

FROST & SULLIVAN

INGU SOLUTIONS

2022
TECHNOLOGY
INNOVATION
LEADER

NORTH AMERICAN
PIPELINE INSPECTION 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. Ingu Solutions excels in many of the criteria in the pipeline inspection technology space.

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

Market Overview

The petrochemical and oil and gas (O&G) sectors employ massive pipeline networks to transport immense volumes of chemicals and liquids from production wells to processing and consumption sites. Frost & Sullivan research states that the conventional in-line inspection solutions are costly and require

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**- Mia Martinez-Palacios,
Best Practices Research Analyst**

expensive equipment and engineers on-site to insert and extract the inspection tool from the pipeline.¹ In addition, the aging pipeline infrastructure warrants frequent inspection and maintenance, increasing operational costs. Any threats such as cracks or leakages that impact safety or operations need precise identification. Therefore, industrial stakeholders are looking for a time-efficient device for pipeline inspection. Frost & Sullivan reports a demand for optimal use of data for insights to improve costs further and enhance operations.²

¹ *Growth Opportunities in Oil Spill Detection Technologies*, (Frost & Sullivan, January 2021)

² *Upstream Oil & Gas Start-Up Tracker-Issue 12*, (Frost & Sullivan, July 2019)

Furthermore, a new concept is emerging in the pipeline inspection technology space, i.e., influencing the pipeline's mechanical properties' understanding to optimize maintenance planning. Ingu Solutions (INGU) uniquely leverages its expertise and technology to meet its users' needs. It is well-positioned to capitalize on new growth opportunities, cementing its leadership in the pipeline inspection technology space.

Founded in 2014 and headquartered in Calgary, Alberta, INGU is a provider of pipeline inspection services. In 2019, Frost & Sullivan recognized INGU for its Technology Innovation Leadership and remains impressed with the company's continuing innovation and sustained leadership.

Technology Sparked by a Commitment to Make an Impact

Backed by world-class pipeline inspection experts, INGU developed its technology over the last eight years. The company refined its holistic approach to pipeline inspection, continuously building its

“While evolving from a product standpoint, INGU never loses sight of its user’s perspective. Its brand maintains its North America presence while meeting customer-specific needs. Given today’s landscape, Frost & Sullivan believes the company is in a prime position to increase its market share in this highly competitive pipeline inspection technology industry.”

***- Mia Martinez-Palacios,
Best Practices Research Analyst***

technology to bridge industry gaps. INGU's device, Pipers[®], tracks pressure changes and maps the profile of flow rates, hazards, and leak detection within a user's pipeline. The device measures 2.8 inches in diameter for most pipelines, but for smaller ones, the company offers a 1.5 inch and a 2.2 inch version that can be deployed in various fluids, including crude oil, fresh water, and gas. INGU's Pipers[®] performs time-efficient pipeline inspection and maintenance tracking, drastically impacting the in-line inspection and profiling of the oil, gas, and water market.

INGU's technology scales impeccably to fit customer-specific needs. It offers flexibility and precise readings to support users in making the best decision for repairs with their pipelines and delivering the necessary tools and solutions, revolutionizing the market. Frost & Sullivan identifies INGU's Pipers[®] as a groundbreaking, innovative technology. Its strong intellectual property portfolio and ISO 9001:2015 certification, uphold its pioneering technology, adding value relative to its growth potential, thus securing a competitive advantage.

The Impact of Company Culture

INGU's founder, John van Pol, fosters a company culture based on three core values: integrity, commitment, and innovation. The company's core principles promote and deliver transparency, integrity, and accountability to its employees and customers. Its fundamental values create a company culture where employees feel that INGU's leaders care about their success and well-being. INGU's employees ensure customers receive complete transparent data analysis and guide customers to make the best and cost-efficient decisions. INGU's industry experts offer users knowledgeable, systematic, and conscientious options and resources to support users in providing a safe and reliable pipeline. Frost & Sullivan research analysts find that INGU's company culture supports employee happiness, and happy employees translate to satisfied customers, customer loyalty, and revenue growth.

Commercial Success

Since INGU's launch, it has grown to more than 75 O&G global customers within the United States (US) and Canada and 50 water customers through its partnership with PICA. In 2017, the company successfully commercialized Pipers® for Chevron and has continued to gain momentum in penetrating O&G and water industries globally ever since. The company has inspected 450 operational pipelines for over 20 customers, including Chevron, Petrobras, Husky Energy, and Whitecap Resources. INGU is spreading widely in different parts of the world, including South America, Brazil, Australia, and Nigeria, and plans to commercialize more outside the US and Canada.

"We introduced INGU and its Pipers® technology in 2020 and the response has been remarkable. Our clients are tackling a range of pipeline challenges, including leaks, deposits, corrosion, and hot tapping. INGU offers great technology, great service, and a price advantage that is unbeatable."

-Santosh Varma, Managing Director of HSC Nigeria³

"There is a massive problem with municipal water loss. As a result, we have seen great acceptance of INGU's technology in our markets. What is really disruptive about what they have done is give clients the ability to launch and collect the inspection devices themselves. This self-serve capability delivers an undisputed cost advantage."

-Dave Russell, President of PICA Corp.⁴

Frost & Sullivan anticipates rapid, widespread technology adoption. The company's first-mover status strengthens its position on emerging solutions.

Positioned for Growth

With its customer-led strategy, INGU consistently brings to the market best-in-class products. In May 2021, INGU announced an expansion distribution agreement with PICA, a North American company leading the municipal water market. The deal enables PICA to use INGU's Pipers® to perform effective and accurate pipeline inspections in the US, Canada, and Mexico for five years. INGU and PICA's goal is to improve the water pipelines within those countries and cater to users struggling to find the best solutions to their pipelines. At the same time, INGU incorporates user feedback into its product roadmap to maximize short-term growth opportunities while providing a path to future revenues. In November 2019, INGU raised capital from Energy Innovation Capital and Chevron Technology Ventures. The funding enabled INGU to grow its Data Science team, scale its data collection platform and analysis, and expand its global presence.⁵ In addition, one of the company's latest developments is the usage of neural networks that drastically improves the scalability of multisensory free-floating devices and accurately detecting pipeline joints.⁶ While evolving from a product standpoint, INGU never loses sight of its user's perspective. Its brand maintains its North American presence while meeting customer-specific needs. Given today's landscape, Frost & Sullivan believes the company is positioned to increase

³ <https://ingu.com/partnerships/>

⁴ <https://ingu.com/partnerships/>

⁵ <https://ingu.com/2019/11/04/ingu-solutions-raises-capital-to-accelerate-global-growth/>

⁶ *Neural Networks for Pipeline Joint*, November 2021

its market share in this highly competitive pipeline inspection technology industry.

Conclusion

Technology is a critical success factor for the pipeline inspection technology industry. Yet, with many options available, market stakeholders need to leverage the most appropriate and best technology-based solutions to optimize their market impact. With its pipeline inspection technology, Ingu Solutions (INGU) delivers cost efficiency and reduced downtime to its users. INGU stands out from competitors based on its commitment to innovation and creativity while achieving commercial success. Since 2017, the company successfully commercialized its device, Pipers®, for Chevron, which flows freely within pipelines and accurately profiles the pipeline's condition. In January 2021, Ingu has provided the device for more than 75 customers in the United States and Canada and plans to penetrate more pipelines globally. With its robust technology, excellent performance, and superb leadership, Ingu Solutions earns Frost & Sullivan's 2022 North American Technology Innovation Leadership Award in the pipeline inspection technology industry.

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)**

