Confirm inclusion of all eligible candidates 	Final list of eligible award candidates, representing success stories worldwide
7 Perform quality check	Develop official award consideration materials	<ul style="list-style-type: none"> • Perform final performance benchmarking activities • Write nominations • Perform quality review 	High-quality, accurate, and creative presentation of nominees' successes
8 Reconnect with panel of industry experts	Finalize the selection of the best practices award recipient	<ul style="list-style-type: none"> • Review analysis with panel • Build consensus • Select recipient 	Decision on which company performs best against all best practices criteria
9 Communicate recognition	Inform award recipient of recognition	<ul style="list-style-type: none"> • Present award to the CEO • Inspire the organization for continued success • Celebrate the recipient's performance 	Announcement of award and plan for how recipient can use the award to enhance the brand
10 Take strategic action	Upon licensing, company is able to share award news with stakeholders and customers	<ul style="list-style-type: none"> • Coordinate media outreach • Design a marketing plan • Assess award's role in strategic planning 	Widespread awareness of recipient's award status among investors, media personnel, and employees

The Intersection between 360-Degree Research and Best Practices Awards

Research Methodology

Frost & Sullivan's 360-degree research methodology represents the analytical rigor of the research process. It offers a 360-degree view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often companies make important growth decisions based on a narrow understanding of their environment, resulting in errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry participants and for identifying those performing at best-in-class levels.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS



About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, helps clients accelerate growth and achieve best-in-class positions in growth, innovation, and leadership. The company's Growth Partnership Service provides the CEO and the CEO's growth team with disciplined research and best-practices models to drive the generation, evaluation, and implementation of powerful growth strategies. Frost & Sullivan leverages nearly 60 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from 45 offices on 6 continents. To join Frost & Sullivan's Growth Partnership, visit <http://www.frost.com>.