



Cognitive Analytics for Customer and Network Insights

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What have big data and apples in common?



Data is generated...



...collected...



...stored...



...and this is what we base our big data analytics on...

End-customer expectations change

Dependent



Empowered

Retail only



Buying online

Seller's terms



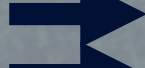
Buy on own terms

Wait for delivery



Instant gratification

Mass offers



Personalized

Static plans



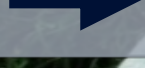
Digital services

Multi-channel



Omni-channel

Buy products



Rent services



Today's typical operator customer challenges

Retain high
value
customers

Find new
revenue
streams faster

Move to
customer
centric network
management

Improve agility
through right
data at the
right time

NOKIA

Questions we help address across the operator organization

For Operations

- Who is impacted? Are they high value subscribers in mobile or fixed?
- Where are they impacted? And how many?
- What are the top problems?
- How do I prioritize what & where to fix first?

For Marketing

- How are my customers using our services?
- Whom to target for marketing promotions / campaigns?
- To whom should I upsell my services?
- Who is likely to churn? Whom to retain?
- Which device portfolio to optimize? Which to upsell?

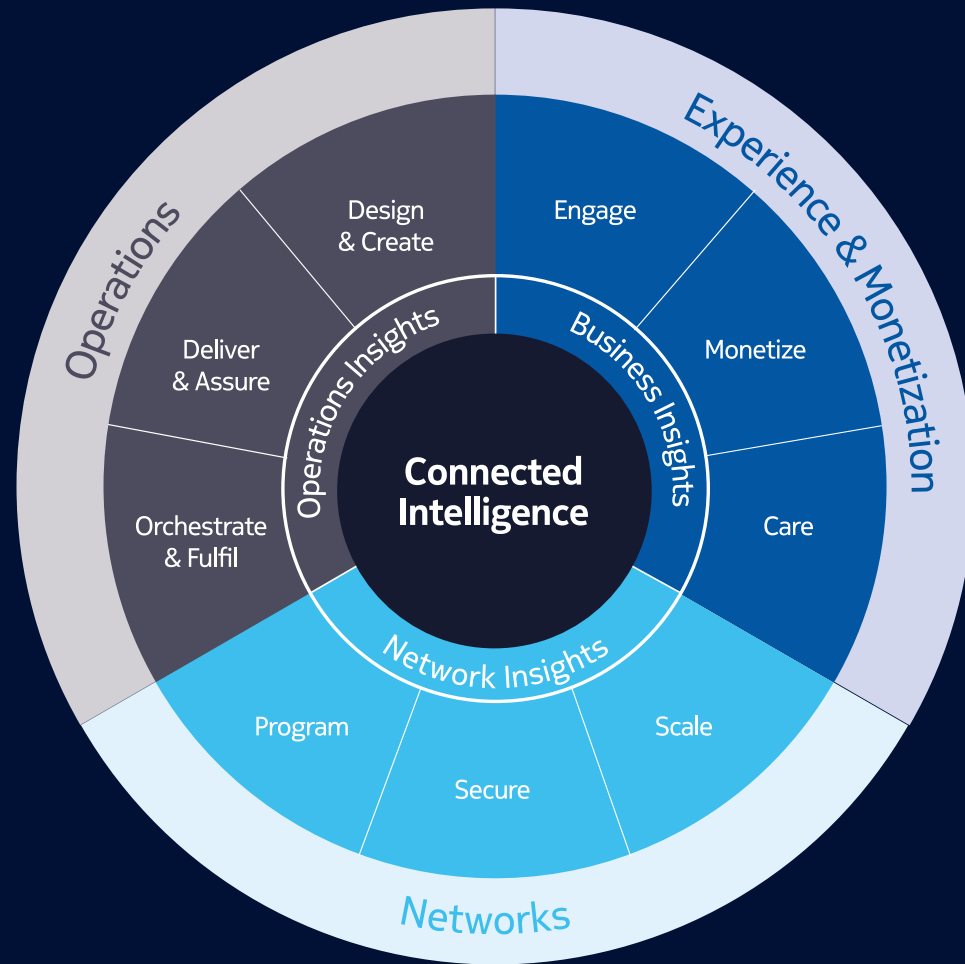
For Care

- What is the issue being faced by this customer?
- What is this customer's profile? Is he is a high value subscriber? What is his satisfaction score?
- What should I do next? (next best action)
- Can I avoid recurrence of this problem?

For Management

- Are my subscribers satisfied? What is their satisfaction level?
- Which locations / regions are performing well / worst?
- How are my high value subscribers using our services? What are their top issues?

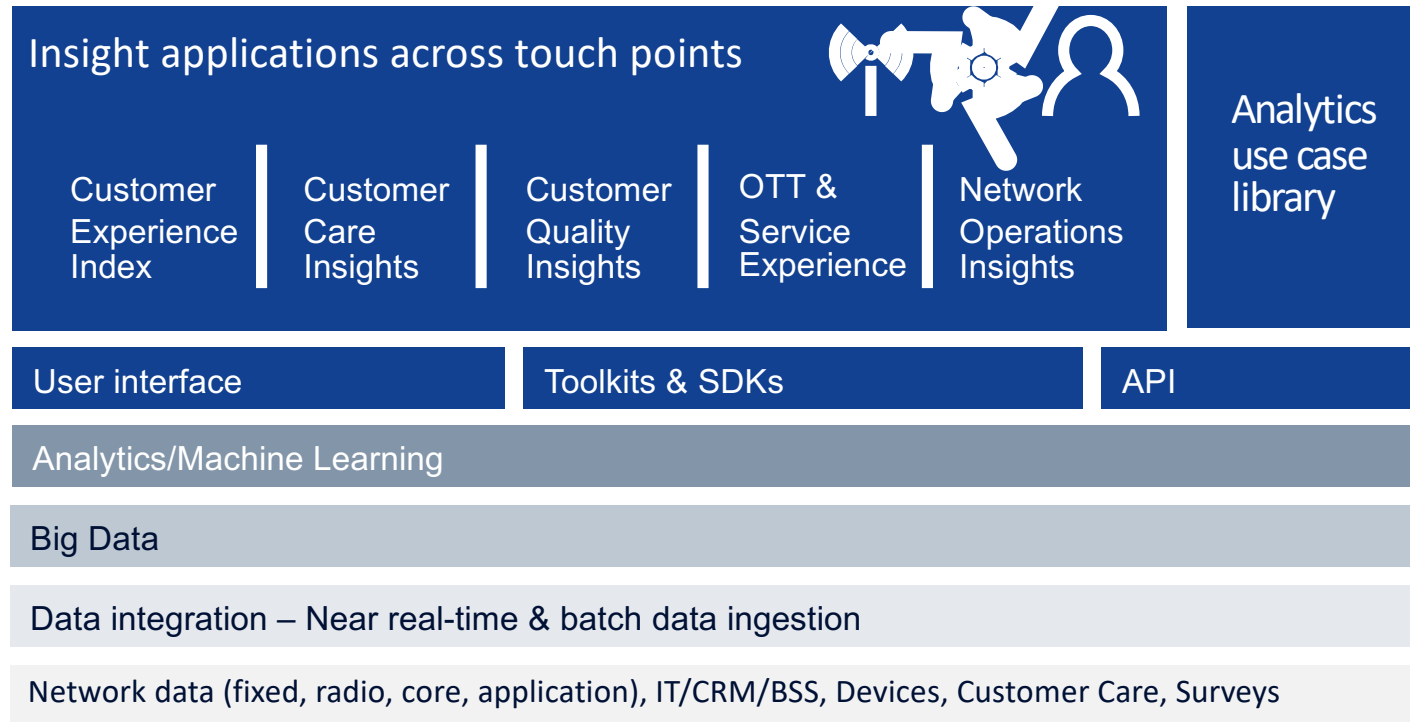
Nokia vision of how to put it all together



Customer Insight

Connected set of analytics apps, based on telco optimized Big Data and Analytics architecture

Operations Engineering Care Marketing Business analysts Data scientists



Purpose built use cases
To address business needs of different teams – operationalized with CEM Office

Big Data analytics
to compute holistic and deep view of each customer in operator’s network

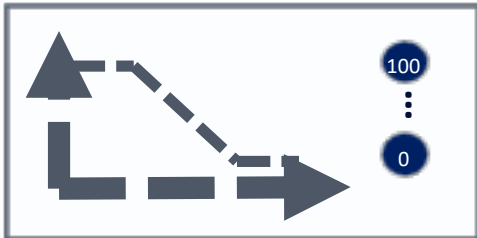
Data
from different network & business touch points between customer and operator

Customer Experience Index evolution

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CEI is a composite score between 0-100 providing a near real-time measurement of satisfaction levels of any customer in the operator network.

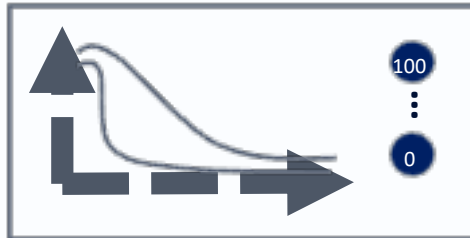
Before: Delivered experience



CEI score (0-100) calculated based on linear model

- Experience as delivered by network
- Computed for every customer and calibrated against survey data

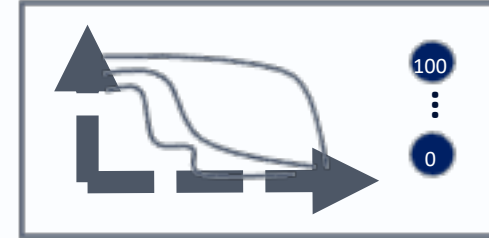
2017: Perceived experience



CEI score calculated based on new non-linear model

- Closer to experience as perceived by human
- Sensitivity per segment/region/device

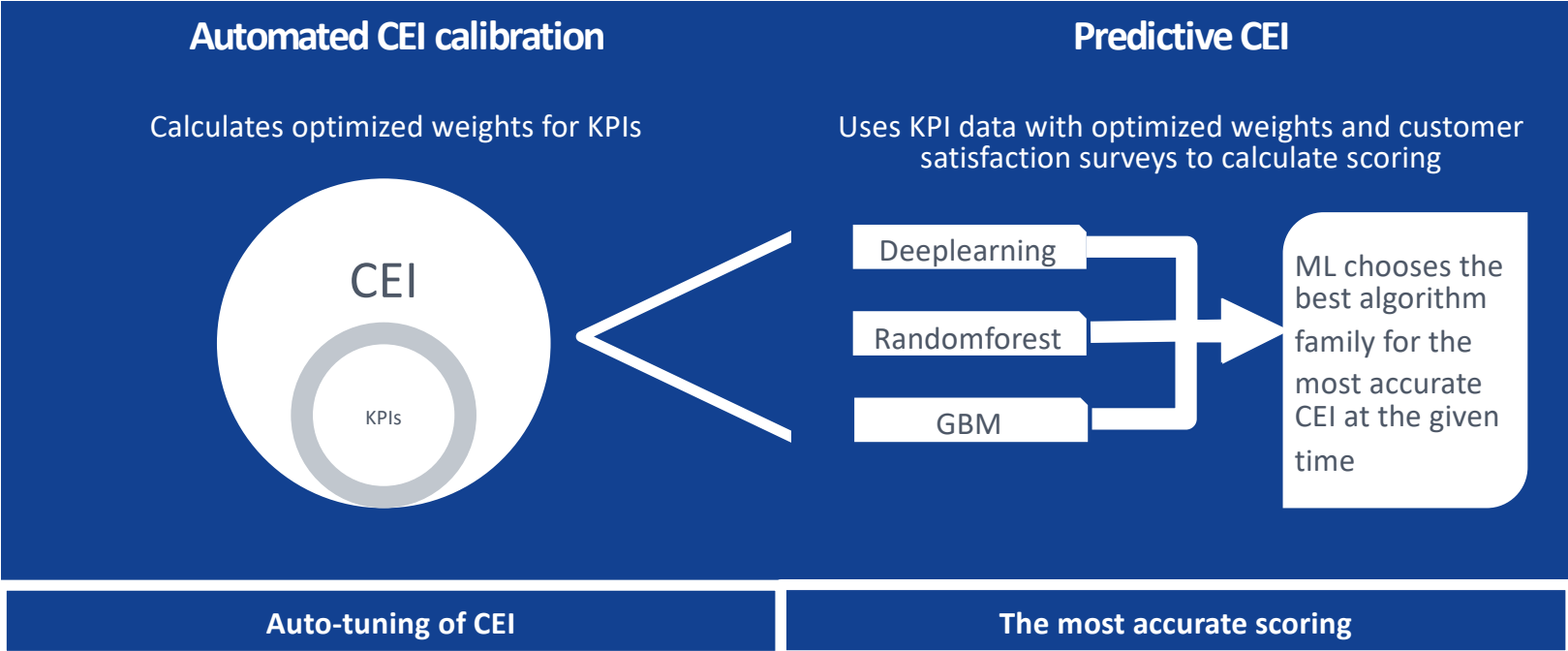
2018: Cognitive experience



CEI score calculated based on machine learning algorithm

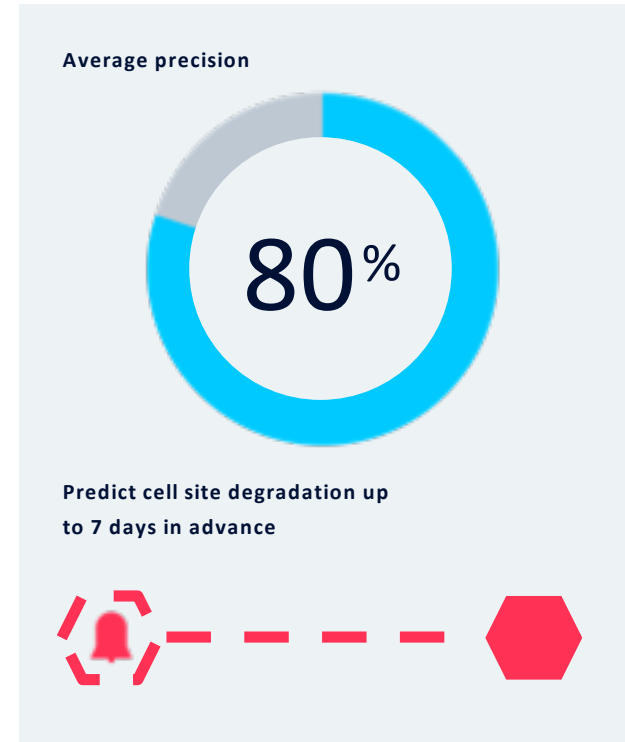
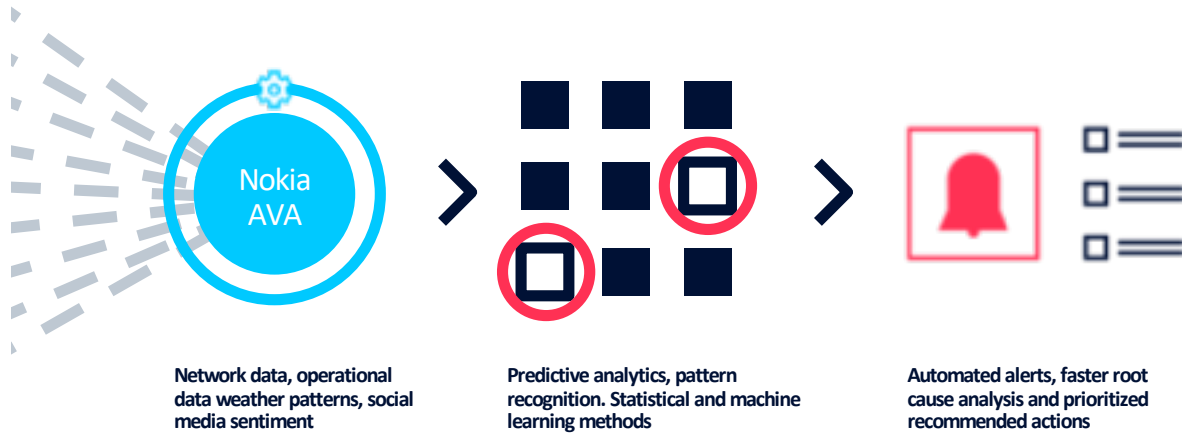
- Faster time to market with auto-tuning
- Improved accuracy & personalization

Cognitive Experience: Powered by Machine learning and Deep learning in CEI



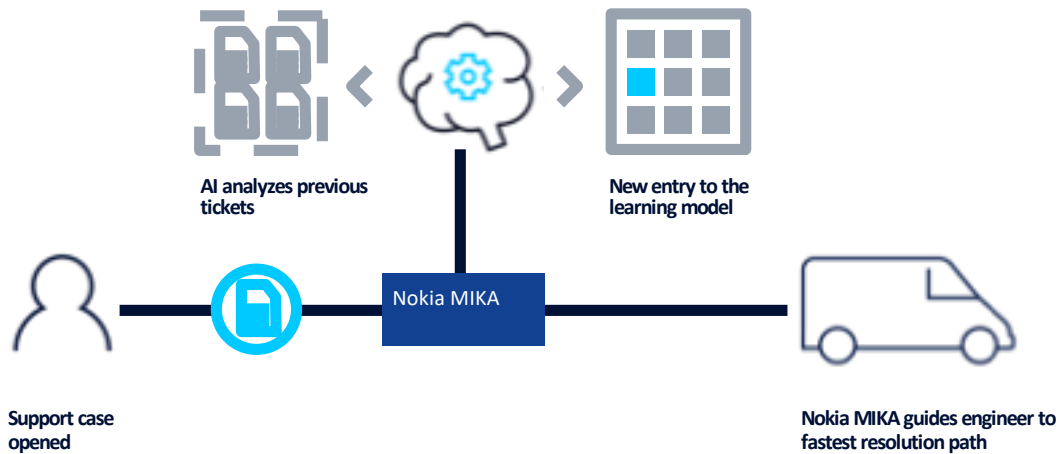
Cell Site Degradation Prediction

Prevent service degradation and network outages



Similar Ticket Recognition

AI to decrease time spent resolving trouble tickets



Increase troubleshooting effectiveness up to 40%

Faster resolution of network issues through AI

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