5G VERTICAL PLATFORM ASSESSMENT REPORT

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ABSTRACT

The advent of 5G will fundamentally change communication service providers (CSPs) by enabling significant improvements in bandwidth, data rates, latency and the network's ability to support a vast amount and variety of devices to be supported on the network. The 5G architecture promotes network virtualization, AI and automation, and introduces new technologies such as edge computing and network slicing to enable the introduction of immersive solutions.

These 5G capabilities provide the potential for vertical industries to develop innovative new services and applications. However, implementations for these vertical industries and their applications across 5G and emerging communications services are far from optimized. This is due to the lack of enablement platforms that can deliver enabling capabilities not currently provided by 5G standards. Without such enablement platforms, CSPs have been slow to accelerate enterprise digital transformation and unlock new, 5G-enabled business opportunities.

This report's objective is to identity the vertical industry use case needs, underpinned by specific 5G platform enablement capabilities that will enable these verticals to fully exploit 5G and its capabilities. Prioritizing the collaborative needs at an industry level will provide guidance to ATIS regarding near-term opportunities. Ultimately, the goal is to spur greater appetite for, and adoption of, 5G-enabled services and applications and foster greater partnering with vertical markets.

FOREWORD

As a leading technology and solutions development organization, the Alliance for Telecommunications Industry Solutions (ATIS) brings together the top global ICT companies to advance the industry's business priorities. ATIS' 150 member companies are currently working to address network reliability, 5G, robocall mitigation, smart cities, artificial intelligence-enabled networks, distributed ledger/blockchain technology, cybersecurity, IoT, emergency services, quality of service, billing support, operations and much more. These priorities follow a fast-track development lifecycle from design and innovation through standards, specifications, requirements, business use cases, software toolkits, open-source solutions and interoperability testing.

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This report assesses how a variety of vertical industries and their application use cases can exploit 5G capabilities within their future business transformation strategies. The ATIS 5G Vertical Enablement Platform (5GVP) focus group created a landscape of the 5G-enabled vertical requirements. These are based on an assessment of industry data to identify cross-industry platform enablement opportunities and other 5G collaborative platform needs. This work included prioritizing the identified collaborative platform needs at an industry level to provide guidance regarding the near-term platform-enablement opportunities.

A survey of ATIS members identified seven vertical industries that were of priority interest for members. Through the outreach conducted across these seven vertical industries, ATIS was able to identify the 5G-specific use cases within each vertical that are underpinned by the specific characteristics of 5G New Radio (NR) infrastructure: Enhanced Mobile Broadband (eMBB), Ultra-Reliable Low Latency Communications (URLLC) and Massive Machine-Type Communications (mMTC).

- Connection and policy management
- Network quality and service level agreement (SLA) management
- Identity sharing and identity trust
- Data sharing, data trust, personally identifiable information (PII) and consent, and content digital rights management (DRM)
- Location and spatial awareness
- Exchange of value

Based on this report's findings, ATIS will work across several ATIS initiatives to further the understanding of these requirements for specific platform capabilities. ATIS will work with both global and industry-specific standards bodies to coordinate these platform capabilities requirements. The goal is to enable a common set of platform services that can be used consistently across any vertical industry.

2 INTRODUCTION

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The advent of 5G will fundamentally change communication service providers (CSPs) by enabling significant improvements in bandwidth, data rates, latency and the network's ability to support a vast amount and variety of devices. The 5G architecture promotes network virtualization, artificial intelligence (AI) and automation. It also introduces new technologies such as edge computing and network slicing to enable the introduction of immersive solutions. It gives IT networks, applications and underlying IT systems more opportunities to scale dynamically with guaranteed quality and security. This rapid innovation will drive the needs and opportunities to develop additional frameworks and platform capabilities to support 5G-enabled applications and services that span the ICT and vertical industries.

However, implementations for these vertical industries and their applications across 5G and emerging communications services currently are far from optimized. As a result, CSPs have been unable to accelerate enterprise digital transformation and unlock new, 5G-enabled business opportunities.

This report assesses how a variety of vertical industries and their application use cases can exploit 5G capabilities within their future business transformation strategies. The ATIS 5GVP focus group created a landscape of the 5G-enabled vertical requirements based on an assessment of industry data to identify cross-industry platform enablement opportunities and other 5G collaborative platform needs. It also prioritized the identified collaborative platform needs at an industry level to provide guidance regarding the near-term platform-enablement opportunities.

What is an Enablement Platform?

Enablement platforms are focused on the broader needs of the telecom industry to fulfill applications across domains. In the context of this report, a platform is a standardized framework that provides functional capabilities to enable a service.

The definition of a platform within the scope of this report is:

- A set of capabilities required or strongly desired by enterprises comprising a vertical segment in order to provide services essential to that enterprise, that
- May extend beyond the boundaries of a 5G network defined by 3GPP (NG-Core, gRAN, IMS), and that
- Are grouped together such that they can be efficiently exercised by the enterprise and by the CSP, and that
- Are accessible via a set of well-understood and/or standardized interfaces/APIs.

Examples of these enablement platform services are:

- Network quality and SLA management
- Connection and policy management
- Location and spatial awareness service
- Identity management
- Data management
- Security management

The Approach

- **5G verticals assessment:** Identify the vertical markets that are most likely to leverage 5G networks and services.
- **Applications domains:** Applications and use cases that will operate across the ICT within the vertical domains.
- **Enablement platforms:** Develop a view of the enabling frameworks and platforms that will create value and new business opportunities.
- **Recommendations:** Prioritize the collaborative platform opportunities across vertical markets that promote 5G adoption and new services.

The Output of this Report

This report's objective is to identity the specific platform capabilities that will enable these verticals to fully exploit 5G and its capabilities. Prioritizing the collaborative needs at an industry level will provide guidance to ATIS regarding near-term opportunities. Ultimately, the goal is to spur greater appetite for, and adoption of, 5G-enabled services and applications and foster greater partnering with vertical markets.