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Telecom service providers across the world face an enormous challenge: Even as traffic is increasing, revenues and profits are not keeping pace. Analytics can help provide a solution by monetizing the huge data pools these firms collect, say experts from Wharton and Wipro Technologies in this Future of Industry Series article, produced by Knowledge@Wharton and sponsored by Wipro.

The mobile market is poised for a huge explosion of new business. More than half of the world's population of 7 billion is using mobile connections at present, and estimates suggest another billion will join in over the next two to three years. With many subscribers using more than one device, the total number of mobile connections, also around 7 billion at present, is increasing sharply. Srinivasa Vegi, vice president, advanced technologies and solutions at Wipro Technologies, notes that according to Cisco forecasts, there could be an additional 50 billion connections through multiple devices by 2020.

Despite the promise of many new customers, telecom service providers face enormous challenges: competition from non-traditional players like Skype, Netflix, Google and Yahoo; network congestion due to exponential growth in mobile and data traffic; regulatory pressures; increasingly demanding and discerning customers; and high subscriber churn and customer acquisition costs. Even as traffic is increasing, revenues and profits are not keeping pace.

"The number of subscribers [globally] is expected to grow at a compound annual growth rate (CAGR) of 4.2% between 2012 and 2017, but during the same period revenues are expected to grow only by 2.3%," notes Vegi. Voice revenues, meanwhile, are expected to drop at a CAGR of 2.4% globally and lose $170 billion in value between 2012 and 2020, while data revenues are projected to grow by 66% CAGR through 2017, according to industry estimates.

"The game has changed completely," says Shawndra Hill, a Wharton professor of operations and information management. A lot of telecom companies are either buying or partnering with Internet and cable companies to provide comprehensive service solutions. "Telecom service providers are looking at how best they can bundle their services and products, and improve revenues and profitability," adds Vegi. Given the rising cost of customer

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acquisitions, telecom firms need to deliver the next generation user experience and hold on to existing customers.

Timely Customer Insights

Hill and Vegi say analytics can play an important role here. Smartphone proliferation is generating huge amounts of data as mobile devices become the digital projection of an individual. Analytics can help communication service providers mine this rich data for a faster, better understanding of customer behavior. Armed with this, providers can come up with personalized products and services, and also enhance the customer experience at various touch points. This in turn can help arrest customer churn, and also aid cross-sell and up-sell activities to garner a bigger share of the customer's wallet.

"In this extremely competitive market, the customer preference is very dynamic; their needs keep changing and service providers cannot afford to ignore this," says Vegi. Hill adds: "Telecom firms need to be innovative with the services and solutions they provide … analytics can play a big role in understanding customer behavior and therefore customer needs."

Hill thinks that telecom firms are uniquely positioned to leverage analytics because, unlike other companies, "they don't have to guess who their customer is." Telecom firms have a lot of "rich information" about customer behaviors along with metrics of their wealth and spending patterns. They also have enormous scale, which can be tapped to raise retention rates. "It's a huge loss when telecom companies lose customers, so having strong predictive models will automatically help improve the bottom line because you have reduced costs [of new customer acquisition] and increased revenues."

Telecom companies have the added advantage of being able to easily measure the impact of analytics. Once they have an idea about what's working and what's not, they can easily test to see if their hypothesis is valid. "Their ready access to the customer through calls, text messages and email gives them the ability to follow up," says Hill.

With telecom companies partnering with other players — like Internet providers or cable firms — their data is becoming stronger and more valuable. "The telecom data can now be linked at an individual level to web and TV viewing behavior," Hill points out. "And because they can link their data across various sources, they can get an overall picture of customer behavior and therefore do a better job with traditional measurements."

A whitepaper released earlier this year by the Wipro Council for Industry Research (Revenue Enhancement and Churn Prevention for Telecom Service Providers) estimates that the annual churn rate for VIP customers globally is around 40%, while growth in the average revenue per user (ARPU) is close to 5%. Analytics is expected to reduce the churn to 30%-35% and help ARPU growth double to 10%.

Best Practices

Analytics can speed up informed decision making to bring operational efficiencies, aid network investment choices, uncover trends and predict customer behavior, according to Vegi. Using analytics, companies are geared up "to go the last mile in providing the best recommended action based on available

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data, trends and possible outcomes. It can bring in operations automation for making real-time decisions and coming up with new business models, thereby creating a new market across geographies and demand for new products or service lines."

Take the example of a high-value customer (based on past payments) who makes an overseas call to a particular number every Sunday at a fixed time, says Vegi. Based on his usage pattern, the service provider could tempt this customer in real-time with a new package offering more minutes for overseas calls at a lower price. Or, if a high-value customer experiences a dropped call more than once in 30 minutes, then customer support could explain the reasons for the call drop and offer some free services as a consolation.

"This is called real-time, event-based marketing and it can enhance the customer experience and increase revenues." Event-based marketing addresses different services — call disruption, device changes, downloads and so on. With the effective use of analytics, real-time marketing can now respond within one to five minutes of an event, says Vegi. "Earlier, operators were reacting 24 hours to 48 hours after the event."

Analytics can play an important role at the backend also. For instance, it can help predict data loss or network deterioration, and empower the service provider to prevent service disruptions. It can also help providers unravel the cause of deterioration in, say, the video picture quality on a mobile device — whether it's a network problem or a wrong application configuration. Vegi adds: "Operational expenditure (opex) is around 40% to 50% of a service provider's revenues, and network operations typically account for 35% to 40% of the opex. By using advanced analytics, the opex can be reduced by a minimum of 10% to 15%. This is a direct boost to the bottom line leading to a sustainable topline year-on-year scaling."

New Revenue Streams

Telecom companies can also monetize their data by selling it to third parties. Hill suggests that they can anonymize their data and repackage it for third party companies "who want to understand the behavior of people who are making phone calls, web browsing, web purchasing or TV viewing." It can also be used to make location-based decisions. It could help a fast-food chain, for example, to zero in on the best location for a new outlet. Telecom operators can suggest a location based on the movement of mobile phones. They can also help the chain send targeted messages or customized offers to potential customers based on behaviors, spending patterns or proximity.

Another data monetization application could involve digital signage. An operator could customize advertisements at a given location based on the population profile at different times of day. "The ecosystem stakeholders can include brands or sponsors, telecom operators, screen network operators/ad agencies, retailers and even payment companies. Revenue for telecom companies would typically come from enterprise advertisers for customer data and location information depending on the strategic arrangement," says Vegi.

Using analytics, however, is not without its challenges. The main limitation — for telecom companies in particular but also for others who use customer data — is

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to maintain privacy while offering better solutions. Hill cautions that this is important not only from the legal perspective, but also because "if customers feel that their privacy is being invaded, they will leave."

Another challenge, she notes, is how well service providers can actually frame their problems. "Telecom firms can identify a problem and see if they have the data to help them do a better job or, based on the data they have, they can predict a problem and prevent it from happening. But it's important to not just look at one dimension of measurement, namely profit. It should be a long-term game with a focus on building deep customer relationships and higher customer lifetime value."

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