

"User Experience" Leads to A New Flourishing Information Era

Over the past twenty years, the information age has developed at a rapid pace, and various technological transformations and applications have grown in both scope and variety. Today, the exponential growth of digitized information, combined with the skyrocketing popularity of mobile networks, has led to a surge in the sheer volume of digital content. Concurrently, as the digital divide has become smaller, people around the world are now able to freely share information and communicate with each other with fewer barriers.

This new digital era is marked by an important new factor: user experience. Users have the ultimate say in steering the development of the industry so it is vitally important that they are equipped with the means with which to quickly and easily access mobile networks. This in turn drives current and future industry development, which will result in a flourishing information age.

I. User experience drives industry development

In today's world, millions of services and applications are close at hand, enabling a constant, 24-hour online digital life. While the underlying network infrastructure is at the heart of this ubiquitous connectivity, user experience is limited to a few points of interface. Since user experience and the demand for continuous service drives technological development, it is therefore of utmost importance to provide users with optimal experiences.

The following factors best illustrate what comprises an optimal user experience.

Speed that counts: Zero wait time redefines network speed

In telecommunications, increases in speed are often measured exponentially. Due to rapidly advancing technologies that have taken us from dial-up to fiber to the home (FTTH), it has taken a mere 20 years to increase bandwidth by 1,000 times. Despite this extraordinary pace of development, people are still clamoring for additional bandwidth.

Despite the current fixation on bandwidth, in the future, network speed will no longer be measured by the bandwidth a service needs, but determined instead by the wait time experienced by users waiting for networks to respond. Zero wait time for users is the new paradigm that will shape Internet development.

Quality that counts: Ensuring the availability of video and other media presentation forms powered by augmented reality technologies

The development of the Internet has witnessed the transformation of web content from mere text, images and sounds into high-definition videos and other next-generation forms of media presentation, such as 3D technologies, ultra high-definition technologies, and augmented reality technologies. These vivid media presentation forms will become more widely available and will increasingly be used across various applications such as e-commerce, social networking, and broadcast media.

Freedom that counts: Access the ubiquitous Internet easily and instantaneously

It took twenty years to bring the number of fixed Internet users to two billion, but only five years to bring the number of mobile Internet users to one billion, two times faster than the fixed Internet. Today people are enabled to be online anywhere and anytime because the mobile Internet sets users free from fixed lines as well as the popularization of the smart phones. .

Similarly, à la carte services will continue to be provided on-demand, television programming in particular, since people will have the ability to watch programs at any time much more freely than they do today. Key to this provision of on-demand services is a freely available mobile Internet, which will enable users to easily access services and applications around the clock and in any location.

Simplicity that counts: Optimal ergonomic function

The history of man-machine interaction, during which the input method has transformed from keyboard and mouse to touchpad to motion sensing input, demonstrates a return from complicated input devices to intuitive and natural ones that tap into natural human function and form. In the future, even more natural ergonomics will further the user experience by leveraging people's natural abilities like speaking, making gestures, and conveying emotions.

Sharing that counts: Community-like experiences elevate user experience

Google introduced mathematical logic to its search services, providing improved access to massive amounts of information. Google does this merely at the tool layer, while Facebook transcends the tool layer and deals with the social nature of humans. By emphasizing the social aspects of the Internet, Facebook addresses users' emotional needs to some extent as well as satisfying their desire for sharing. The Facebook phenomenon indicates that a community-like experience will be a basic feature for both consumer-oriented services and enterprise-targeted applications.

The pursuit of a better user experience is a major driver in the further development of the telecom industry. A better user experience equates to higher speed, better quality, more

freedom, greater simplicity, and easier sharing—in some ways, these factors reflect our fundamental human nature.

II. 10 key issues that affect the development of the telecom industry

User experience and progress in network technologies are inextricably linked: User experience drives network development, and progress in network technologies guides improvements in user experience. As an improved user experience coincides with cutting-edge mobile networks, a new round of opportunities avails itself to the telecom industry.

The telecom industry as a whole needs to closely adhere to the following 10 key issues to take full advantage of this round of opportunities.

1. The mobile network enters the Gigabit Era—it's time to build ubiquitous broadband networks

The biggest bottleneck for current mobile networks is insufficient bandwidth capacity. Compared with fixed networks, mobile networks still have a long way to go in terms of user experience, and it is only through building mobile broadband networks with traffic at a gigabit level that user experience can improve. In this scenario, innovations in architecture and continuous cost reductions for networks will support the sustainable development of mobile broadband services provided by operators.

2. Implement intelligent optical network management, and embrace the advent of all optical access

In the telecom industry, copper wires have been managed manually for over 100 years. Since copper wires are highly inefficient in operational terms, managing them is the most expensive part of network maintenance. As the industry begins to evolve toward optical access, enhanced cable deployment, maintenance and troubleshooting, fault correction and intelligent optical network management are all core measures that can be used to promote optical network development.

3. The telecom industry needs to further its transformation toward ALL IP networks and enter an all packet phase

Over the past two decades, IP technologies have developed at unprecedented speeds. Telecom networks today are a hybrid of time division multiplexing (TDM) and Internet Protocol (IP). In the future, Single networks based on ALL IP will be the inevitable trend. The telecom industry needs to further its transformation toward ALL IP and complete service migration, network convergence, network interconnectivity, and changes in operation and maintenance to lead the industry into an all packet phase.

4. IT infrastructure based on cloud computing is the prerequisite for building networks based on data centralization and data centers

Data has replaced voice as the main content on networks, enabling data centers to replace voice switching. This development adds new meaning to flattening, which is an ongoing topic in network development. New technologies, such as virtual and distributed storage as well as parallel computing based on cloud computing, make it possible to build exabyte computing and storage capacities. In addition, IT infrastructure based on cloud computing is the prerequisite for building networks based on data centralization and data centers.

5. Operations support systems/business support systems (OSS/BSS) must be modernized to adapt to an open environment in the industry chain and the on-demand operational model

User requirements have transformed the telecom industry priority from cost efficiency to value creation, in turn changing the telecom industry from a completely closed system to a completely open system. The modernization and renovation of operators' IT systems means that there is a need to focus on creating value for users and building an open industry chain to support the end-to-end process of product design and development, product market entry, and value distribution. These systems need to support package design by users as well as package selection and bandwidth selection in order to provide users with the maximum amount of freedom and power to control these systems.

6. Provide insights into customer needs and build adaptable enterprises based on Big Data analyses

In the open Internet age, user requirements are individualized and dynamic. Under the ALL IP architecture, automation and statistical multiplexing have been achieved in networks, and both network quality and Quality of Service (QoS) assurances are dynamic. By analyzing Big Data, operators can provide insights into networks and user requirements, build adaptable enterprises, offer better user experiences and services, and explore more business opportunities.

7. Build resilient and intelligent networks, and support on-demand bandwidth operations

Network and bandwidth are the bases for operators' business operations, with networks becoming more intelligent and resilient. This trend bodes well for on-demand user experiences, which enable users to freely select bandwidth and services based on their own needs. In addition, the provision of on-demand services will improve network efficiency and utilization while reducing network costs.

8. Integrate digital media content, and build digital distribution channels across various platforms

As digital content flourishes and networks serve as channels on which digital media is distributed, traditional content delivery channels are disrupted. Integrating digital media content and achieving a cross-platform (mobile phone/PC/TV/PAD) on-demand user experience will be a future trend for media content providers, presenting them with a significant strategic opportunity.

9. Integrate the IT supply chain, and harness the impact of cloud computing on the existing IT business model to transform ICT

Cloud computing has completely transformed the business model of the IT industry, shifting the focus from selling products to selling services. The ongoing popularity of broadband networks is a prerequisite for cloud computing services. Based on innate advantages such as localized services, network assurance, security, and trustworthiness, operators take great efforts to integrate IT applications and communication capabilities. This enables end-to-end ICT solutions, which can provide ICT services to enterprises, especially small- and medium-sized enterprises. In addition, this integration allows small-sized enterprises to enjoy the ICT capabilities of large enterprises.

10. Provide trustworthy information services to ensure cyber security and privacy protection

Open IP networks and cloud computing models have elevated the importance of information security and privacy protection. In light of this, operators need to build end-to-end security architectures—including the basic architecture, data protection, application protection, and legal compliance—to provide security solutions that fully protect user information and privacy for both users and enterprises.

Although the concept of an information society has been bandied about for years, actual information-based development has just begun. The ongoing pursuit of better user experiences will continuously drive the transformation of information services. The development of telecom networks and technologies will also enter a new development phase. The combination of optimizing user experiences and network technologies will undoubtedly drive information services into stronger synergies and promote new applications and technologies.