Data:
The Key to Survival for Telco Operators

Businesses are fundamentally changing how they operate through use of data-driven technologies, reflecting changes in how people live and work.

The explosion of data availability coupled with advanced data analytics through Artificial Intelligence (AI) and Machine Learning (ML), Robotic Process Automation (RPA) and improved data security has fuelled rising customer expectations and requirements for system operators. The introduction of 5G networks has added another high-speed, low latency form of access to the network. Legacy network infrastructure simply doesn't have the flexibility, scalability, or intelligence to underpin this next wave of innovation.

Enterprise networks currently risk becoming a bottleneck, holding back the business, and delaying the implementation of these strategically vital technologies. The importance of the network to business operations and customer facing activity means that the risk of an outage must be minimised as consumer expectations soar.

Digitally Driven Future

By investing in and deploying new digital capabilities such as Network Functions Virtualization (NFV) and Software Defined Networking (SDN), network operators are liberated from the constraints of physical infrastructure and can leverage low cost and reliable connections in a modular and agile way. This removes the dependency on high-cost proprietary hardware and continuing need to upgrade in-line with technology advances to ensure minimal bandwidth utilization and maximum latency.

NFV divides a physical network into multiple virtual networks, each capable of supporting many Radio Access Networks (RANs) whilst also helping the control plane to manage the flow of network behaviour through Application Programming Interfaces (APIs).

SDN serves to improve network control by enabling enterprises and service providers to respond quickly to changing business requirements with administrators controlling the network traffic from a centralized control console without the need to physically interact with individual switches in the network.

It is undisputable that data underpins every aspect of a successful Telco operator and without the network, data-driven solutions which provide competitive advantage cannot be exploited to their full potential.

Building Trusted Data

The state of data and the ability to perform differentiating analytics in telco currently is characterised via several key factors:

Data quality	Tool Fatigue	Vendor "Lock in"

Poor general data quality of network infrastructure & network asset performance.

A diverged local versus group tooling & analytics strategy has led to widespread fatigue within Network Divisions. Too many network related tools with a lack of aligned benefits.

Increased over reliance on infrastructure providers for outsourced analytics, as well as potentially jumping into deeper relationships with cloud providers that still pose a competitive threat, should they continue to enter the telco market.

Additionally, extensive and continual M&A activity can often result in challenges around data consolidation and the provision of a singular customer view.

Data foundations

Our experience tells us that data foundations in network operators are generally poor. Chronic technical debt permeates. This can be due to a variety of reasons but based on our experience this is most often the result of a lack of investment in internal data capabilities over time. Some operators manage this burden through agreeing new contracts with vendors or leaning on cloud partner relationships, despite the potential future competitive threat this poses.

Other providers become overly reliant on key partners, which can present challenges if for example, partners are forced to leave due to regulatory reasons. This can leave network operators without sufficient internal capability to keep track of core metrics and data lineage. For example, the ability to keep a distinct count of the number of physical 5G enabled sites that exist, which represent a huge investment to the organisation, have in some of our clients proven to be a

huge challenge. Other organisations struggle with slightly more advanced use cases ranging from shutting down specific spectrums to make way and facilitate 5G rollout, to deploying modern technologies and then either not turning these on or not letting potential or existing customers know these technologies are available in their area. In both cases, the implications are the organisations missing huge opportunities for future investment or sinking redundant spend.

Operating Model and Tool Fatigue

Network operators have been investing in different tools for so many years that they are now at a stage where they are fundamentally struggling to consolidate and bring different tools and dispersed capabilities under control.

Internal IT departments, operating in a "centralised" model, have tried to adapt and support the Network Division with more advanced data capabilities and to meet their growing demand but are increasingly finding this challenging.

The inherent departmental segregation of these skillsets and lack of trust between the internal functions leads to either extensive external reliance (on cloud providers and third parties)

or a track record of failed projects and regrettable spend.

The ability to successfully centralise operations across global organisations is rarely successful due to the local regulation, for example sharing of RAN or fixed duct infrastructure across multiple competitors. This can lead to a constant sense of inertia and fatigue, with time and energy focussed on rolling out expensive enterprise tools that will not fit against local constraints. This can hinder local operators from delivering with agility in addressing and resolving their own priority capability gaps.

Another issue we see is an over-reliance on data analytics tools which become

quickly outdated, are incorrectly configured, or misused by functional teams with insufficient skills to interpret the information provided. Select tooling should be used to enable the appropriately skilled functions to operate with efficiency.

For example, the rise of the "ribbon" which forces different network personnel to endlessly click on multiple buttons using a GUI (which is sometimes hosted on their desktop!), despite providing the illusion of data democracy, is more effectively managed by dedicated internal data & analytics teams, who understand and are accountable for the decisions they make.

Vendor "Lock in"

Does reliance on cloud providers enable Telco Network Divisions to provide the cost-effective analytic solutions or is there a risk it supports a broader 'kicking of the can down the road" when it comes to self-sufficiency and the development of internal capabilities?

A key factor is that a lot of data work is outsourced to network infrastructure providers. This can lead to situations where if network providers walk away, key internal statistics such as number of mobile sites or location of fibre for example can no longer being tracked internally.

To an extent, this is mitigated via the recent mass adoption and partnership with large cloud operators including Azure, GCP and AWS.

The problem with this is that despite using and migrating to these platforms, operators still need to develop strong internal capabilities that position them well for the future. With constant pressure on operator revenue & profit and the industry being challenged to reduce their carbon footprint, this spawns a concoction of conflicting and contradictory agendas.

The successful operators in this space are seeking to focus on cloud vendor agnostic internal capabilities. The inability to become cloud vendor agnostic will inhibit network operators from transitioning to value-add analytics. Numerous operators struggle to reconcile a distinct and accurate number for their total assets, or are able to conduct appropriate network planning using broader data sets outside of residential census population footprint data. Many simply do not have the appropriate tooling. Without leveraging heavy external support, operators can struggle to create performant machine learning, that can be trusted and used in production workloads. Networks, with their variety of different structured and unstructured data ranging from geospatial to time series, real time probe data to strategic forecasts – deliver a plethora of datasets and provides a huge level of opportunity to utilise best in class machine learning to support network investment, fault prediction and network performance optimisation. Whilst this work is being explored by leading cloud vendors in global partnerships with Telco operators, it is critical for all Telco's to be building and developing these skillsets and capabilities internally and ensuring they stay on the correct side of the knowledge exchange with these partners.

The Right Partnerships

Whilst the challenges outlined aren't particularly novel and are well known throughout the industry, we strongly believe that partnering with the right, independent and flexible organisations in the analytics space within the telecommunications industry will be more valuable to operators. Simply, we believe telco operators need to partner with organisations that complement their skillsets, bringing expert cloud and vendor agnostic analytics expertise to network operators.

This will enable operators to leverage the skillsets for short durations, to remediate foundational issues, whilst in parallel build long-lasting internal capabilities that will enable them to retain "independent competitive advantage.

The opportunity to leverage crowdsourced device level data to redefine standard network performance KPIs and understanding of consumer experience within the network remains unfulfilled.

Larger opportunities are presented to network operators if they achieve better data quality. Such examples include but are not limited to a firmer handle on 5G rollout, understanding where sites have been delivered and are live, together with the performance of those sites. Understanding network infrastructure and the appropriate governance of these processes and data is critical for updating and modernising fibre deployment, as network operators are currently reliant on five-year cycles, expensive and time consuming infrastructure clean-ups.

Building new internal, vendor/ cloud agnostic functionality that enables portability between platforms is critical. Adhering to rigorous basics of owning and internally maintaining data architecture and data quality is critical. Better internal cross functional teams need to be developed. They need to be empowered from the outset and supported to drive change through the business. Whilst partnering and outsourcing initially will make sense, this should be done deliberately and selectively focusing on how these partners can support these internal functions in the short term, to enable them to run self-sufficiently in the future.

Why Baringa?

Baringa is one of the world's leading independent management consultancies, with over 21 years' experience advising governments and industry on Business Transformation and the use of Data Management and Analytics. Baringa have been involved in defining Data Analytics strategies and implementations for Network operators across Europe, America, and the UK.

Our teams have deep understanding of Data Analytics and extensive experience in adapting our clients' businesses to exploit technological advances and address the needs of evolving regulation. Our Telco Analytics consultants have experience in engaging the C-Suite and their teams to prioritise risk management decisions, build resilience across their organisations and protect critical assets. We have supported organisations in establishing effective analytics

capability and have worked with clients in establishing successful business propositions around data analytics that have driven business value.

Our team is passionate about helping operators to optimise their data analytics strategy and operations to set up for success. We would welcome your thoughts on the topics we've discussed in this article, and how you see these challenges impacting your organisation.

Please get in touch if you're interested in hearing how we can help support you on this issue.

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