

## Big Data Is Back In Fashion As Fuel for AI

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When Gartner predicts that [“by 2020, the average person will have more conversations with bots than with their spouse,”](#) it becomes impossible to deny that, like the appearance of the first iPhone a decade ago, artificial intelligence (AI) is going to transform our lives – but only more so.

And like the iPhone, AI has the potential to usher in an entirely new era for service providers, acting as a powerful engine that drives them towards the goal of becoming truly digital service providers. It will transform the way they operate, the services they offer and, most importantly, their relationships with customers.

But while it is AI that is making the headlines, it's what powers it that is the unsung trend: *big data*.

Data has long been understood to be the source for developing insights about a business and its operations, customers, and prospects. However, the role it plays in enabling AI to convert these insights into strategy is equally critical. This is because essentially, data acts both as a mirror of what an organization is doing, as well as the effect it is having on its customers. On one hand, this includes how effectively and efficiently the organization is conducting its business and what changes are needed in order to improve performance. On the other, it reveals what customers are buying, what they want to buy and where they are experiencing issues. But the challenge then lies in extracting fresh, high-quality data, and combining it into a format that allows it to be used as a source for AI. A frequently drawn analogy is oil, which like data is costly and time-consuming to locate and extract, and significantly, must also be refined before its full value can be realized.



## AI-Powered Automation

AI-powered automation — the ability to process information in real time (or as close to it as possible) — lies at the heart of an organization's digital transformation. For service providers, such a capability is becoming an increasing necessity. In many cases, it is simply no longer feasible to resolve every issue via human interaction or intervention due to the speed, scale or complexity of the data that needs to be observed, analyzed, and acted upon. Driven by AI-powered automation, machines can be imbued with the “intelligence” to understand the situation at hand, assess a range of options based on available information, and then select the best action or response based on the probability of the best outcome.

## Business-Context Driven Predictive Models

Another important facet of AI is its role in developing predictive capabilities. Predictive analysis depends on historical data and allows, for example, the automation of predicting consumer behavior so it can be pre-mitigated with an action that improves the customer experience. For example, it could enable you to know when a customer is likely to churn and then trigger a special promotion that would entice the customer to stay. But acquiring such capabilities requires systems that know how to apply in-depth industry knowledge to historical data sets, and then understand the indicators that point to a particular outcome — usually an approaching problem. Then, if these

indicators can be identified, documented, and transformed into predictive AI, the system can proactively monitor for similar signals in real-time data streams. Other applications include the ability to trigger preventative action before an issue actually occurs and impacts the customer experience, such as when a specific location is likely to experience network capacity problems.

## A 360-degree View of the customer

*"Get closer than ever to your customers. So close that you tell them what they need well before they realize it for themselves. — Steve Jobs, when co-founder and CEO of Apple.*

With providing an excellent experience increasingly at the top of service providers' agendas, one of the most important challenges lies in determining exactly what customers want, and then ensuring that they as the service provider can deliver what the customer wants at the right time and in the customer's channel of choice.

Service providers already have access to a wide range of first-party data from their own systems, but for a fully contextual, 360-degree view of the customer, CSPs first need to extract actionable insights from that data, and then combine it with actionable third-party data from social media and other sources. The result can be a more comprehensive, multi-dimensional view of the customer's behavior — both online and offline. It can also allow the service provider to track the customer relationship for longer periods of time, and reveal patterns of how customer behavior changes over time so that the service provider can deliver better service and improve cross-sell and upsell opportunities during the entire relationship with the customer.

## Continuous Improvement

AI-powered solutions improve as their exposure to data sources increases, which in turn enhances data intelligence — a virtuous circle in action. This, in turn, informs and guides the processes that optimize the customer experience, while simultaneously making the interaction as effective and efficient as possible. The other crucial factor, however, is data quality. Since insights are only as good as the information from which they are sourced, the data sources need to be:

- Fresh—act as it happens
- Clean—prevent the garbage-in, garbage-out phenomenon
- Complete—partial data leads to poor decision making

Ultimately, it will be those service providers who have the highest quality data that will be able to leverage their AI capabilities to extract the maximum business value.

## Data-fueled AI Impacts All Aspects of Operations

AI can have a positive impact on service provider operations across the spectrum. AI can take network optimization to new levels, bringing advanced intelligence to data analytics while making customer-facing operations and services more effective than ever before. The latter includes personalized plans and service bundles, more interactive marketing engagement, and proactive, efficient customer-care operations.

### Marketing engagement

Understanding user behavior enables service providers, through AI, to create personalized customer engagements for *each* customer, creating offers and messages that are contextual and done in real time across a wide range of criteria, including personalized pricing plans, service bundles, and marketing messages. Personalized, real-time sales and marketing offers play a central role in service providers' (data) monetization strategies as well as enhancing the value of customers' engagements and improving customer satisfaction (CSAT) and net promoter scores

(NPS).

### **Customer care**

AI has a huge role to play in improving the quality of the customer experience and therefore the quality of service. Service providers' strategies to monetize data are dependent on high levels of programmable intelligence and automation to handle the exponential increase in traffic and the onboarding of new devices and subscribers, along with the processing and actioning of personalized customer care responses.

### **The intelligence-driven product catalog**

AI solutions can leverage customer engagement data to automatically fine-tune the product catalog offerings. AI can propose the optimal price, content, size, validity, or other parameters of a product catalog entry and configure it based on deep learning of the competition from available data such as advertising, voice of the customer feedback, and BSS data. It will also provide the justification for this recommendation, outlining the performance benefits; for example, reducing the price by 50 cents will increase take rate by 2.1%.

### **Network optimization**

AI will be grounded in service providers' SDN and NFV. For example, a fully NFV-enabled network will ultimately be controlled by a single NFV orchestrator (NFVO) that decides about critical network operations such as assigning more resources to a network function, creating new network elements, or tearing down network elements that are underutilized. Eventually traffic will be controlled by a centralized SDN controller that may be augmented by AI functionality. This will allow the efficient and proactive routing of traffic so that capacity can be managed effectively, network outages minimized, and faults bypassed. AI can also be used to optimize the configuration of a service provider's network according to dynamic network-capacity demands, the characteristics of the traffic volumes, user behavior, and other parameters. Network deployments may also be further improved by AI, which will be used to predict traffic patterns and forecast user trends.

## **Recommendations for Success**

Understand what data is available and its relevance to AI opportunities — exploring what data sources are available means not just looking at new sources but also reexamining existing applications and systems around a service provider's business, including product catalog data. It can also include external sources from data partners that sell access to data sets or those that engage in data sharing for mutual benefit.

Use business context to enable data validation — engaging with the wider business is critically important. Do not limit efforts to well-understood areas like IT, networking and finance, but rather include more novel areas like customer service, marketing, and sales, which contain highly valuable customer insights. Work with third parties to help broaden the context of the data that already exists and introduce customer experience insights that may not already exist in the organization.

Evolve your data architecture to acquire, store and manage new data types — existing data capability investments represent some of the most valuable assets for a service provider. Extend them to handle the scale, variability, and speed that comes with new unstructured data types, such as that coming from sensors and the IoT. This will likely mean developing new big data capabilities that are able to both ingest and store the data, as well as integrate multiple data sets. In many cases, placing such new capabilities in the cloud or another managed service can offer benefits that enable the flexible scaling of technology without impacting existing architecture.

Integrate multiple insights and unify customer profile. The foundation for intelligent customer interactions in marketing and customer care lies in a service provider's ability to discover its customers' intents, while seizing those moments in real time to provide relevant, personalized, and proactive customer experiences across all channels. Seek out solutions that help procure this 360-degree view by fusing the widest variety of first-party with third-party data.

In summary, service providers in the past few years have moved away from subjective-based decision making towards big data-driven strategies. The advent of AI is bringing the industry ever closer to an era driven primarily by intelligence and real-time insights. In order to realize the full potential of data-driven intelligence, each service provider needs to develop its own comprehensive data management roadmap. Such a strategy is the only way to ensure the ability to seamlessly and continuously process, extract, and integrate the increasingly diverse and rapidly growing data sources – and as a result, make accurate predictions, automate decisions and manage conversations directly with customers.