# 8 REASONS TO ADOPT SELF-ORGANIZING NETWORK SOLUTIONS

This report outlines how Self-organizing Networks (SON) Solutions offer unprecedented ability for Mobile Operators to improve and sustain the quality of their network, and to realize significant savings in OpEx, increased capital spending efficiencies, and improved quality of the subscriber experience leading to increased revenues.
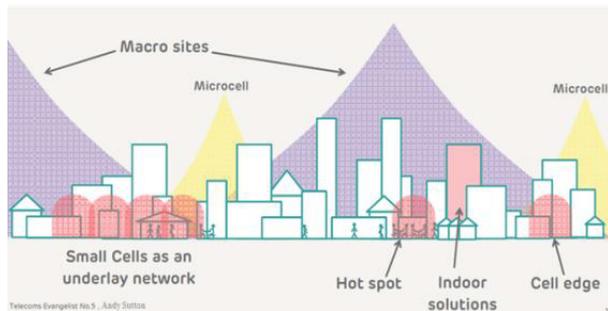
In order to increase cell capacity to support the increased data traffic demand, you need to deploy a significant number of new network elements, including small cells, which interact in complex ways with each other and with the macro network. This emerging multi-layer heterogeneous network (HetNet) will quickly become financially and technically unmanageable without new tools and techniques.

Network engineering staff will need to be increased in order to address these new challenges in the traditional way of thinking. The only realistic alternative is to make extensive use of automation to empower the team to face the new complexity without a need to increase staffing. A few key reasons are given below about why SON automation is worth considering and some hints to get the most out of it.

1. **SON technology is productized.** SON is real. It is available as formally released product with 3 key properties: (a)SON products have matured in representation and usage of deep RAN knowledge, (b)algorithms are based on rich KPI statistical models, which learn over time to improve accuracy, and (c)the execution of multiple SON functions can be coordinated to get value from a SON solution on the whole network. Optimizer functions are available to cover key use cases, including: Mobility Robustness (MRO), Coverage & Capacity (CCO), Mobility Load Balancing (MLB), Cell Outage Detection & Compensation (CODC), Energy Saving (ES), Complementary ANR (cANR), PCI Opt, and Root Sequence Index (RSI) planning for UMTS (3G), LTE, and VoLTE networks.

2. **SON has proved its value in the real world.** SON has finally moved from the laboratory to live networks. To develop the trust of radio engineers for automated optimization, SON design can be based on significant practical experience in optimizing HetNets. In combination with expert services teams, field experience is being built-up in live network deployments and built-in to SON solutions for more effective results.

3. **Centralized SON (C-SON) helps to make more reliable decisions.** C-SON can provide a unified view of your complex HetNet KPIs across access layers, technologies, and vendors as a basis for making smart optimization decisions. In contrast with Distributed SON (D-SON), C-SON tools gather data from all network elements and manage Inter-technology (GSM, CDMA, UMTS, LTE, WiFi) interactions in near-real time. For D-SON functions best implemented in a distributed manner (like ICIC), C-SON can parameterize and manage the execution these D-SON functions on vendor equipment.

4. **SON improves Customer Experience leading to increased revenues.** Since more than 50% of mobile data is video streaming, downlink throughput improvements and reduced dropped connections impact end-user experience. The 3GPP-defined CCO directly targets inter-cell interference, the main factor limiting downlink data throughput. MRO helps to minimize dropped connections, which disrupt data session continuity. SON can also integrate customer experience management data to enrich optimization decisions. Changes brought about by these SON functions allow you to monetize increasing data usage while improving the subscriber experience for streaming data applications.

5. **SON enables network staff to be more productive.** The variety of different tools to perform different actions on different network elements makes it very difficult for your engineers to identify and resolve problems manually. SON increases the accuracy of applied solutions with the same amount of engineering staff. An integrated SON tool chain covers all network engineering workflows showing results in near real-time. SON helps to drive and sustain high network quality by finding improvements not immediately visible to even an expert eye.

6. **SON increases CapEx efficiency.** SON allows you to defer your CapEx spending by extracting more from the existing network assets. Shorter lead-time to revenue is achieved by reducing the time to plan and bring up new access elements. Short data integration times allow you to put the benefits of SON to practice quickly and to stay up-to-date with the changes to your network.

7. **SON improvements tailored to your need.** Deploying SON solutions in your network requires carefully considered objectives. You need RAN experts to use automated network monitoring and analysis tools to understand what's going wrong, and to apply the right SON functions with the correct parameters in compliance with your policies.

8. **Transparency of SON automation processes.** You need rich monitoring and direct visualization to show current performance, status of SON actions, and configuration audits to show all changes to the network as correlated with changes to KPIs in near real-time. This helps to improve your confidence that SON is addressing your needs.

Self-Organizing Network Solutions can offer unprecedented ability for the mobile operator to keep their complex HetNet performing at peak efficiency. The anxiety about the value and risk of SON solutions will only be changed based on real-world examples of success. After years of tinkering, the time for SON has finally come.