

Nebula's data-driven service play

Industrial IoT in action: Case study #1







Case series: Industrial IoT in action

In this article series, we present five case studies of how companies with different value chain roles managed the competition over new value enabled by the industrial internet of things (IIoT) in their industries. The cases illustrate different viewpoints on the challenges in claiming a fair share of value pools from digital-driven and data-based services. These value pools are often focused on optimization and maintenance of industrial equipment. Some companies call it digital or connected solutions, some data-driven business, others servitization or X-as-a-Service.

In this case (#1 of 5 in the article series), we learn how industrial integrator Nebula took on the opportunities and challenges of data-driven maintenance services in the heavy vehicles industry.

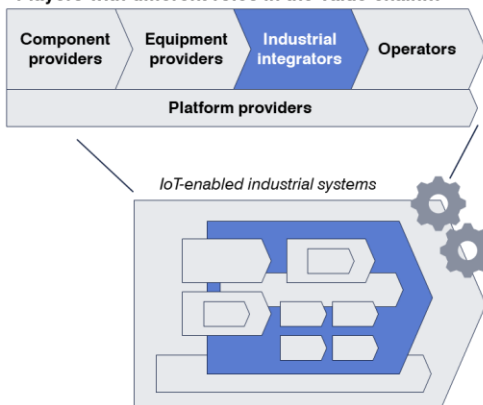
“In most industrial sectors we see players with different roles in the value chain competing for the same data-based and service-oriented value pools, which creates a lot of friction.”

CASE SERIES AUTHORS

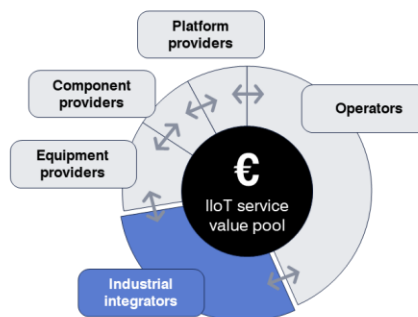
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Case	IIoT play	IIoT competitiveness aspects
Nebula Industrial integrator Heavy Vehicles industry	Data-driven services <i>Approach:</i> Target-Position-Capture value	<ul style="list-style-type: none"> • Right to play with proprietary analytics; access to Customer data • Hinder disintermediation by Platform providers • Neutralize Equipment and Component providers' product expertise advantage

Players with different roles in the value chain...



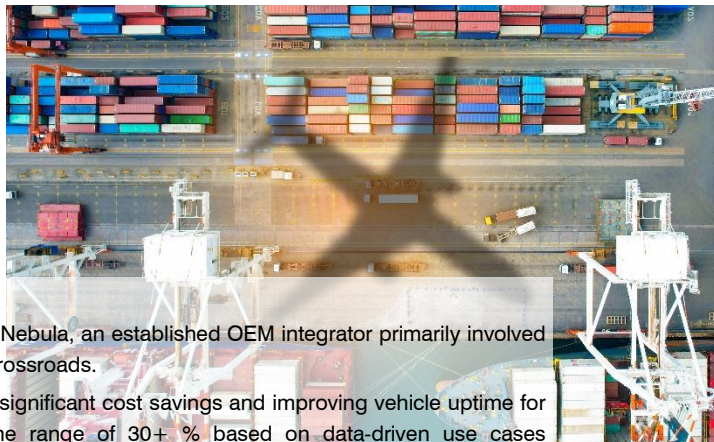
...compete for the same data-based and service-oriented value pools.



Case 1 figure: Illustrating Industrial integrator role aspects on IIoT competitiveness

Industrial integrator role; Heavy vehicles industry

Case 1: Nebula



Seizing the data opportunity

Data was a big opportunity in the heavy vehicles industry. Nebula, an established OEM integrator primarily involved in large, special purpose vehicles, found itself at a digital crossroads.

Nebula had early on identified data as a key to unlocking significant cost savings and improving vehicle uptime for its customers. Estimations indicated cost savings in the range of 30+ % based on data-driven use cases addressing maintenance, operational and engineering costs. Uptime was a significant problem, with availability numbers at <60%, compared to benchmarks at >90% in adjacent industries.

At the same time, customers – primarily a handful of large operators with strong buying power and market influence – demanded increased data openness to invite more competition and lower maintenance costs. They wanted to disaggregate the service value pool and open up to more maintenance suppliers from the conventional vehicle industry. Customers also made it clear they viewed the operational data as theirs, that they would not accept closed-off platforms and solutions.

Nebula was invited to collaborate on a joint platform for data and analytics forcefully orchestrated by one of its largest customers, BigCo, with substantial buyer leverage. Multiple engineering leaders within Nebula were intrigued. However, some senior P&L owners and strategists saw the long term risk of neutralizing data and analytics as industry competitive factors for maintenance service contracts, which would weaken Nebula's competitive advantage and hurt its future profits.

Fact box: Heavy Vehicles industry

The Heavy Vehicles industry involves the manufacturing and operations of heavy-duty vehicles designed for e.g. construction, mining, defense, aviation, shipping and agriculture. These vehicles include excavators, loaders, cranes, forklifts, tractors, heavy haulers, ships, and airplanes. Example players in the industry are Operators: Rio Tinto, Maersk and Air France-KLM, Integrators (in addition to Nebula): Boeing, Caterpillar and Deere & Company, Equipment providers: Cummins, Safran and Wärtsilä, Component providers: Bosch Rexroth and SKF, and Platform providers: Palantir and IBM.

Industry frictions

In response to the data opportunities and risks, Nebula partnered with Konsert to devise a strategy and plan for Nebula's Data-Driven Services Initiative. A cross-business line steering group was set up and a senior program director, Ben, was assigned to lead the project. Ben and Konsert summarized the industry frictions to address as:

- **Right to play with proprietary analytics.** BigCo and similar customers aim to standardize advanced services by making system-level expertise and maintenance insights widely accessible through their data and analytics platforms. This strategy is designed to increase competition and reduce costs. In response, Nebula needs to show that its data-driven services provide significant added value beyond what the customers' own analytics capabilities offer. By doing so, Nebula can justify its position in the analytics services market and assert its right to offer exclusive analytics that are not available on the customers' platforms.
- **Secure access to Customer data.** The data-driven services require access to dynamic operational data. Customers demand full access to all vehicle data and ownership rights, as outlined in their purchase contracts. Nebula, which is a builder of the vehicles, must both ensure customers feel fully in control of their data while securing access to essential datasets needed to deliver its data-driven services.
- **Hinder disintermediation by Platform providers.** With Platform providers gaining strong traction and influence with Customers, Nebula must put strategic measures in place to guard against being sidelined. Data and analytics platform players leverage their analytics and AI capabilities to take a position directly inside customers' operations. They could thereby disintermediate Nebula and other Integrators.
- **Neutralize product expertise advantage.** Equipment and Component providers are looking to offer value-adding services based on their equipment-specific domain expertise and intimate knowledge about their products. Nebula must leverage its system-level expertise to offer synergistic maintenance solutions that create added value beyond the combination of multiple individual equipment-specific services.

Transformative approach in a data-driven future

In response to these industry dynamics and potential frictions, Nebula adopted a target-position-capture value approach in its Data-Driven Services Initiative.

Target value. Starting with a customer-centric viewpoint (not technology push), key customer pains and gains were identified. A wide array of data-driven services was conceptualized and matched to the top priority customer needs. This assessment led to short-listing five services. Each shortlisted service had an evolution path defined, outlining how the services could evolve in complexity and sophistication over time. This allowed Nebula to quantify the service value pools. Out of the five, a data-driven maintenance service targeting uptime emerged as top choice for a first service because of its business potential, scalability and synergy with Nebula's strengths in systems and data engineering.

Fact box: Industrial integrator role

Industrial integrators specialize in putting together subsystems and modules to form a complete, functioning system. They purchase subsystems and modules from Equipment providers or source components directly from Component providers. They then sell these integrated systems to operators. Industrial integrators expertise typically lies in ensuring that all parts work together seamlessly to meet the operators' specifications.

Position for value. To proactively handle the identified frictions, Ben and Konsert created a granular breakdown of the future maintenance value chain, predicting what it will look like when disrupted by data-driven services. This breakdown allowed Nebula to assess and anticipate competitor and customer moves. It led to the conclusion that Nebula should divert its focus from competing in the value chain positions related to data management and processing, where horizontal platform providers (like Databricks, Palantir and Snowflake) have strong scale advantages, and instead target applied analytics. This would allow Nebula to leverage its system integration expertise in a position where it had a strong “right to play”.

Value creation plan. Wise from previous digital initiatives (having failed with “build the platform and they will come” aspirations, and from overprotectiveness around data), Ben and the team created a service development plan built on the evolution path for the selected data-driven maintenance service. It started with a minimum viable product (MVP) service with short time-to-value. It would draw upon static data, such as historical maintenance records which were easily available. The MVP paved the way for future integration of real-time condition-based and predictive maintenance services, requiring dynamic data access and incrementally involving more systems. The MVP was a way to prove the value of the new model, quickly unlock new service revenue stream and thereby finance the initiative, and not least to build important customer trust.

Value capture plan. The final part in architecting the Data-Driven Services Initiative was planning how to capture the value created and to mitigate the identified frictions. A reference architecture of the technology and data stack was built facilitating a discussion between business owners, engineers, system architects, and legal and IP experts. Together they identified key technologies and data sets of disproportional importance to align technology roadmaps and build/buy/partner decisions with go-to-market strategies, each step crucially supported by data access rights, intellectual property, and clever contracts.

In addition, an operating model for how to effectively run the initiative in the next phase was built with a cross functional core team reporting to a senior management steering committee able to commit resources, remove obstacles and make strategic decisions.

Looking ahead

Leadership within Nebula recognized that the success of the Data-Driven Service Initiative largely came from the target-position-capture value approach and Ben’s cross-functional team composition with strategy, business development, software development, innovation and intellectual property capabilities integrated. Nebula is now scaling the model to new service development across business areas and corporate levels, setting a company-wide standard for innovation.



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