

A close-up, low-angle photograph of two hands holding a smartphone. The hands are positioned as if they are about to tap the screen. The background is blurred, showing bokeh light effects. A semi-transparent blue rectangle is overlaid on the upper portion of the image, containing the title text in yellow.

**MOBILE VIRTUAL
NETWORK
OPERATORS IN THE
AGE OF THE DIGITAL
PLATFORM ECONOMY**

TABLE OF CONTENTS

1. Introduction	3
2. Mobilising the platform economy	3
3. Introducing Mobile Network as a Service	4
4. Mobile Network as a Service and the new MVNO landscape	4
5. Creating channels and brands	5
6. Tata Communications' approach: Mobile Network as a Service (MNaaS) and the mobile platform economy	5
7. Why Tata Communications?	5
8. Creating value in the global MVNO market	6

For more information, visit us at www.tatacommunications.com

Contact Us

INTRODUCTION

We've witnessed the rise of the digital platform economy, which brings significant change to the way people work, interact and create economic value. Mobile is now positioned for the arrival of its own platform economy. Before delving into what shape this is likely to take, it is useful to identify what we mean by digital platform economy. However, there seem to be no rigid definitions or existing model to help us.

Social media platforms focus on promoting social interaction, while extending their infrastructure for other platforms to be constructed. Marketplace-type platforms, such as eBay or Amazon, create e-commerce opportunities for anyone to become a commercial trader. Price comparison platforms provide a marketplace for consumers to interact with and purchase from enterprises. Although this democratisation principle applies to Airbnb or Uber, it also extends to a range of services providing an online market model. Think about price comparison websites and how they have developed additional value-added services beyond their core function. The platform economy, sometimes also referred to as the sharing economy, challenges incumbents in many traditional markets. It also challenges conventional approaches to the definition of work and the way that value is created.

Digital platforms combine the physical foundation of the Internet, together with web services and advanced analytics, to create an infrastructure across which entire platform-based markets and ecosystems can operate. A range of organisations provide a platform for the consumption of services that include video or music, but also access to financial services, flight and hotel reservations and public utility services. The most important thing is that they link providers and consumers – offering vendors an extra sales or promotion channel and providing consumers with more choice.

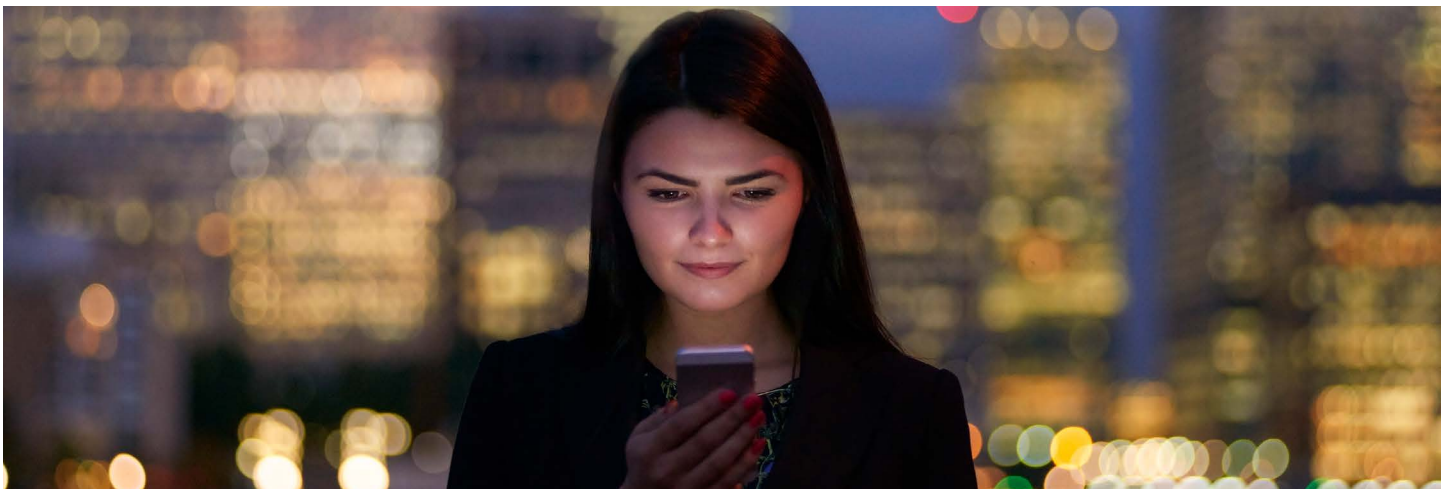
MOBILISING THE PLATFORM ECONOMY

The digital platform economy is transforming the way that people interact and do business. Combined with the phenomenal success of the mobile virtual network operator (MVNO) model, it will continue to shape the mobile industry for the next decade.

This trend reflects consumer adoption of mobile as the preferred way for social interaction. A combination of social networks, proximity and location services, Instant Messaging, presence and rich media – combined with authentication services, payments and a wide range of mobile apps – has created not just a mobility experience, but an expectation about the way people interact with each other via mobile. This is the premise of the mobile platform economy: that people expect to have the freedom and convenience to use mobile as an enabler of their lifestyles.

The arrival of MVNOs changed the competitive dynamic of most markets, where regulation allows them to compete. Traditionally, MVNOs relied on price to differentiate their services, but in the digital platform economy this is no longer a compelling enough proposition.

The mobile digital platform provides MVNOs with a way to differentiate themselves beyond price or demographic. In embracing it, MVNOs can launch new propositions that will not only set them apart in the market, but also provide real value. The mobile platform economy should help MVNOs create and sustain brand-new commercial models, specifically enabled by the mobility factor, beyond what already exists.



For more information, visit us at www.tatacommunications.com

INTRODUCING MOBILE NETWORK AS A SERVICE

If mobilising the platform economy means something beyond just extending access to a digital platform for mobility, there is another related trend to understand. MVNOs are increasingly moving from a CAPEX-based, to more of an OPEX-based commercial model for supply of a range of products and services, beyond network access. In the world of information and communications technology, this introduces more acronyms:

- **Software as a Service (SaaS)** – a hosted software delivery model licensed on a subscription or usage basis
- **Platform as a Service (PaaS)** – a cloud-based service that provides a platform for developing and managing applications without the need to build and maintain a dedicated infrastructure.
- **Infrastructure as a Service (IaaS)** – a cloud computing solution that provides virtualised computing resources over the Internet.

Another variant of these categories is Communications Platform as a Service (CPaaS). Applying the definition above, this is a cloud-based approach to providing a platform for the development and management of communications applications. This is typically accessed via APIs, which are made available for developers to create IP-based communications services that integrate with online applications. A logical extension of this concept is Mobile Network as a Service (MNaaS). Also cloud-based, this provides a platform for developing and managing mobile communications applications via APIs – without the need to build and maintain a development infrastructure. The MVNO model can already be considered as mobile communications as a service, with host operators providing MNaaS for the MVNOs.

While this 'X as a Service' trend is not just the preserve of enterprise applications, a combination of the digital platform economy in conjunction with on-demand commercial models associated with MNaaS will change the way MVNOs interact with their host operators – as well as change patterns of mobile usage and value creation. This trend looks set to create new models and opportunities for the mobile communications industry.

MOBILE NETWORK AS A SERVICE AND THE NEW MVNO LANDSCAPE

While MVNOs might have initially succeeded as low cost discounters, that commercial model is faltering. The MVNO market has changed and fragmented, with specialist MVNOs now serving specific segments and niche markets with a range of specialist communications services.

There is an increasing desire to launch MVNO services among next generation service providers, enterprises and OEMs, while specialists focus on M2M, automotive, SME, youth and various other sub-segments and interest groups. The new generation of MVNO's want to launch and maintain differentiated service capabilities that combine a cloud-based model, communication service integration via API's and mostly web-based self-care options, with relatively little actual communications infrastructure.

The Mobile Network as a Service (MNaaS) model perfectly suits this new MVNO dynamic. It has the potential for a mobile virtual network enabler (MVNE) model, with no need for infrastructure or software investment. Because of its 'X as a Service' approach, it offers a commercial model that can be scaled up or down as required – meaning MVNO propositions can be economically launched to serve a few hundred to several million subscribers. Flexible service creation and service agility is realised through network function virtualisation (NFV), with associated service orchestration for flexible service development.

Dropped calls and data sessions may have been forgiven in the discounter model, but poor service and connectivity is no longer accepted from a communications service provider. A best-connected experience is now a requirement for MVNOs, and it encompasses quality and coverage, not just price. The platform economy adds credence and value to the international roaming perspective, with the MNaaS model supporting brokered access to global mobile network operators, as well as extending coverage for Wi-Fi roaming.

While new MVNOs may have varying objectives and business models, there are several things that are held in common:

- Your business needs to serve a clearly defined target market. Just launching a low-cost MVNO is no longer sufficient, and even where cost is the differentiating factor, it comes with a very clear customer segment in mind.
- Your MVNOs must have a unique and tailored service proposition, a strong brand and sufficient marketing investment to make an impact in the market. This places existing brands, with existing customers at a clear advantage.
- You need to understand how to use the power of online services for service and distribution, ensuring close alignment with the needs of the target customer segment.

For more information, visit us at www.tatacommunications.com

For your MVNO business to develop beyond its initial launch requires additional focus on:

- A move to global, not just domestic connectivity, to serve your customers wherever they are, without depending on the roaming arrangements of your host MNO
- Efficient and flexible charging, billing and settlement, with comprehensive BSS capabilities to ensure optimum service
- Security and fraud protection that can safeguard your customers and your business from ever-changing threats
- Partner management processes to ensure an efficient, automated call and data session handling process between you and your MNO host, as well as keeping strict control of margins

CREATING CHANNELS AND BRANDS

For mobile network operators (MNOs), MVNO has proven a good way to launch sub-brand propositions that protect market share. From a wholesale perspective, supporting independent MVNO channels is also an effective method to increase revenue and margin – EBITDA margins for MVNO channels are nearly double that of retail operations for some MNOs. The MNO brand extension segment is significant, making up to 22% of total global MVNOs, based on research published by GSMA Intelligence¹.

There are various advantages for MNOs working with an MVNE. Outsourcing all MVNO management processes to a third party reduces time to market and initial investment. This translates into lower costs for the brand extension or MVNO partners. The MVNE brings its own BSS/OSS investment, eliminating both the costs and resources needed to support these functions for MVNO channel partners. As the MVNE manages its own technology roadmap, aligned with the evolving needs of the MVNO market, there's no need to develop parallel technology roadmaps.

TATA COMMUNICATIONS' APPROACH: MOBILE NETWORK AS A SERVICE (MNAAS) AND THE MOBILE PLATFORM ECONOMY

How does a mobile platform-based approach meet the needs of MVNOs? The answer is by using the same principles as the digital platform economy. As the mobile platform enables an international mobile market structure, it ensures global data connectivity across multiple international mobile networks. At the same time, API integration supports new application development and customer portals to ensure control, policy enforcement, security and visibility. When combined with global MVNO connectivity, these elements deliver operational efficiency, as well as a speed to market advantage.

Tata Communications applies a combination of MNaaS on-demand principles together with the mobile platform economy. It has used this approach to launch its own platform – **Tata Communications MOVE** <www.tatacommunications.com/MVNO> – to provide a complete end-to-end mobile network enablement service for MVNOs and MNOs looking to launch MVNO sub-brands and channels. Tata Communications MOVE platform offers flexible commercial options that remove the rather rigid approaches often imposed on MVNOs.

WHY TATA COMMUNICATIONS?

Tata Communications' hosted solutions provide a mobile network enablement service capability that goes beyond just providing BSS/OSS and hosted infrastructure, to deliver network access and connectivity services on a global scale. It provides the opportunity to launch MVNO services quickly and economically, and the ability to expand internationally without the need to change MVNE partner. MVNOs can develop their business from a domestic base, with a range of signaling, roaming, messaging, security, fraud protection, BSS and OSS capabilities.

For your MVNO business to succeed means competing domestically and globally, and this requires efficient, scalable and cost-effective services. As a trusted intermediary serving MVNOs and MNO host networks, Tata Communications is uniquely positioned to provide value, wholesale efficiency and the ultimate end-user experience. A variety of organisations have established MVNE services, but Tata Communications brings access to its own infrastructure – as well as a best-of-breed BSS/OSS stack, providing direct access to a globally available network and multiple mobile network operator connectivity agreements.

Tata Communications' hosted solutions provide a unique service mix that helps MVNO businesses grow long after initial service launch, and provides a reach beyond that of any standard MVNE.

- A combination of roaming, signaling, messaging, charging, billing
- Branded SIM, multi-IMSI, OTA provisioning and eSIM
- Control via a management portal and branded end-customer self-care portal
- Cloud-based solution, delivering cost, agility and time-to-market advantage
- MNaaS eliminates CAPEX and relates OPEX directly to usage
- Network access and control through a combination of Tata Communications' own infrastructure, and multiple MNO partner connectivity agreements

¹GSMA Intelligence: Setting the Scene for future MVNO growth (pub 2015)

For more information, visit us at www.tatacommunications.com

- Innovative mobile customer engagement capabilities, including A2P messaging, data, mobile data rewards and mobile data gifting
- Hosted VoIMS capabilities to transform the end user quality of experience with VoLTE, ViLTE and rich data services
- A suite of APIs, including CloudRTC, authentication and payments
- Global Wi-Fi roaming agreements

CREATING VALUE IN THE GLOBAL MVNO MARKET

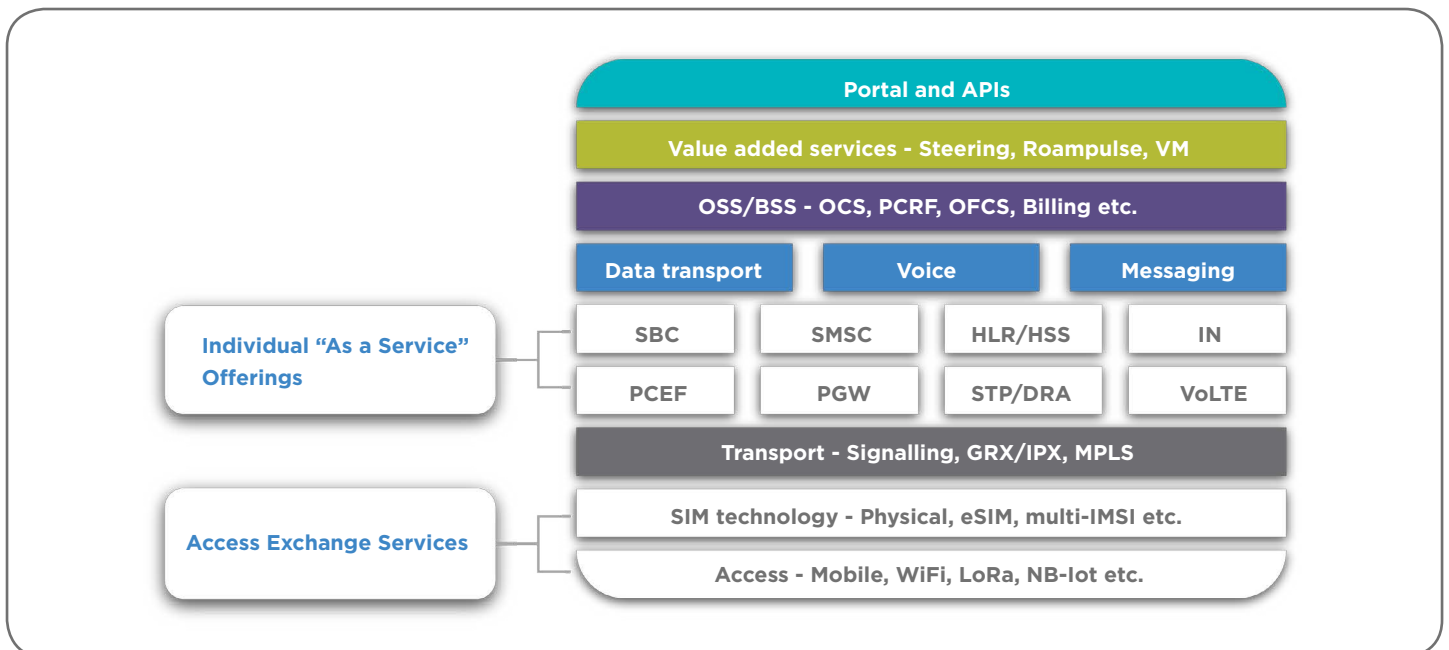
Thinking about the range of MVNO segments and services that can be deployed helps to understand the potential offered by the mobile platform economy and Mobile Network as a Service (MNaaS). A new generation of MVNOs can leverage the capabilities supported by the MNaaS model within the platform economy – as defined here:

- **Platform economy** – an online service market that links customers with suppliers and combines web services with advanced analytics to create an infrastructure across which the platform-based IoT market and associated eco-systems can operate.
- **MNaaS** – this cloud-based route provides a platform for developing and managing cellular IoT connectivity applications via APIs, without the need to build and maintain a dedicated infrastructure.

To realise the full potential of the mobile platform economy and the MNaaS concept requires another shift in thinking. This takes you to the point whereby mobility is considered in just the same way as the worldwide web and cloud infrastructure. For MVNOs this means being able to access applications, connected devices and data via mobile regardless of arbitrary national borders or commercial access restrictions.

There are 900+ network based mobile communications service providers in the world. Most of them do not expose APIs to access their network or services. So using a mobile service platform to expose network assets via APIs could provide access to a vast range of rich mobile services on a global basis.

Your MVNO business could use Tata Communications MOVE to launch and access global connectivity services. Tata Communications MOVE abstracts the complexity of MVNO requirements, and brings considerable additional value by providing more advanced mobile network services, including QoS, policy management, billing or analytics. Adopting this approach can help you launch your MVNO service quickly and conveniently – to create new value for your business.



Mobile network enablement architecture of Tata Communications MOVE

For more information, visit us at www.tatacommunications.com

Contact Us

ABOUT TATA COMMUNICATIONS

Tata Communications Limited (CIN no: L64200MH1986PLC039266) along with its subsidiaries (Tata Communications) is a leading global provider of A New World of Communications™. With a leadership position in emerging markets, Tata Communications leverages its advanced solutions capabilities and domain expertise across its global and pan-India network to deliver managed solutions to multi-national enterprises, service providers and Indian consumers.

The Tata Communications global network includes one of the most advanced and largest submarine cable networks and a Tier-1 IP network, as well as nearly 1.5 million square feet of data centre and collocation space worldwide.

Tata Communications' depth and breadth of reach in emerging markets includes leadership in Indian enterprise data services and leadership in global international voice.

Tata Communications Limited is listed on the Bombay Stock Exchange and the National Stock Exchange of India.

TATA COMMUNICATIONS