The key to carrier success in the age of intelligence: New portals, new services, new experiences, and new operations

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AI has been the buzzword at recent industry events like MWC Barcelona, MWC Shanghai, and other forums and workshops. Carriers are preparing for the myriad of opportunities and challenges that will be created by AI, as they hope to harness this promising driver of business success.

New opportunities

Multiple generations of innovation have driven the telecommunications industry forward over the years. On May 24, 1844, Samuel Morse sent the world's first telegram through a wired line from the Capitol in Washington D.C. On March 10, 1876, Alexander Bell made the first telephone call at Bell Labs in Boston. On October 29, 1969, Charley Kline sent the first Internet message in Los Angeles.

Now, the industry is rapidly entering its next phase – the

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age of AI. AI-integrated networks will be key to navigating this new landscape.

Telecoms services are also evolving fast. Gigabit optical broadband already serves 300 million users in just eight years since its launch. It took 100-megabit broadband 14 years to reach the same milestone. Over 40% of global optical broadband users are expected to be on gigabit broadband by 2027. The average data rate provided by global home broadband packages has also increased dramatically over the past decade, with the nearly 600 Mbps rates of today projected to exceed 1 Gbps by 2028. In the mobile sphere, 5G has already become a mainstay, and 5G-A is just on the horizon.

The AI industry already has over 1,300 foundation models, and ChatGPT alone has 190 million active users globally. In 2024, about 300 million AI PCs and GenAI mobile phones were shipped and there were about 30,000 AI companies worldwide.

The boom in AI, underpinned by rapidly evolving networks, is driving a surge in new personalized and diversified demands. This, in turn, is promoting development within the communications industry.

AI is poised to create greater commercial value when integrated with networks. However, four factors will play a crucial role in expanding carrier markets, developing new services, enhancing market competitiveness, optimizing O&M, and creating greater commercial value. The key will lie in: new portals, new services, new experiences, and new operations.

New portals

AI agents will be the first step to creating new portals to AI. In the context of smart home services, AI agents connect people, things, and applications. They are designed to understand and respond to the needs of every family

member, control smart devices to meet home requirements, and connect AI applications to expand home service boundaries. These agents will help carriers make new business breakthroughs in the home market.

Some leading carriers have already released AI services specifically for home users. The South Korean carrier SKT, for example, has launched their own voice assistant. This intelligent assistant can provide users with a personalized schedule for the day, call a taxi to the airport, order a pizza for lunch, and even set smart devices to sleep mode.

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Chinese carriers have also launched an AI host for home users. It can be connected to a TV in the living room, through which families can stay connected and engage in a range of activities, from real-time fitness coaching to fun motion-controlled gaming. Users can also make video calls with loved ones and watch live sports events with friends.

New services

AI is enabling many new services and aggregating high-quality content, which will further shape the AI-based smart home ecosystem. Smart home applications are expected to proliferate thanks to these new services and content, meaning TVs are set to become a multifunctional terminal for AI-powered services. This will be important for carriers looking to foster their own smart home ecosystems.

AI application monetization for carriers generally follows three steps. First, they can integrate AI into traditional services, such as video on demand (VOD) and home security, to improve user experience, satisfaction, and loyalty. Second, they can develop new AI-based features, such as motion-controlled gaming and interactive fitness, to enrich services and increase revenue. Third, they can integrate AI into their broader home services, such as aggregated

ecosystem applications, to support home service robots that can provide services like healthcare, education, and home security. These steps allow carriers to gradually create smart home ecosystems that generate significant business value.

In the world of PC gaming, Black Myth: Wukong has not only taken the world by storm, but also proven to many how the above concept can work. The game itself was very high quality, with an excellent player experience. It sold 20 million units in just the first month after launch. However, to get the full experience, players need equipment that supports 4K resolution, ray tracing, and other such advanced technologies. This means they need high-performance PCs with high-end graphics cards that can cost nearly US$2,000. This is not an affordable solution for most. Some carriers seized this opportunity and launched cloud gaming services that allowed gamers to enjoy the same experience at just US$30 per month, or US$0.5 per hour if they opted for payment by hour.

Playing Black Myth: Wukong on the cloud requires high-bandwidth and low-latency (down to 5 ms) network connectivity, because AI rendering is done on the cloud.

New experiences

Emerging services, such as cloud gaming and smart cameras that can be used for home security, live e-commerce, and AI-based photo and video search, typically require high-quality networks, with varying levels of latency, jitter, uplink, and downlink. This presents new monetization opportunities for carriers if they can adopt novel business models. Carriers can charge by latency, uplink bandwidth, or AI features, or even by hour.

How can carriers plan their networks so they can provide a superior user experience required for new services? Simply put, 1 ms latency and 400G or 800G performance is needed for connections between data centers, while 1 ms latency is needed for connections for users to access computing power.

New operations

Another angle to this discussion is applications like driverless taxis which are already being commercially trialed in China. I tried one of these taxis in Shenzhen. They can safely move at a speed of 70 km per hour without a human driver and can deal with different road conditions with ease. These taxis also often come with self-service multimedia entertainment.

As networks become larger, they also need to be more autonomous. AI can be used to support high-level autonomous networks and improve O&M efficiency. Autonomous networks have been around for about five years, but we had not seen broad application beyond level 2 or level 3 autonomy until AI came into play. Levels 2 and 3 mean partial autonomy and conditional autonomy, respectively. With the support of AI, level-4 autonomous networks have finally become a reality.

Huawei's L4 Autonomous Driving Network (ADN), which is based on the Telecom Foundation Model, can benefit carriers in five ways: reducing customer complaints, shortening complaint closure times, improving service provisioning efficiency, reducing the need for site visits for installation and maintenance, and accelerating fault rec-

tification. This Telecom Foundation Model is a specialized model that is trained with the experience of over 10,000 experts, knowledge gathered from over 100,000 sites, and 100-billion-word corpuses on telecoms.

After just one year with L4 ADN, one carrier in China has already seen their fault rectification times reduced from 2 hours to 20 minutes, and their percentage of faults automatically rectified increased from 60% to 90%.

As we are working to seize opportunities in the AI era, the four key factors we've discussed above do more than just reflect network technology innovation. These factors will also help further unleash networks' business value. New portals, new services, new experiences, and new operations supplement each other and will serve as a cornerstone for future business success.

To translate AI opportunities into business growth, we need perseverance and determination. Networks powered by AI are set to unleash more business value, and so, we will continue working with our carrier partners to turn our shared aspirations into reality.