

A Real-World Guide: Using Big Data Analytics and AI

By:

Notice: Undefined index: issue in
[/home/http/pipelinepub.pubspoke.com/article.php](http://home/http/pipelinepub.pubspoke.com/article.php) on line 215

Big data analytics and Artificial Intelligence (AI) have both had their fair share of hype in recent years. Despite the rhetoric, however, both these technologies, working in sync, are now starting to emerge as fundamental building blocks shaping future networks to be more reliable and more automated—leading to a better customer experience.



Not every implementation, though, has been executed in the optimal way, which means that there are still years of challenges ahead for some service providers. Therefore, in order to be successful, it's important to understand the pitfalls of certain configurations and philosophies, as well as best practices for operators to speed up Return on Investment (ROI) from these strategic network technologies.

Analytics and AI—Where are they now?

Generally speaking, the field of AI has been around for more than 50 years, since the first use of the term in the [1950s](#). Governments poured millions of dollars into AI research—with hyper-inflated expectations. Owing to a series of disappointing results, AI entered a “[winter](#)” and funding was slashed.

The situation now is qualitatively different from that of the 1950s and 1960s. Technological advances—such as the backpropagation algorithms, deep architectures for hierarchical learning, Graphics Processing Units (GPU) for fast training, big data technologies for collecting and processing large datasets for training efficiently and inexpensively—have unleashed a new revolution in Artificial Neural Networks.

The technology has made the slow journey from the hallowed halls of research institutions, through software frameworks and startups, to consumer and business interactions with major brands—taking the once-theoretical application of AI algorithms out of the laboratories and into the domain of everyday business operations.



Downloads
Today, most of the practical applications of AI are mainly driven by industry and business instead of government agencies. AI has been championed by the likes of Google, Facebook, Microsoft,

Amazon and Apple. Yet today does not mark the culmination of the technological revolution. The industry is only at the initial phase. For an automation process that is still reliant on human intervention. The practical implementation of AI is still young, a reality particularly true in the telecom. [Multi-Entry Access: A Live Demonstration \(Video\)](#)

Advanced AI requires a number of key components that can be quite complex. For example, these include text-to-speech and speech-to-text interfaces to enable voice, image recognition for vision, Natural Language Processing (NLP), and predictive analytics based on Machine Learning (ML) and Deep Learning. To date, a large number of [AI use cases](#) are still machine-to-machine (M2M)

interactions with those use cases that the IT sector in particular has embraced AI technology for such management threats.

Likewise, Communications Service Providers (CSPs) are adding automation to otherwise time-consuming activities, from service provisioning, thereby saving operational expenses. Quality of Experience (QoE). The use of AI also holds great promise for customer service and other business processes, but in order to succeed, CSPs need to first lay the groundwork for a successful foundation.

Ubiquitous access to data has sparked a technological revolution that is touching almost every aspect of everyday life. The desire to gather, analyze, and monetize data is driving the demand for automation, which has spurred the advancement of AI, ML and big data analytics. For telecom operators, this is a win-win scenario—the monetization of data, as well as the use of process automation to reduce costs and advance network virtualization.

Web Links

Preparing for tomorrow's network

- [The Future Starts at the Edge White Paper](#)
- [MobilityEngine™ 5G RAN Software Datasheet](#)

As CSPs look to evolve their network infrastructures to become more agile and scalable across the cloud, the importance of automated and virtualized technologies such as Network Function Virtualization (NFV) and Software-Defined Networking (SDN) continues to increase. The anticipated benefits of shorter time-to-market, decreased costs, new business models and greater innovation are very enticing. However, telcos are quickly realizing that this virtualized architecture introduces significant new complexities and dependencies.

Moreover, the ongoing transition to 5G and the IoT promises a wealth of new revenue streams and new business models. Radsys' innovative disaggregated and virtualized network architectures, driving increased investments in digital transformation. In fact, according to research by [Heavy Reading](#), investment in digital transformation and big data analytics is enabling technology solutions, leverage open reference architectures and standards, combined with open software and hardware to power business transformation for the telecom industry, while its world-class services organization delivers systems integration expertise necessary to solve communications and content providers' complex deployment challenges. For more information, visit [who's service providers still using legacy systems, where](#)

Yet for those service providers still using legacy systems, where new technologies can cause them to stumble along the way. Before rushing to implement ML, AI and automation-driven technologies, it is vital that CSPs simplify and consolidate complex systems to enable seamless support for new types of business models, services and transactions.

Preparing for this evolution might involve creating a single system that replaces multiple legacy architectures, or implementing an 'umbrella' solution over the existing systems. In this way, siloes are eliminated to free up the network to be more flexible and dynamic. Greater use of open source platforms and support from organizations such as the Open Network Automation Platform (ONAP) is helping to speed up this migration.

Increasing adoption of AI and big data analytics in telecoms is facilitating the delivery of complex and comprehensive services that help CSPs meet demands for reliability, scalability, coverage, bandwidth, low latency and jitter. This is particularly true with intelligent assurance processes. Here, AI is proving to be indispensable in developing predictive maintenance solutions that automate error-cause identification and analysis, allowing field technicians to speed up troubleshooting, reduce the number of IT tools required and even avert potential issues. This intelligent networking feature will become even more critical as telcos operate with an increasingly

lean field workforce.

Working together, analytics combined with AI enables automated optimization that feeds integrated assurance capabilities and vice versa. Because of the complexity of network-hardware-software interdependencies, humans need the computing power of processors. At the same time, we are learning how to better direct those processors to take on more of these tasks automatically. In this way, a 'virtuous circle' of continual service improvement is created.

A number of forward-looking operators have been deploying AI in diverse parts of their network. For example, Vodafone is using AI to address customer woes, and Orange's smart home product Djingo has an AI-based virtual assistant. AT&T and Verizon have used AI for predictive network maintenance.

Omni-channel's AI future

Beyond optimization of network performance and assurance to improve the customer experience from the network quality point of view, AI and analytics are being applied to enhance the experience at the customer interface as well. Today's customer interactions take place across multiple channels with the expectation of a seamless experience. Intelligent CRM and order management solutions are helping service providers adopt an omnichannel approach to integrate all offers, sales and customer service processes—on any device and across all channels. This approach ultimately helps to increase revenue and reduce expensive subscriber churn.

It's true that AI and data analytics offer considerable hope for tomorrow's networks, including a better understanding of complex environments, support for less experienced technicians, and lower operational costs. These technologies are paving the way for greater innovation, which is critical to service providers' ability to reduce costs, increase competitive advantage and successfully drive future strategic direction. The journey, however, will be much smoother if the industry plans carefully and sets realistic expectations for today—and tomorrow.