# Network Slicing: Unleashing Business Model Innovation

## Summary

The successful and sustainable monetization of 5G by telcos will be driven by the opportunity to assume new roles, positions and partnerships in a transitioning ICT value chain. Those roles could span from a B2C consumer retail offering to a B2B2B ICT platform provider to enterprise. Effectively, "brand telco" will need to develop a number of new business identities that fully maximizes the expectations created by 5G.

A key enabling technology underpinning that value chain agility will be network slicing, unleashing a new wave of possibilities along horizontal, vertical, static and dynamic business lines.

Monetizing that innovation IS a major strategic imperative. Investments in a new digital stack and precision market insertion NOW will bear long term fruit.

## The Drivers for Network Slicing

Network slicing will help operators maximize the utilization and monetization of a scarce and costly resource: the 5G mobile network.

3G and 4G mobile networks were architected and deployed on a limited "one size fits all" model. It may have had wide appeal, but it constrained innovation and opportunity for MNOs. 5G, through its six monetization levers (bandwidth, latency, capacity, QoS, network slicing and spectrum), provides a flexible platform for business model innovation and improved offerings to consumers, enterprise and industry.

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These more granular offerings will derive predominantly from 5G's capability to "network slice" — to virtually segment the mobile network from device to data center and extend targeted, deterministic and predictable treatment for every device and application in that slice.

Network slicing can be seen as a "parent" of other monetization levers such as latency, capacity, bandwidth and QoS. Each can be uniquely defined per slice and monetized appropriately, allowing for variable customer or segment-specific service level agreements (SLA).

The slicing of the 5G mobile network will open possibilities in enterprise and industry verticals, IoT and the consumer space. It may even start to appear in private, unlicensed spectrum deployments on industrial sites and similar campus locations.

Network slicing will also develop over time. Static and horizontal slices in the short term (2020–2022) are likely to be few and cater to broad use cases (enhanced mobile broadband), as opposed to more dynamic and vertical slices in the medium term (2022–2024). These slices will be more frequent, richer in definition and more targeted in terms of usage (a "blue-light" slice as an example).

Unleashing Business Model Innovation

# 5G: A Catalyst for a New Digital Operating Model

**Digital First, Multi-Segment, Hybrid Partnership Model**
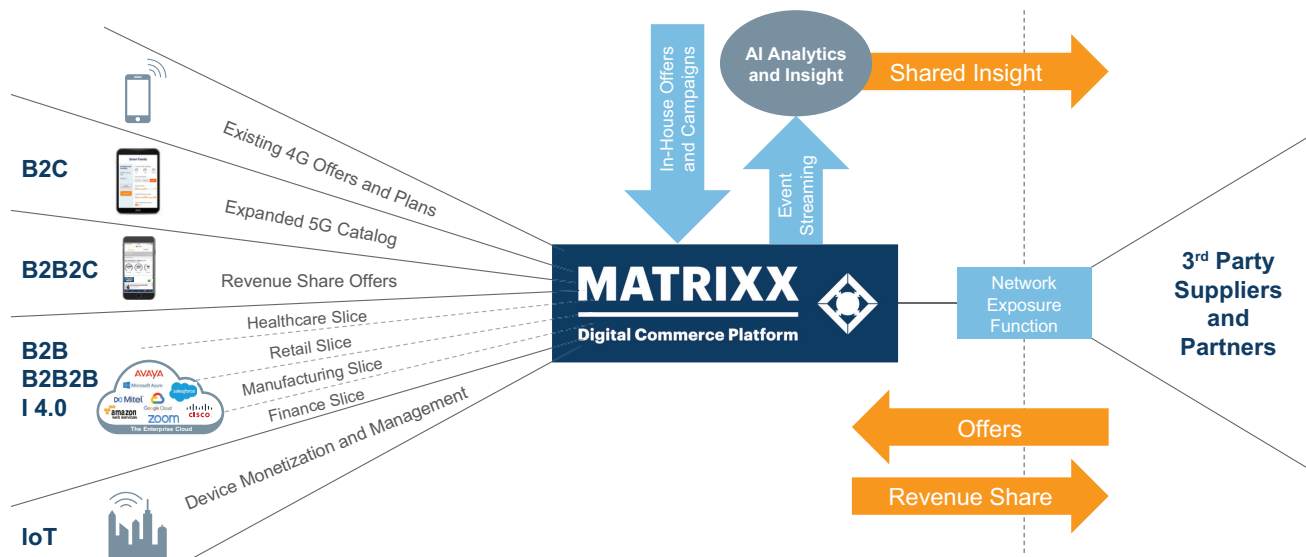


Figure 1: The Key Role of 5G in Creating a New Digital Operating Model

Where a service level agreement exists, there is value; where there is value, there is money! SLAs are vital to monetizing network slicing through virtual private mobile networks that offer guaranteed appeal to target customers and segments, and which can be monetized by MNOs.

As 5G rollout gathers pace, several business models will emerge that will shape the potential return from network slicing, including the following:

## Business-to-Consumer (B2C)

Business-to-consumer opportunities will be driven and owned by the telco (from a monetization standpoint) while drawing on elements of third-party services to augment them. The key to success, from a 5G perspective, will be the differentiation between these and 4G services. Early in the deployment cycle, some services will be "improved" by 5G. Some will be "enabled" by and unique to 5G. One such service enabled by 5G will be online cloud gaming.

Cloud is set to revolutionize the online gaming industry. By moving game processing into the cloud and allowing mobile devices to act as game consoles, significant disruption to the established industry will occur. New entrants such as Apple (Arcade) and Google (Stadia) have the brand and financial clout to establish a new model for the industry. However, increasingly sophisticated graphics and moves towards virtual reality (VR) will place a massive burden on the network in terms of bandwidth and ultra-low latency requirements.

### Monetization Opportunities
Dedicated cloud gaming slices, configured with the appropriate bandwidth, latency and QoS, is the basis for this model.

Mobile users could purchase a 24-hour promotional upgrade pass from an online commercial catalog that, when executed, would route their gaming traffic onto the highest-performing gaming slice during the validity of the pass. Users may extend that promotional usage and gain loyalty points from introducing others to the capability or from purchasing in-game add-ons (such as VR headsets and additional game tokens). The MNO would control the upgrade to the high-performance slice and any gaming pass offers could be made in partnership with a select cloud gaming provider. The experience received, combined with promotions, may convince the user to upgrade to a plan that has built-in cloud gaming capability as a standard feature.

## Business-to-Business (B2B)

Mobile-oriented IT services and systems integration have been dominated by SIs and equipment vendors, with telcos often relegated to a low-margin connectivity play. While partnerships in business models such as B2B2C and B2B2B will be a key part of a broad-based strategy for 5G, telcos also have a standalone "networked application" opening that will provide a healthy margin opportunity compared to consumer markets.

### Monetization Opportunities
Secure mobile telepresence services will help telcos offer greater business agility than fixed telepresence suites through a fully "on-net" IMS based solution with no breakout to the internet. Each device within the telepresence domain can connect to a dedicated slice that is configured for the required bandwidth, latency and QoS, delivering a superior experience across all devices. The telco could provide a full solution including end devices, security, configuration and deployment, but might hand the operational management and control to the IT admin within the enterprise. Usage of the telepresence service could be delivered on a fixed monthly fee basis or usage-based per device. Crucially, usage per device and associated insights and analytics can be gathered to drive "next best" type offerings via an online catalog.

## Business-to-Business-to-Consumer (B2B2C)

The flexibility of 5G and its six monetization levers removes the barriers to the increased adoption of rich, mobile content services. That will lead to an upswing in partner-centric B2B2C models to a mobile-centric consumer, particularly in the media space.

That co-creation of value, with both media and telco brands being clearly visible to the consumer but with each demonstrating their significance and relevancy in the delivery chain, lies at the heart of successful B2B2C models.

### Monetization Opportunities

Imagine that a major media company is promoting its brand and offering to the end consumer. The media brand is differentiating itself amongst its peer competition, but also working hand in hand with a 5G telco to deliver enhanced, mobile-specific media offers that are either significantly improved by or enabled by 5G.

Through a real-time, digital-first mobile app, new products and services can be put in front of the whole consumer base or targeted customer

segments by the telco. For the sake of this example, "Hyperstream" is a revenue share partnership model between the telco and a sports broadcast organization. This partnership enables both to tie high-quality content to high-quality, media-centric connectivity that is powered by 5G.

The telco will be extending access to the event via a catalog-based pass, available through a real-time app that also provides merchandise and connectivity upgrades.

The pass will let the device access the media slice of the telco offering, which will be configured with appropriate bandwidth, latency and QoS to cover HD delivery to mobiles and tablets. Further openings for upselling will also exist. Through the app, the customer will correspondingly see exactly what they have spent and received in terms of quality of experience in real-time.

The sports broadcaster will be able to extend their offering directly to customers via terrestrial and fixed broadband delivery AND provide an enhanced mobile experience via the telco with whom they will share delivery revenue.
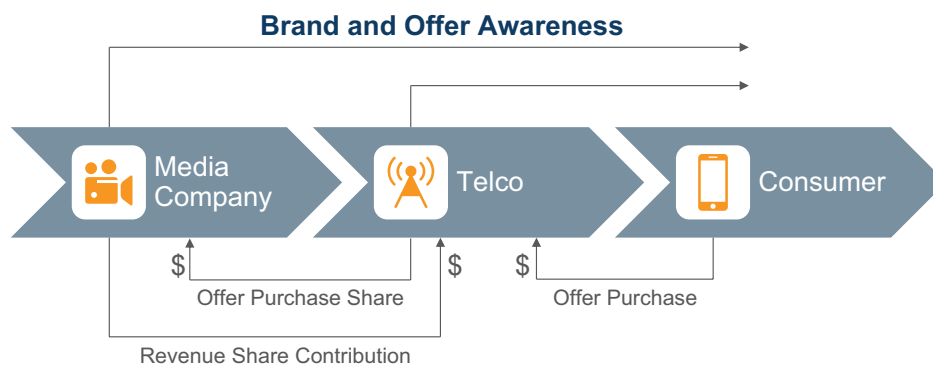
# B2B2C Value Chain Example

**Media Company**



Figure 2: B2B2C Value Chain Example

## Business-to-Business-to-Business (B2B2B)

5G will enable a revolution in enterprise offerings — both native telco propositions and new partnership models where the telco will play a significant role in the value chain. The key to succeeding across many industry verticals will be the direct application of 5G's monetization levers in a sustainable model. In a world of "everything connected" and "everything as a service," the potential for that revolution to become real is growing.

### Monetization Opportunities

A parking company has a contract with a local government body to run all the major car parks in a large city. To maximize its business case, it wants to move demand between its car parks at times of congestion through real-time, dynamic pricing models, without losing revenue.

It contracted a telco to manage its "smart" car parks where real-time status monitoring, real-time payment via a mobile app and the ability to intelligently re-direct customers to other car parks at times of peak demand were main requirements.

The telco manages the loading levels of each car park via embedded sensors. When the car park is 50% full, it triggers a helpful pricing update to the parking company's app users, advising them that the price per hour for parking in that car park has just increased by 15%. It also provides a mapped selection of alternative car parks nearby, with navigation and current prices per hour.

The telco is extending a managed smart car park service to the parking company. All of its devices and sensors run via an SLA-bound slice capable of handling thousands of devices, ring-fencing this activity from another network usage. Real-time status monitoring, dynamic price adjustment and navigation to other parking sites are closely correlated, with the telco providing the commercial decision engine which feeds event activity instantly to the parking company. The telco is then directed to make updates to the parking app and any IoT-enabled signage in each car park. The app itself is positioned as a "VIP" level of service through which either special treatment or opportunities to reserve spaces ahead of time are also possible.

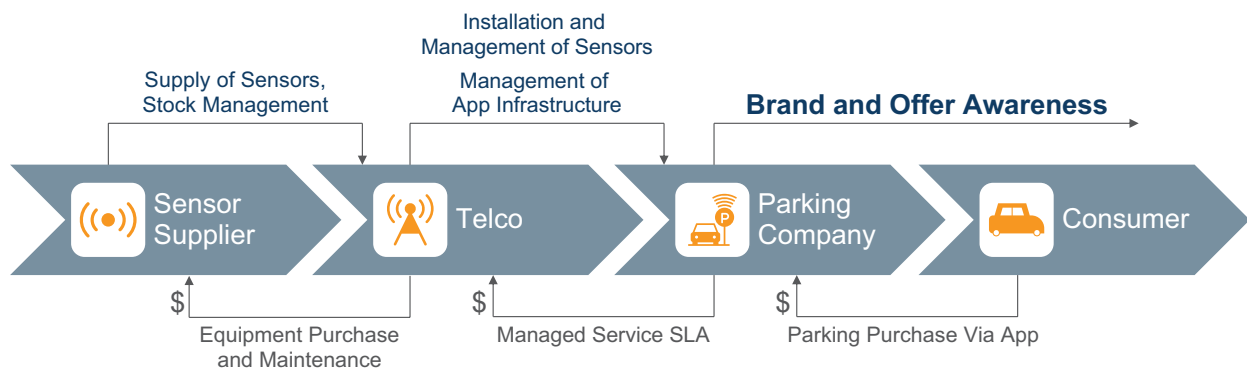# B2B2B Value Chain Example

**Parking Company**



Figure 3: B2B2B Value Chain Example

# Key Requirements for a 5G Ready CCS

## Digital Grade Scale, Performance and Architecture

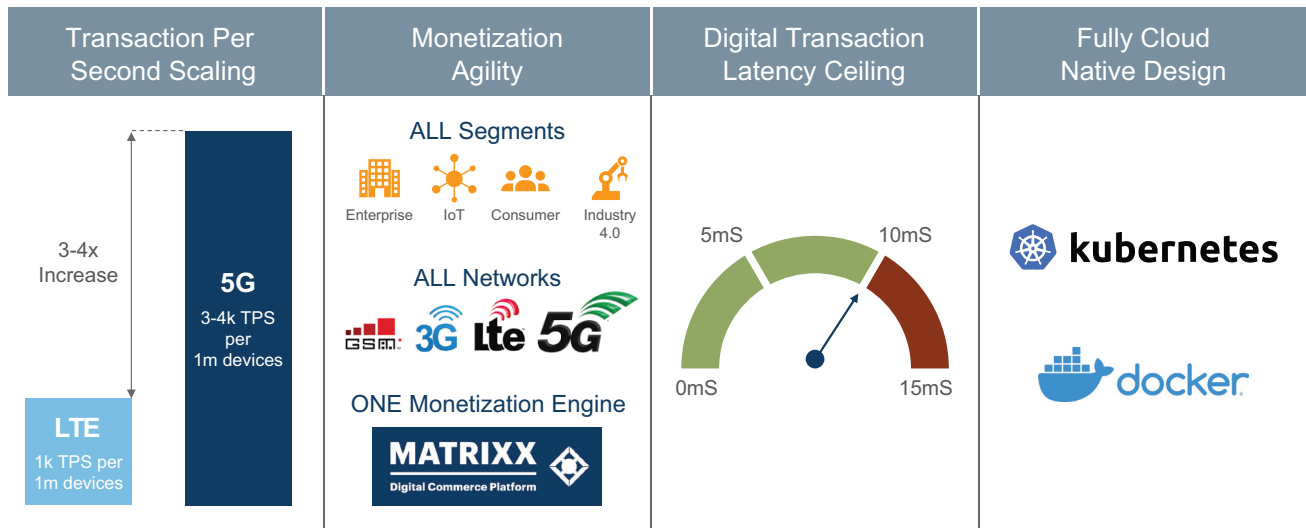| Transaction Per Second Scaling | Monetization Agility | Digital Transaction Latency Ceiling | Fully Cloud Native Design |
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Figure 4: Key Platform Requirements for a 5G Ready Converged Charging System

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Squaring the circle between the complexities created by adopting new roles in a transitioning ICT value chain and the need to automate, simplify and significantly reduce the cost to serve appears challenging, but is achievable. The key to achieving this is executing in-house, partner and customer business logic in one place, via a real-time decision engine that is tightly coupled to the network and can perform key rating, charging, policy, digital billing and event streaming functions at scale. That logic then feeds in-house commerce and offer systems and gateways to partner systems for inbound configuration, outbound insights and analytic updates. Crucially, end customer balance management, catalog offerings and payments are also executed in the same decision engine.

As the role of telco changes in transitioning ICT value chains, the IT infrastructure responsible for successfully monetizing those new roles need to change as well. Complex, diverse legacy infrastructures with diffused business logic can't deliver the flexibility or cost to serve levels required.

The MATRIXX Digital Commerce Platform is a rich, real-time decision engine that supplies full converged charging system functionality. It is capable of flexibly monetizing a whole array of network slices across many different customer segments and business models. For MNOs deploying option 2 standalone 5G core, the platform is ready to monetize those opportunities now. It also provides a clear path during 3G/4G to 5G migration.

More on MATRIXX Software can be found here.