

CASE STUDY

Indosat conducts the world's fastest large-scale multi-operator network integration

- Nokia as a lead partner providing digital planning, optimization and deployment orchestration services
- More than 40,000 radio sites from two merging operators consolidated and modernized in just 12 months
- Enhanced user experience with 52 percent higher downlink speeds and 34 percent capacity increase

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indosat
OOREDOO HUTCHISON



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“At Indosat, our mission is to deliver world-class digital experiences, connecting and empowering every Indonesian.”

After we announced the formation of Indosat Ooredoo Hutchison in 2022, we selected Nokia as one of the strategic partners for consolidating our post-merger network and spectrum assets.

Another key aspect of the contract was the expansion and modernization of our 4G network for enhanced capacity and performance, which is directly impacting the mobile user experience.

With the support from Nokia, we will continue expanding our network throughout Indonesia to accelerate Indonesia’s digital transformation agenda and contribute to the industry and the Nation’s economic growth.”

Sanjay Vaghasia

Chief Integration Officer, Indosat Ooredoo Hutchison



Indosat Ooredoo Hutchison (Indosat) is the second-largest mobile network operator in Indonesia, formed in 2022 in a merger of Indosat Ooredoo and Hutchison Tri Indonesia.

As a result of continued customer focus during the merger, Indosat has successfully increased its combined subscriber base to 100 million mobile subscribers nationwide between its two sub-brands, IM3 and Tri. Leveraging on the combined spectrum of the two merged operators, it runs 2G and 4G networks and has introduced 5G in several Indonesian cities.

Nokia is a key Radio Access Network (RAN) provider for Indosat. Nokia also provides Indosat with optical transport solutions including Dense Wavelength Division Multiplexing (DWDM) and subsea systems.

This case study illustrates how Nokia’s digital planning, optimization and deployment orchestration services helped Indosat complete a major network integration project and optimize its 4G network for future-proof performance and superior customer experience.



OBJECTIVE

Achieving a pole position in network performance and customer experience

In 2022, Indosat faced the challenge of integrating the network and spectrum assets of the two merging operators, Indosat Ooredoo and Hutchison Tri Indonesia.

Indosat set the objective to achieve a pole position in network performance and customer experience while also targeting a low total cost of ownership (TCO). These objectives support its vision of becoming the most preferred digital telecommunications company in Indonesia.

Indosat gave particular importance to the following criteria when choosing the key partner for the integration project:

- Understanding and managing the customer experience KPI throughout the project

- Optimal network consolidation solution and commitment to a short project timeline
- Proven expertise in completing complex digital planning and optimization projects, including the orchestration of deployment service partners.

Based on a thorough understanding of Indosat's strategy, Nokia was able to propose the best way forward taking into account the pain points and the future ambition of the operator. Indosat selected Nokia as the prime supplier and lead partner for the integration, modernization and expansion of its network.



Working closely together to minimize disruption and shorten the integration time

Indosat set a target to complete the network integration project within 24 months, and it was able to finish it in 12 months.

During the planning phase, Nokia worked closely together with Indosat to ensure the maximized use of existing network assets while modernizing the network and optimizing the TCO.

Key aspects of the highly complex integration project included:

- Closing of selected sites and retrieving the equipment from those sites
- Reusing the equipment at other sites when possible
- Upgrading, modernizing and swapping the equipment at selected sites.

Nokia helped Indosat develop a Least Disruption Index, a matrix that was used to evaluate which scenario and vendor selection would cause the least disruption to the network consolidation

at each phase of the project, taking into account the existing vendor landscape of both operators and the targeted site infrastructure.

Managing the movement of materials between the many islands of Indonesia in the implementation phase represented a major challenge for the integration project. The strategic partnership approach and the solution-oriented mindset of both Nokia and Indosat played a critical role in completing this complex project in time.

Comprehensive planning, deployment, optimization and partner management services from Nokia

Nokia established a comprehensive network consolidation framework that included strategic radio network planning including defining the best approach for network integration, deployment, optimization and partner management. Nokia also helped Indosat define radio configuration parameters based on Nokia's Golden Parameter set.

Nokia's advanced digital platforms that leverage Artificial Intelligence and Machine Learning driven automation as well as cloud-native analytics tools, such as GeoSynthesis for KPI measurement and optimization, played a key role in the project.

The driving principle for Nokia was the First Time Right approach, which ensured fast execution to meet the ambitious schedule.

The key Nokia services involved in the network integration project include site design with the help of the Automatic Cell Planning tool, site and cluster optimization, and expert consultation. An example of the consultation work is supporting Indosat in choosing the best approach for capacity dimensioning based on the site traffic profiles.

Nokia also orchestrated the work of deployment partners with its digital delivery platform. This included deployment partner acceptance, onboarding and accelerated competence development with online assessments, task assignment, project monitoring, quality verification and managing the health and safety-related aspects. Another key element was managing demand planning to ensure material availability according to the project roll-out plan.

RESULTS

Optimized site structure with significant improvements in network coverage and performance

Indosat's large-scale network integration project covered more than 40,000 sites. With careful analysis and using the Least Disruption Index developed in cooperation with Nokia, Indosat was able to close 25 percent of the sites while improving the overall coverage and performance of its network both indoors and outdoors.

Optimizing the use of spectrum resources across the consolidated sites was another key target. The 900 MHz frequency band used by Indosat Ooredoo could now be taken into use at Tri Indonesia sites where relevant. This resulted in enhanced coverage and better indoor penetration.

After completing the network consolidation and optimization project including fine-tuning frequency layers with help from Nokia, Indosat measured the following results:

- **52 percent higher downlink speeds**
- **34 percent increase in network capacity**
- **39 percent reduction in congested cells**
- **25 percent growth in network traffic**

As a result of the successful integration, Indosat was also able to see a concrete impact on its subscriber experience and an increase in customer satisfaction scores.

In its Mobile Experience Snapshot in July 2023, Tutela ranked Indosat as a leader in Indonesia with excellent consistent quality. The Snapshot provides a summary of crowdsourced data from common coverage areas providing insights into a typical mobile user experience.

In its Mobile Network Experience Report in June 2023, Open Signal recognized Indosat with the Consistent Quality award for reliable user experience in all areas including video, gaming and voice as well as data speeds in both downlink and uplink.



A fully digital approach takes 5G network design and optimization to the next level

As mobile usage is accelerating around the world, traditional Network planning and optimization methods are no longer an option to take radio networks to their highest performance levels.

For an optimal network design, you need deep radio frequency (RF) expertise and powerful analytics tools for predicting the network behavior. Nokia Network Planning and Optimization services can precisely tune all relevant performance KPIs including capacity, coverage, quality, costs and Return on Investment for our customers.

The cloud-native Nokia Delivery Platform powers the entire deployment process from a digital site survey through to digital site acceptance. It provides the single source of data and all digital

features for a transparent, automated, industrialized deployment process that is safe, fast, predictable and complete. It also supports quality verifications, health and safety checks as well as monitoring of supplier performance and roll-out forecasting.

In large-scale network consolidation programs, it is easy to lose sight of the subscribers while focusing solely on cost savings. This case study is an example of how proactive planning and use of a digital tool ecosystem helps streamline network design, optimization and deployment to achieve financial gains while also enhancing network performance for the benefit of mobile users.



Visit Nokia Network Planning and Optimization webpage to learn more.

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As a B2B technology innovation leader, we are pioneering the future where networks meet cloud to realize the full potential of digital in every industry.

Through networks that sense, think and act, we work with our customers and partners to create the digital services and applications of the future.

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