Balance CAPEX and performance

With Nokia 5G-ready AI-enabled Operational Analytics

Case Study: Hutchison 3 Indonesia

The challenge
- Optimize network performance cost-effectively
- Handle continuously increasing complexity
- Invest in the right areas and get more from existing resources

The solution
- Forecast capacity with more granularity & accuracy
- Plan capacity expansions only when & where needed
- Increase resource utilization to improve efficiency & ROI

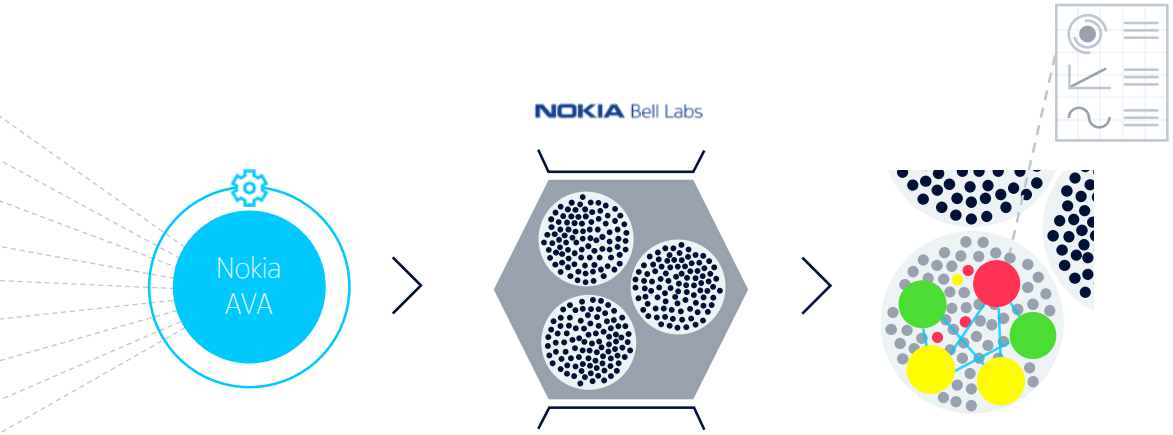
NOKIA

Case Study: Hutchison 3 Indonesia
Spectral Performance Management increases network efficiency

Scope	Nokia's Spectral Performance Management solution powered by AVA	Outcomes for Hutchison 3 Indonesia
• In November 2018, Nokia announced it is working with Hutchison 3 Indonesia to increase network efficiency on the operator's LTE network, with an ultimate goal of boosting the end-user mobile experience. • Hutchison 3 Indonesia has nearly 50 million mobile connections (14% market share) who demand an increasing amount of bandwidth (for video consumption and gaming). To deal with growing pressure on network capacity, the operator is looking to optimise the use of its existing radio network resources without adding hardware, spectrum or cell sites.	• AVA is Nokia's cloud-based cognitive platform, powered by AI, that combines big data storage, processing and intelligent automation and analytics to enhance operators' network performance and efficiency. It applies to the entire network lifecycle, from network planning to implementation, managed services and customer care. • AVA also powers Nokia's Spectral Performance Management solution. This solution leverages AI to generate automated recommendations that improve spectral efficiency and help operators prioritise investment in additional capacity.	• Using Nokia's Spectral Performance Management solution led to a 17% increase in 3's spectral efficiency, allowing the network to carry more traffic without any new sites or installation of new hardware. • 20% more subscribers were able to use MIMO connections, thereby benefitting from up to 75% faster average data speeds • Improved capability to gather and collect data: there is the potential to capture hundreds of billions of data points per day from across the network. • Granular insights allow Hutchison 3 Indonesia to plan more accurately and increase the return on network investments

Spectral Performance Management

Machine learning provides more granular insights

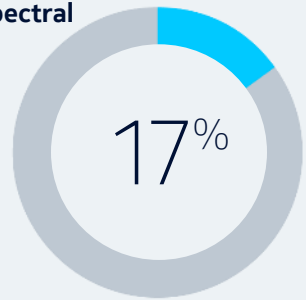


Colossal device*
& network data

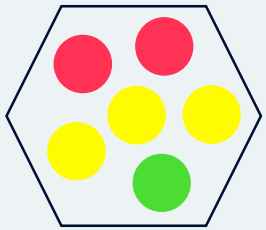
Enriched by machine
learning

Granular insights &
auto. recommendations

Increase in Spectral Efficiency



More accurate capacity planning



"AI will help us manage increasing complexity and make smarter decisions – to improve network performance for our subscribers"

Desmond Cheung, CTO, Hutchison 3 Indonesia

* MDT (Minimization of Drive Test) data, 3GPP standardized feature

Spectral Performance Management methodology

Geo-tagging using Machine Learning

1. • PM & CM data
   • Megaplexer, GEPH, CHR
   • MDT & network data
2. • Capacity profiling
   • Worst cell detection
3. • User demand geo-distribution
   • RF conditions inside the cell zones
   • Throughput & area SE per zone
4. • Worst performers zones
   • Cell capacity spare
5. • Visualization
   • Performance classification
   • Auto recommendations

Geo-tagging of non-MDT user traffic using MDT as training dataset to enrich whole dataset

ML to discover zones corresponding to different RF conditions

Geo-tagging works with MDT measurements to learn location-RF fingerprint association

Automatic optimization recommendations