Analytics and automation in telcos: An interview with Nokia's VP of global service delivery

Digital operating models and new data-driven tools can not only deliver value to customers but can also help keep operators' own houses in order.

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Analytics and automation have recently opened great new potential across all industries. For telcos—which face cost pressures (more so in developed countries), a great surge in young digital native customers (especially in emerging markets), and vastly increased customer expectations (everywhere)—adoption of digital operating models and advanced analytics has been comparatively slow to catch on.

Amit Dhingra, Nokia's vice president of global service delivery, sees analytics and automation as the key levers to business outcomes, however. McKinsey spoke recently with Dhingra about how telcos can use these new tools to find short-term benefits and position themselves for the future. This interview has been edited for clarity and concision.

McKinsey: *What is your take on analytics and automation within the telecommunications space?*

Amit Dhingra: The last few years have seen tremendous changes in the telecom industry that have created an environment full of possibilities. This has allowed us to reach insights we didn't have before and that will be critical to positioning telcos for the future. Two big changes have made this possible: access to data, and science and analytics tools to process the data.

As consumers use more and more data, the telecommunication networks generate increasing numbers of corresponding data points that have the potential of being used in multiple facets of the telecom value chain. Analytics and automation are increasingly available to help compute and process, which means we are getting much richer insights that we just could not get to before.

There is "hidden intelligence" within this data, which can be used to increase operational efficiencies, build new revenue models and diversification opportunities, and build more personalized user experiences. It can also reduce R&D effort for network technology creation, differentiation, innovation, and improved products. For instance, they can open up new possibilities in the telcos' options that just weren't there in the past, such as SDN [software-defined network] and NFV [network field virtualization].

However, let's keep in mind that while analytics and automation are key levers in achieving the business outcome, they should be considered a means to an end, and not the end itself. By really embracing these tools, telcos can catapult into new frontiers, such as implementing high-density urban 5G deployments, developing edge cloud, predicting system failures, prompting preventive action, and humanizing customer-service chatbots. This can and will create the telco and the network of the future.

McKinsey: *Make the impact real for us—can you share some examples?*

Amit Dhingra

Amit Dhingra is Nokia's vice president of global service delivery, leading a team of 10,000 members to provide a complete services portfolio, and innovation through automation. He has more than 20 years of global experience in telecommunications and service delivery. A proponent of developing new use cases and adopting new technologies in delivery, he works to drive grassroots innovation with a top-down agenda.

Amit Dhingra: Automation and analytics will drive a step change for all telcos both in the short term as well as in the long term. These two factors working together are helping us move from a descriptive approach to a prescriptive/cognitive one where networks will eventually gain the ability to autoheal.

A short-term example is in the network-operations space, where traditionally, the way to optimize telecom networks has been to focus on the worst "X hundred" cells in the network in combination with key locations for optimization. The reason for this subscale optimization often has been the lack of a systematic approach to collect and combine factors such as physical attributes of the site or antenna height and tilt. Now, through a combination of analytics and automation, we can use the network data much more effectively and intelligently to define the real root cause for a performance drop, and suggest key actions for bringing improvements in much more than just a few hundred or thousand cells.

An example of long-term step change is automation and analytics working together in this evolution from a descriptive to a prescriptive/cognitive approach, to the point where networks gain the ability to heal by themselves. For the telecoms piece of the fourth industrial revolution, automation and analytics will prove to be the main drivers in enabling 5G use cases, which bring real impact on the lives of end users. These use cases bring positive change in human lives, and will require impeccable quality and response time, in the same way that connected-car and connected-health use cases do. In the 5G world with differentiated QOS [quality of service] based on applications and users via network slicing, the use of analytics and automation will be paramount to ensuring that capacity and QOS change dynamically, with allocation based on need. This is something that would not even be possible in the traditional network. In my view, both analytics and automation will become crucial for the next generation of networks and use cases that will shape our daily world.

McKinsey: *As you look in the short term, how should companies get organized around analytics and automation?*

Amit Dhingra: In organizations, analytics and automation have become extremely essential not just to delivering value to the customers but also for keeping telcos' own house in order.

To extract the maximum from analytics and automation, I believe there are four key elements needed: one, clear vision and ambition; two, the right balance of skills and capabilities, including domain expertise, data science, and computer vision; three, the appropriate infrastructure, meaning the right platform and data sets; and four, an insight-to-action mind-set, meaning new ways of working, which include an agile approach to development.

Let me explain those four elements in more depth.

Clear vision and ambition. Organizations need to start with a clear, well-articulated vision of the future—how does the organization see itself driving impact? For example, "We want to be the most customer-centric telecom operator." The vision should then translate to the ambition. This is essential to driving an organization to act. For example, "To achieve our vision of becoming the most customer-centric telecom operator, we must improve our [customer-satisfaction score] by 30 percent in the next 12 months."

Right balance of skills and capabilities. It's not only about data-science skills, as many organizations believe. Generic data science has the potential of remaining generic and not providing deep specificities for the telecom industry. To avoid this trap, organizations must also assess the

complexity of the telecom domain and understand what additional skills, partners, and capabilities are needed. For example, network data is great, but how can you derive meaningful insights out of it? How does that translate to true business value? For example, either the organization becomes more efficient and saves on cost, or it becomes more targeted and increases revenue.

Appropriate infrastructure. Providing the right platforms to enable exploration of the data and ensuring the quality of data sets collected is crucial. The organizations need to ensure that the correct end-to-end flow of data is in place. There is a risk that you have the right vision and skills, but the back-end infrastructure is limited since it can be perceived as less important, resulting in an inability to test out hypotheses and generate insights.

Insight-to-action mind-set. Cultivating the correct mind-set allows the potential of automation and analytics to materialize. An agile approach to development allows the various models and processes to be continually tested and improved. Additionally, organizations need to "fail fast" in order to become nimbler. The best way to learn is truly by doing.

Apart from these, it's also important to understand the priority use cases for your organization, and that discovery of the right use cases can only come from the bottom up or through some big-ticket problem statements from the customer perspective. This becomes especially crucial in the scale-up phase.

McKinsey: *That's a perfect segue into our next question—how do you expand from trying out small proofs of concept (POCs) to developing organization-wide capabilities and building momentum?*

Amit Dhingra: There used to be a time when an idea or a product was incubated to be fully matured and perfected before going big, but we now see that DevOps [developing while in operations] helps drive change and create value. While the POCs are essential to creating buy-in, they are not sufficient and cannot be the end-all for an organization.

To scale up and expand beyond POCs there are two important components, in my opinion. The first is to keep the end state in mind, ensuring that the development is in line with the organization's priorities. This goes back to having an overall vision and ambition for the transformation. This should be the North Star to guide the organization in the journey. And the second is to create a bias toward action, implementing new ways of working that make change management easier. In line with the DevOps approach I mentioned, an important component is how we test out the ideas and actions.

I would emphasize that having an idea or a POC is not enough, unless there is a proper execution and scaling-up strategy.

McKinsey: *As organizations look to scale up, what are some challenges they can expect and what is your advice to them on navigating this space?*

Amit Dhingra: As happens during every new exploration, one should be prepared to face challenges and surprises. In telecom, we have been the first mover in exploring robotic process automation and analytics, and if I were to choose three topics for people to keep in mind, they would be: creating the right mind-set, ensuring you have the right data setup, and understanding that the insights you get improve over time.

Let me explain those further.

Creating the right mind-set. Humans tend to compete with robots and analytics algorithms. You should drive the change to make people realize that automation and analytics can work with them in "collaborate mode" rather than "compete mode."

Ensuring you have the right data setup. In the case of analytics, the machine-learning algorithms become richer when they are exposed to more and more relevant data. While more learning needs more data streaming through these algorithms, one must look at end-to-end data flow, storage, and processing, including the regulatory limitations for every geography. Remember the saying, "data is the new jet fuel." And unlike the limited supply we have of traditional fuel, this one will just keep on growing and getting better with time.

Understanding that the insights you get improve over time. Scaling works well in DevOps mode. There are various other challenges as well, but the key here is to fail fast, learn lessons, and apply them quickly for continuous improvement. There is another aspect of the engineering perfectionist mind-set—as we start to embrace these new technologies in DevOps mode, we will deal with some imperfections which will get removed with time and through iterations. Hence, the use cases should be well-understood and chosen with this in mind.

McKinsey: *What advice do you have for telcos that are just getting going with digital and analytics transformation?*

Amit Dhingra: Telcos should remember these changes are here to stay. The future belongs to self-healing networks, with up to 80 percent of faults being rectified automatically, with no interruption to customer experience. All this and much more is possible in the very near future—the telcos and network providers need to be bold and make moves now toward their own digital and analytics transformation journeys. ■

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