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Research Report: Evolutionary Trends in the Operations of CSP Networks

How the Migration to Broadband Data Services Is Shifting the Paradigm of Network Operations

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Introduction: The Challenges Facing Communications Service Providers (CSPs) in the New, Full-Data Service Environment

The telecoms sector continues to be buffeted by the Perfect Storm, a storm that is both economic and technological in nature, and whose impact is being felt all across the value chain.

On the economic front, the general economic climate remains challenging in both the United States and Europe. Consumer spending, including spending on telecommunications services, remains subdued, driving an accelerated decline in traditional voice- and text-based revenues. Demand for data traffic continues to rise, but data revenue is failing to keep pace with traffic growth. Meanwhile, over-the-top services, such as substitutes for traditional SMS text messaging and other services, are continuing to put pressure on CSPs' overall ARPU.

While profitability projections from innovative broadband data services are still unclear, major investments will be required, both for the introduction of enabling network technologies and for the improvement of capabilities to appropriately manage the service quality perceived by different end customers in comparison to their specific needs.

The Purpose of the Accenture Survey

Against this backdrop, Accenture is seeking to understand more fully the main drivers for such changes within CSPs, including new technology introductions, quality issues, cost pressures and other factors.

Accenture also seeks to understand the rationale used to identify the most suitable operating model for the new network operations and, where possible, considerations for the future obtained after some years of experience with the new model.

To this end, Accenture undertook a global survey of CSP executives involved with making network investment and technology decisions.

What emerged from the survey is a picture of an industry in transition. The old ways have not been totally abandoned: While some CSPs have fully embraced the new realities, others are taking much more of a "pick and mix" approach.

In this report, we highlight the impact of the industry's evolution on CSPs and the strategic and operational choices they are making.

The Initial Response from Network Operators Worldwide

In a first phase, the emergence of low-cost equipment vendors has helped operators alleviate some of these pressures; however, operators still need to be creative in how they make the investments required for this shift, given that they are part of a capital-intensive industry that has experienced low and declining ROIC over the last 10 years.

Network sharing, network virtualization, M&A and outsourcing are some of the means by which operators are moving toward a new, leaner and more effective network operating model. These run counter to the "normal" modus operandi of network operators, and evidence suggests that the attitude of many operators toward these new approaches remains ambiguous at best.

Apart from economic challenges, there is also a profound technological shift. Operators need to execute a fundamental technological transformation from traditional voice-based networks to full

IP-based networks managing data traffic patterns—a very new and complex scenario that requires different processes and tools than the previous generations of networks. Additional complexity will be introduced as networks more massively develop small cells, microlayers and virtualization features. In this context, new capabilities such as network analytics and more intelligent, smart networks will define the new competitive edge.

Moreover, several carriers are increasingly investing in M2M in order to position themselves in the Internet of Things value chain and offset declining yields from their

traditional businesses. As a long-term approach, many operators are considering the opportunities for profit to be secured by integrating communications as a service sitting in an overall "stack" of software and cloud services. This technological shift is affecting not only network operators, but also other players, such as equipment vendors. Recent announcements continue to demonstrate that the industry is working to redefine itself around network services and software.

Technology Evolution and the Need for Transformation

The survey confirmed that technological transformation represents the real driver that is shifting CSPs toward a more accurate model for controlling network planning and enhancing quality of service, supported by new capabilities such as analytics.

CSPs recognize that external support can be useful in driving the transformation.

Priority investment areas

The high demand for broadband data access is requiring CSPs to make further investments to upgrade access networks (LTE, FTTx); increase backhauling capacity; invest heavily in emerging technologies—such as WiFi offload—that are designed to manage escalating capacity requirements; and create advanced tools to manage new traffic patterns and ensure quality of service in a changing environment.

The need for new tools

New and/or improved tools are likely needed to support the processes of planning, design and rollout tracking of the broadband or cable network (see Figure 1).
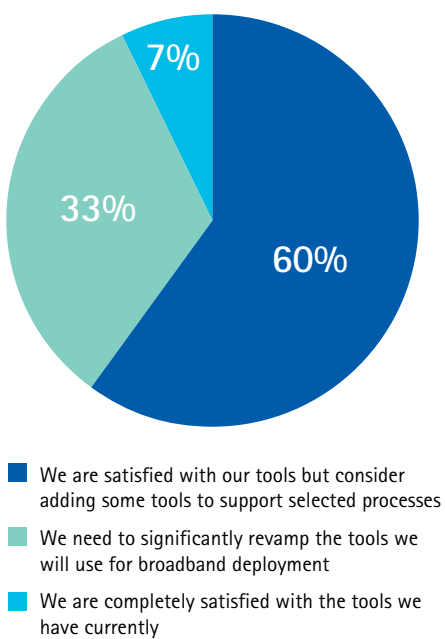
One-third (33 percent) of respondents said they need to significantly revamp the tools used for broadband deployment, while another 60 percent would consider adding some tools, so that a total of 93 percent see the need for improved tools.

Internal transformation

Regardless of the strategy adopted by a CSP to tackle the challenges of network deployment and management, the survey highlighted that there is a need for a program that uses internal transformation to sustain the benefits of network sharing or alternative sourcing models. CSPs also recognize that external support can be useful in driving transformation Respondents do generally see the value in services provided by a third party in supporting autonomous transformation combined with out-tasking, and in supporting transformation by outsourcing (see Figure 2).

Figure 1: Most CSPs Plan to Add or Revamp Tools for Broadband Deployment

How would you rate the performance of the tools you are using?

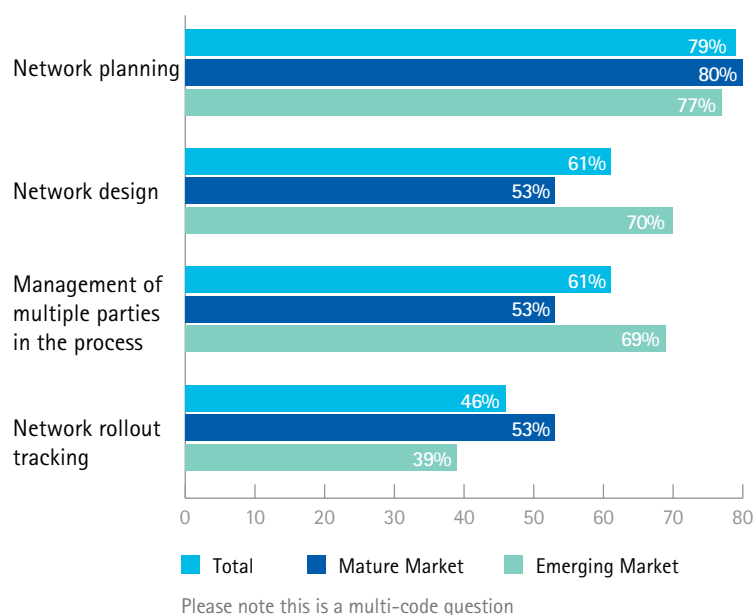For which processes are you considering adding some tools?

60%

33%

7%

■ We are satisfied with our tools but consider adding some tools to support selected processes

■ We need to significantly revamp the tools we will use for broadband deployment

■ We are completely satisfied with the tools we have currently

Network planning
- 79%
- 80%
- 77%

Network design
- 61%
- 53%
- 70%

Management of multiple parties in the process
- 61%
- 53%
- 69%

Network rollout tracking
- 46%
- 53%
- 39%

■ Total   ■ Mature Market   ■ Emerging Market

Please note this is a multi-code question

Figure 2: When Seeking Spending Reductions, CSPs Favor Third-Party Services, Out-Tasking

Approaches to reduce spending in network operations

67%
see value in "transformation by outsourcing (managed service)"

27%
Transformation by outsourcing (managed service)

40%
Autonomous transformation combined with out-tasking

73%
see value in "autonomous transformation combined with out-tasking"

33%
Autonomous transformation

70%
see value in "autonomous transformation"
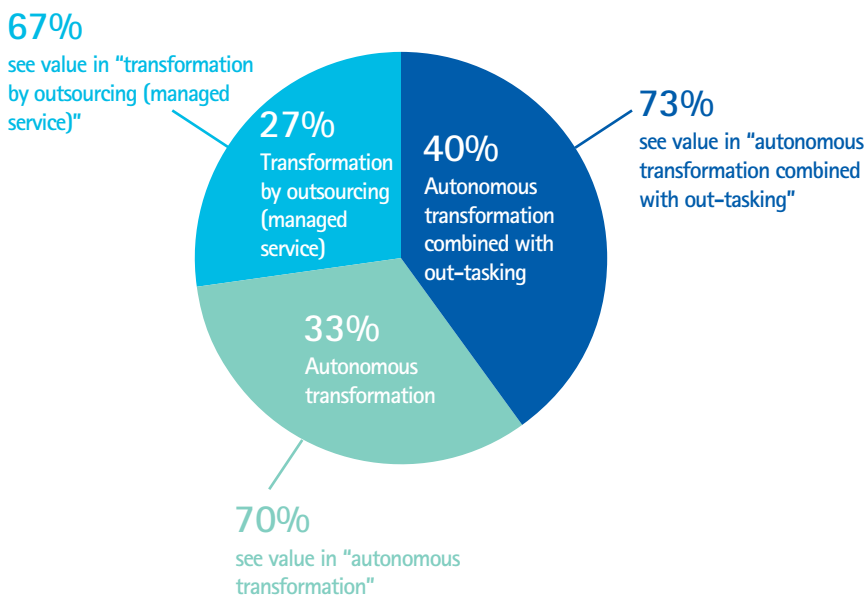
Key:

Inner pie chart shows which approach respondents favor if they need to reduce spending in network operations and transform the operating model.

Outer figures indicate what percentage see the value in services provided by an independent third party in each option.

Quality of Service Viewed as Paramount

In general, the CSPs surveyed show a consistent emphasis on the importance, in this technology shift, of increasing control of planning, building and running the network, and of maintaining control over quality and the customer experience.

Service quality

A large majority (80 percent) agree that the ability to manage service quality has become more important than ever before; this is particularly true in a shared network environment. In fact, respondents say that the biggest challenge network operators will face in the new full-data environment is the "ability to manage customer experience/quality perceived by end users on different services."

Network analytics

Analytics, as a tool, appears to be highly valued. All interviewees are planning to invest in network analytics (see Figure 3). When it comes to the purpose of network analytics, CSPs' focus is on the immediate need to drive service quality: For now at least, analytics is valued more for real-time service assurance than for analysis of future trends.

Organizational issues

Service Quality Management (SQM) and Customer Experience Management (CEM) capabilities are seen as key differentiators in delivering successful broadband/cable services, even though there is no clear consensus about which organizational unit should have end-to-end responsibility for CEM and SQM (see Figure 4). Introduction of a dedicated service operations center (SOC) within a network operations department seems to be slightly favored over the integration of SOC inside existing functions.

Views on Managed Services

Many CSPs in recent years have entered into managed services agreements with different providers, often utilizing different cooperation models and incorporating different scopes of work.

In addition, CSPs in emerging markets have been more likely to engage in a fully outsourced managed services approach to network operations, rather than a partially outsourced or "out-tasked" approach.

The value of managed services

The survey results indicate that in both mature and emerging markets, when CSPs need to reduce spending, a variety of different operating models from "out-tasking" to a fully outsourced approach are used, and third-party services are valued (see Figure 5):

- Approximately 50 percent of respondents agreed that managed services had met their expectations for cost savings.

- The majority of CSPs (58 percent) also feel that managed services/outsourcing deals have met their expectations regarding comparable quality.

However, the survey responses suggest that managed services are not a panacea for CSPs, and there is no consensus on the value of managed services for implementing the transformation that the changing environment is requiring, and for achieving the benefits related to that.

Operations and deployment aspects

Respondents saw greater value in the operations and deployment aspects of managed services (see Figure 6).

In fact, 83 percent said that operations can benefit from managed services, a powerful endorsement of this idea, and 71 percent saw value for managed services in the area of deployment.

For deployment of the network, strong internal control is favored, rather than operations by the network equipment vendor. This holds true for deployment of both mobile and fixed networks. The majority of integrated operators believe that an internal model for operating their networks, combined with out-tasking of selected functions, is a good approach to reduce spending without losing control or focus on quality.

Figure 3: Network Analytics is Highly Valued for Driving Service Assurance

Network analytics tools–reasons for investment and costs

100% of respondents are planning to invest in network analytics tools to analyze data coming from the network in the next three years
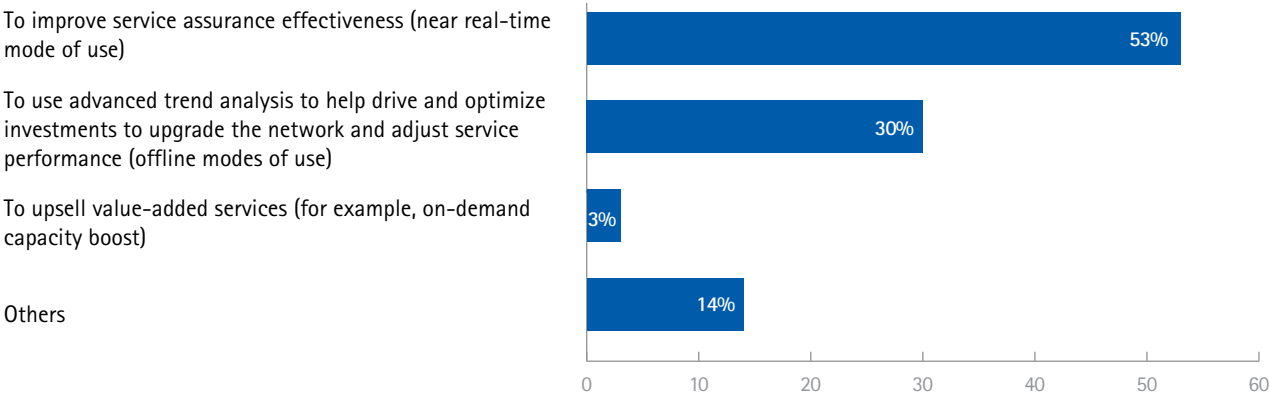
Most important reason to invest in tools

Reason	%
To improve service assurance effectiveness (near real-time mode of use)	53%
To use advanced trend analysis to help drive and optimize investments to upgrade the network and adjust service performance (offline modes of use)	30%
To upsell value-added services (for example, on-demand capacity boost)	3%
Others	14%

(Axis: 0, 10, 20, 30, 40, 50, 60)

Figure 4: CEM and SQM Seen as Key Differentiators for Broadband Services

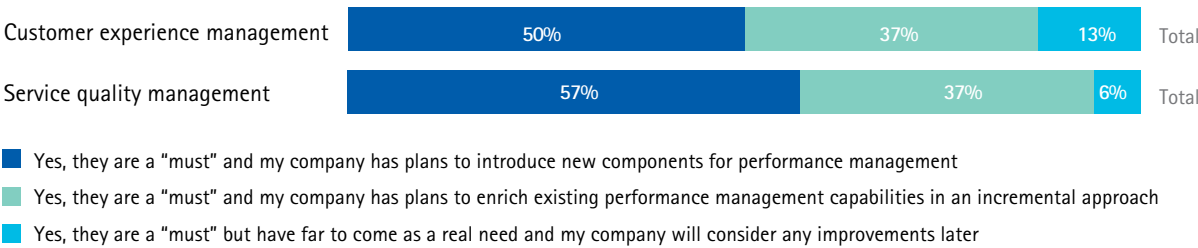% of respondents that consider CEM and SQM to be key differentiators

Customer experience management	50%	37%	13%	Total
Service quality management	57%	37%	6%	Total

- Yes, they are a "must" and my company has plans to introduce new components for performance management
- Yes, they are a "must" and my company has plans to enrich existing performance management capabilities in an incremental approach
- Yes, they are a "must" but have far to come as a real need and my company will consider any improvements later

Figure 5: Majorities Feel Managed Services Deliver Expected Quality, Cost

Did a managed service approach deliver...

	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
Expected savings?	17%	33%	25%	21%	4%
Comparable quality of service?	8%	50%	29%	9%	4%

- Strongly agree
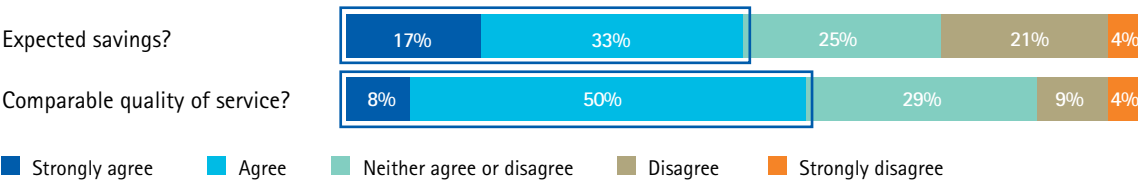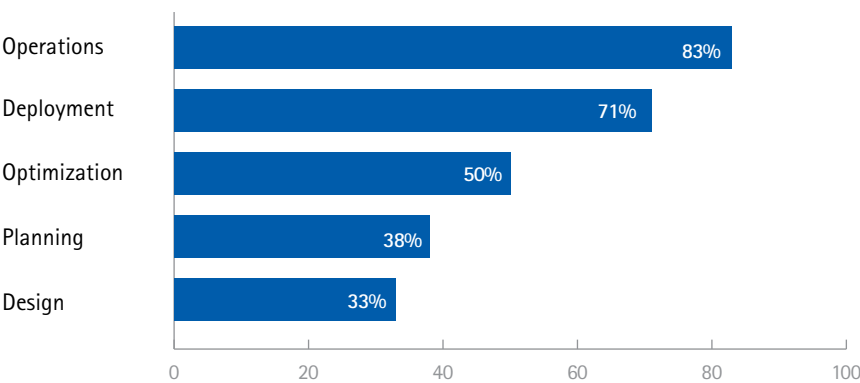- Agree
- Neither agree or disagree
- Disagree
- Strongly disagree

Figure 6: CSPs See Greater Value in Operations and Deployment Aspects of Managed Services

Areas that can benefit from managed services

Area	%
Operations	83%
Deployment	71%
Optimization	50%
Planning	38%
Design	33%

(Axis: 0, 20, 40, 60, 80, 100)

Network Sharing

Rapid broadband network development and cost pressures are leading CSPs to pursue network sharing opportunities; however, our survey reveals a tension between the need to control the network (the most important asset of a CSP) and the need to realize the maximum amount of benefit from network sharing.

The network asset is still perceived as a strong factor for differentiation and control of service quality, even in the face of the need to reduce capital expenditures and drive down operating costs.

Focus on network access elements

Certain differences were apparent between mature and emerging markets. CSPs in emerging markets, compared with those in mature markets, showed a greater tendency to focus on both access and backhauling sites and equipment, as distinct from access sites alone. CSPs in emerging markets also showed a greater openness to network sharing for new as well as existing infrastructure, as opposed to merely existing infrastructure. In short, CSPs in emerging markets seemed more open to embracing the network sharing paradigm, which is consistent with their lower ARPU, and in some cases, more recent deployments.

Preference for the commercial alliance option

In terms of organizational form for network sharing, a commercial alliance is the preferred option, while full joint ventures are still a small minority. This appears to be a reflection of CSPs' desires to move forward with workable, practical solutions, and to avoid the added administrative and financial complications of moving to a full joint venture.

Need for control of service quality

Unsurprisingly, the need to maintain control over service quality management and customer experience management is one of the key concerns for those who engage in network sharing, and a great deal of mental and contractual energy is spent on verifying that these controls are in place.

Appropriate regulatory framework

This emphasis on control also extends to CSPs' views of the regulatory framework that would be appropriate for network sharing. Large majorities (73 percent and 77 percent, respectively) say that regulations and competition are home market factors that can influence network sharing agreements (see Figure 7).

The use of multiple shared networks (i.e., networks shared among a certain number of operators, with more than one network per country) is viewed as being the best form of network setup from a regulatory perspective, versus a single nationwide network infrastructure (see Figure 8). This tendency to favor the use of multiple shared networks as opposed to a state-sponsored network, which is evident in both mature and emerging markets, confirms that the network asset is still perceived as a strong factor for differentiation and control of the service quality, even in the face of the need to reduce capital expenditures and drive down operating costs.

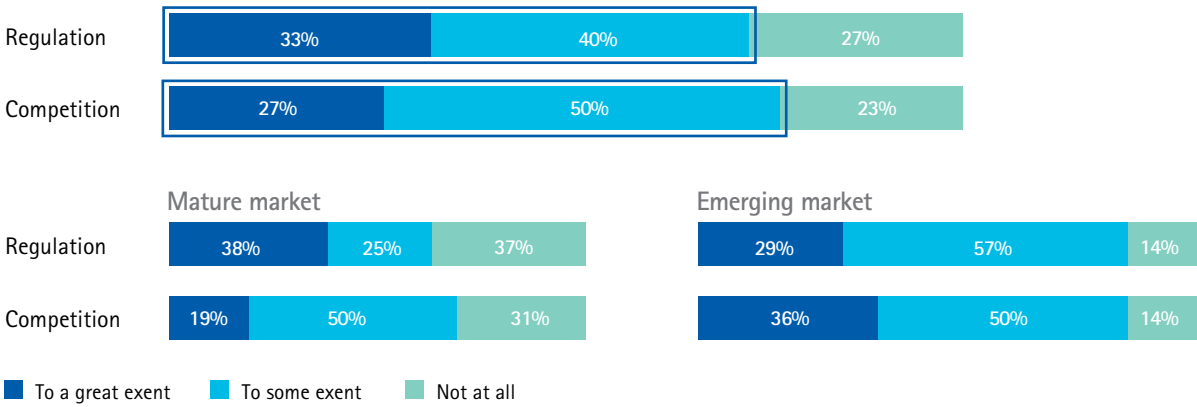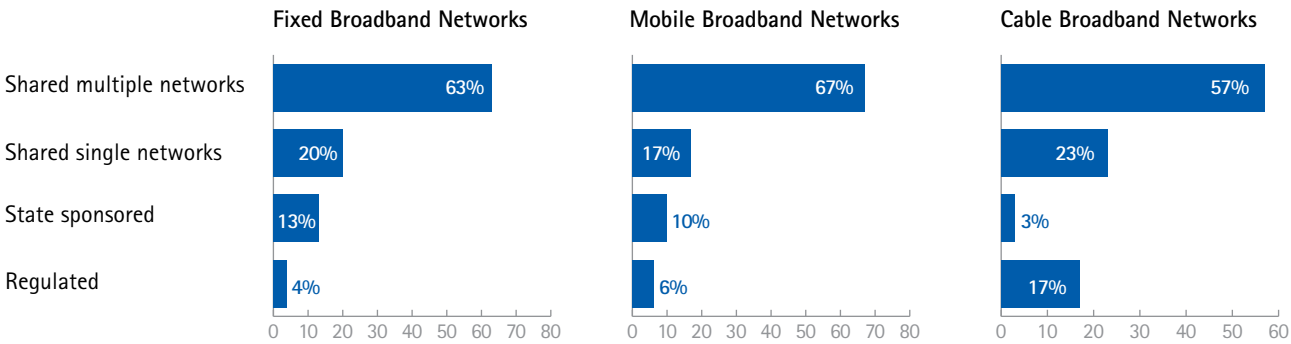## Figure 7: Majorities See Regulation and Competition as Barriers to Network Sharing

Regulation	33%	40%	27%
Competition	27%	50%	23%

Mature market

Regulation	38%	25%	37%
Competition	19%	50%	31%

Emerging market

Regulation	29%	57%	14%
Competition	36%	50%	14%

■ To a great exent ■ To some exent ■ Not at all

Figure 8: CSPs Favor Shared Multiple Networks from a Regulatory Perspective

Best form of broadband (cable) network setup from a regulation perspective

	Fixed Broadband Networks	Mobile Broadband Networks	Cable Broadband Networks
Shared multiple networks	63%	67%	57%
Shared single networks	20%	17%	23%
State sponsored	13%	10%	3%
Regulated	4%	6%	17%

Recommendations for CSPs

CSPs are facing two major, simultaneous challenges that must be addressed if they are to differentiate themselves and stay competitive:

- The need to innovate, fulfill data traffic demand and invest in new technologies, with limited funds and sub-optimal ROIC;

- The need to improve service quality and to develop advanced capabilities, while under continuous pressure to reduce OPEX.

It is clear that traditional operating models cannot fulfill both of these needs, and that a transformation toward a more industrialized and collaborative approach is needed.

However, many operators, particularly large ones, are concerned about possible loss of control over their processes, which could lead to poor quality and a reduced ability to differentiate themselves.

In addition, while managed services and network sharing have been demonstrated in some cases to bring short-term financial benefits, they are not in themselves a solution. Merely sharing the pain with another CSP cannot be the solution to a more fundamental, structural problem.

Instead, for maximum benefit, these agreements should be accompanied by an internal transformation, encompassing a new operating model; a redefinition of core processes; and the introduction of analytics-based tools that facilitate new capabilities in planning, design, deployment, service fulfillment and service assurance.

To accomplish this transformation, CSPs need an ally that is able to a) help them define the right strategy, b) support them on execution until the expected benefits are realized, and c) carry out the transformation initiatives that are required to adapt to the new operating models on a sustainable basis. To achieve the full benefit of this approach, however, an improved governance model is a key aspect in all transformational journeys, managed services and sharing agreements.

Innovative models can help CSPs maintain profitability while making these investments and continuing to manage legacy networks and OSS. When seeking to assist providers in this area, technology vendors and service providers need to bring compelling value propositions through innovative, value-based contracts that fully capitalize on advanced solutions.

An evolved operating model—orchestrating internal and external capabilities—can simultaneously monitor the desired level of control, quality, industrialization and cost savings. An internal transformation, combined with selective BPOs, can be an excellent choice to fulfill all these needs.

CSPs are facing two major, simultaneous challenges that must be addressed if they are to differentiate themselves and stay competitive.

Methodology: Sample Characteristics

Geographies

The geographies of the companies surveyed were broad-based. Roughly one-third each were from the Americas; Europe, the Middle East and Africa; and Asia (see Figure 9). Approximately half were from mature markets, half from emerging markets.

Business segments

The companies' communications segments were also broad-based, spanning cable (13 percent), wireless (13 percent), wireline (20 percent), and integrated service providers (54 percent).

Revenues

Company revenues were likewise broad-based, though tending toward larger operators.

Job titles

Respondent job titles ranged from COO to EVP/Operations to CTO to network director. All of the respondents indicated that they were decision makers or key influencers in decisions regarding their company's network operations strategy.

Figure 9: Distribution of Respondents

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Contact Us

To find out more about how Accenture Network Services can help your business make the most of its opportunities, please contact Paolo Sidoti, managing director, Accenture Network Services, Communications, Media and Technology, at paolo.sidoti@accenture.com, or visit www.accenture.com/network-services.

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