Analysis on Development Dynamics and Challenges of "Internet +"

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Abstract. As a new concept, "Internet +" has been widely noted and discussed. Meanwhile, the practice of "Internet +" surges forward, which greatly changes social landscape and economic development. This thesis obtains necessary data by literature consulting and cases investigating, as well as analyzes the technology dynamics and social dynamics of "Internet +". Then, finding the challenges of "Internet +" development and putting forward proposals to promote the combination of "Internet +" and industry and the transformation and upgrading of traditional industries.

1. Introduction

"Internet +" first appeared in 2012, when Edward Yu, chairman and CEO of Analysis International, proposed that "Internet +" formula should be a chemical formula produced by combination of products and services in our industry and user scenarios with features of cross-platform, network-wide, multi-screen which we can see in future. "Internet +" can be simply described as Internet + various traditional industries. It is not a simple addition, but promoting the deep integration with Internet and traditional industries and creating new development ecology by the use of information and communication technologies and the Internet platform. It means giving full play to the role of the Internet in the integration and optimization of the allocation of social resources, merging Internet innovations in all areas of economic, social deeply, enhancing the creativity and productivity of the whole society and forming a new more extensive economic forms with infrastructure and implementation tools base on Internet. Thus help the development of traditional industries.

"Internet +" is the further practical achievements of internet thinking and represents an advanced productivity. It promotes the incessant evolution of economic form so that boosting the social and economic vitality entity and providing a vast network platform for reform, innovation and development. In recent years, the "Internet +" has been transformed and influenced a number of industries, such as e-commerce, Internet banking, online travel, online video, online, etc.

Analysis on development dynamics and challenges of "Internet +" will help understand the "Internet +" and use it to develop advanced productive forces. Based on this point, the thesis analyzes the dynamics from technology dynamics and social dynamics and challenges when they play their roles in promoting "Internet +" development. The thesis also puts forward proposals accordingly.

2. Development Dynamics of "Internet +"

"Internet +" inexhaustible power mainly comes from three aspects. The first is the construction of a new information infrastructure, the second is the release of data resources, the third is the morphological changes in the division of labor caused by the first two aspects. It can be classified as technology dynamics and social dynamics. And each of them can be further subdivided (Fig. 1).

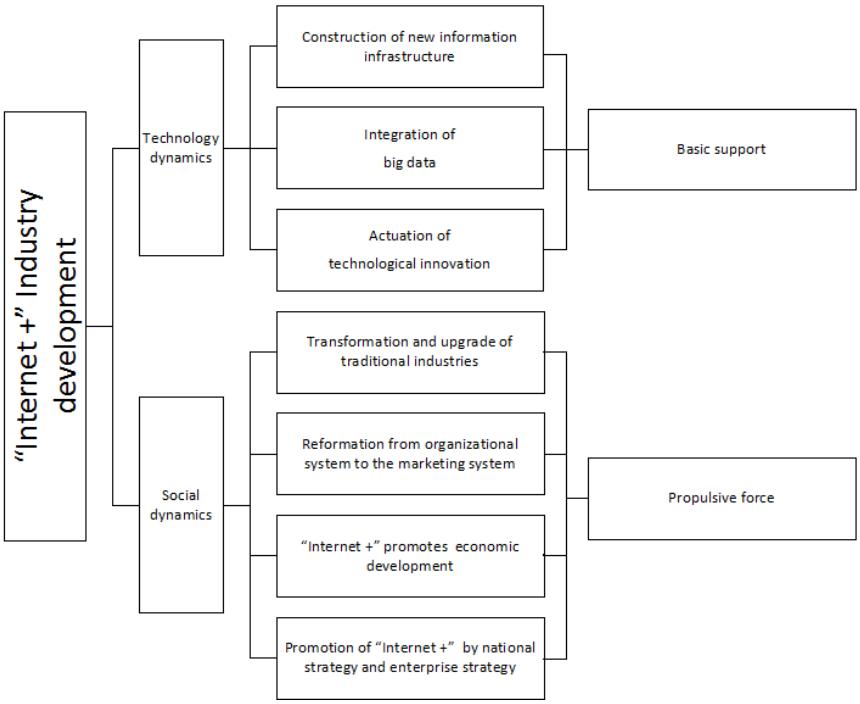

Fig. 1 Technical drives and social drives of "Internet +" development

2.1 Technology dynamics.

Through the analysis of "Internet +" technology dynamics, it can be explained from following three aspects.

(1) Construction of new information infrastructure.

The new information infrastructure "Internet +" relies on can be describe as "cloud, network, terminal" (Fig. 2). Recently, with the development of new information infrastructure, the "Internet +" has become an important source of new force for change. Cloud refers to cloud computing and big data infrastructure. Network includes not only the original Internet, but also Internet of things. Terminal refers to the PC user in direct contact, mobile devices, sensors and even the applications in form of software, etc.

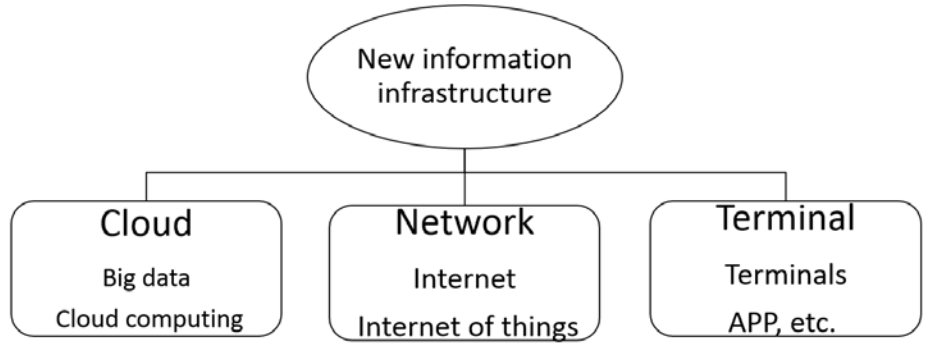

Fig. 2 Model of new information infrastructure

(2) Integration of big data.

The process of information has been nearly half of a century, and the extraordinary speed development of information technology promotes the explosive growth of information content and information processing capability and makes us enter Big Data Era.

Data eliminates asymmetric information and constraints of time and space. However, it has also spawned a fragmented time. Data is the energy of future industry, and it can affect even change the whole ecosystem of industry. Flowing data aggregates huge market demand and makes individuals closely linked with Internet datamation. Government departments, financial departments, telecom operators, businesses and others hold huge amounts of data resources and prompt big data to become the most important asset with great potential value and translate into significant productivity after

years of accumulation. Only through the development of large data resources, "Internet +" can fall into place.

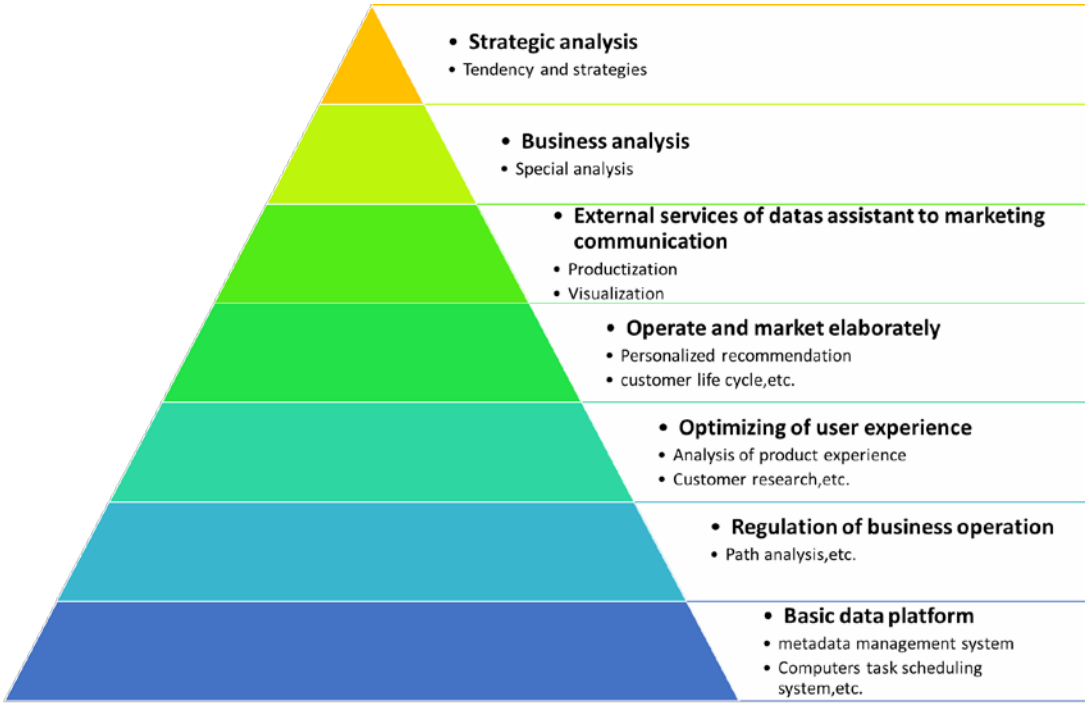

Fig. 3 Integrating and applying system of Big Data

(3) Actuation of technological innovation.

In the "Internet +", the technology is the basis for the development of the Internet. The development of mobile Internet, big data, cloud computing, networking, artificial intelligence and other new technologies, new services and ecological all depend on technological innovation-driven. Technological innovation is the main driving force for the future development of the Internet. Development of internet business and information technology innovation are inseparable. Technical innovation hotspots such as virtualization, automation, software-defined network (SDN) make information systems more efficient, agile, open and truly and make IP network into a dynamic source of application-oriented so that support the fusion development of the Internet and other traditional industrial more effectively.

2.2 Social dynamics.

Through the analysis of "Internet +" social dynamics, it can be explained from following four aspects.

(1) Transformation and upgrade of traditional industries.

More and more traditional industries are being changed by new information technologies. Internet, Internet of things, big data and cloud computing have become a new force leveraging the transformation and upgrading of traditional industries. Internet for industrial transformation and upgrading of traditional industries share two new trends will also appear. Firstly, traditional industries which are highly centralized and monopolized will face a disruptive innovation. Secondly, suffocated industries which develop immaturely and are lowly centralized result from many original services pain points, information opacity, lack of credit system, and the existence of policy restrictions, will have more opportunities. Such industries and enterprises have cultivated many years in traditional industries and accumulated a wealth of experience of industry pain points. Their back-end capability and power of offline promotion is stronger so that energy companies will get exploding increase supplemented by Internet tools.

(2) Reformation from organizational system to the marketing system.

Under the influence of application market environment and advanced manufacturing technology innovation wave, a new reform of production organization system is formed in manufacturing industry both internal and external. Distributed and flexible production mode, such as crowdsourcing

research, collaborative R&D, manufacturing, will become the main direction of reform. With the help of the Internet, a new pattern of industry division system is emerging. In virtue of the crowdsourcing platform existed or created by enterprises themselves, enterprises can publish R&D needs and collect extensively ideas and wisdom from customers and external staff, to realize the socialization of value creation and the diversification of product innovation. Based on this, the resource allocation system, such as R&D, manufacturing, trading and other services, will also accelerate organizational innovation with the change of industry division system.

(3) "Internet +" promotes economic development.

With the accelerated transform from life tools into production factors, the combination of Internet and other industries become more closely and new business patterns emerge intensively. Internet plays a more and more important role in economic and social development. "Internet +" further highlights the important role of the Internet in economic development under the new era and situation.

(4) Promotion of “Internet +”by national strategy and enterprise strategy.

Under the guidance of the national strategy, local government and companies have also created a new pattern of cooperation between government and enterprises to jointly promote the "Internet +" development. Such as State Grid Sichuan electric power company and Tencent signed the "Internet +" strategic cooperation agreement and the two sides carry out all-round, in-depth strategic cooperation. The Zhejiang Provincial Government and Alibaba signed a comprehensive strategic cooperation agreement to promote the key projects construction, such as electronic business platform, rookie logistics, etc. Developing Ali cloud, big data industry and cross-border e-commerce and e-business in rural areas, creating innovative financial services center, promoting living services intelligence and many other actions are also get support according to the agreement. Many other cooperation between government and enterprises are active in the country, these strategic cooperation has contributed greatly to the "Internet +" development.

3. Challenges and Suggestions

3.1 Construction of critical network infrastructure of "cloud, network, terminal".

"Internet +" horizontal and vertical development need critical network infrastructure be more open, flexible and extensive. Broadband and EPC network terminal based on network connections promote the popularity of the application and facility of getting services in NGIP. And the technology of cloud computing realize storage virtualization so that we can acquire information and services conveniently. However, we are insufficient in these aspects.

Investment in new infrastructure is used to be dominated by the government and state-owned enterprises. However, it turns to be dominated by private and individuals enterprises gradually, which result in significant changes in right of control and service model. Base on this, private enterprise providing infrastructure services should keep up innovating to scale up and obtain potential benefits. Meanwhile, with the increasingly awakening of consumers' sovereignty consciousness, using equipment to estimate will directly determine the survival of enterprises. Thus, the governance model of information economy should rely more on public innovation and common management, rather than original centralized control. How to satisfy consumers and provide better customer experience become more and more important.

3.2 R&D of Internet core technology is still the top priority of development.

Technical resources of the Internet industry in China are pretty abundant, such as Baidu, Ali, Tencent, Thunder, Huawei, ZTE, Foxconn, and other science and technology enterprises. However, there is a big gap compared with developed countries on the whole, such as Germany, the United States. In the process of development of Internet technology, local enterprises should seek innovation in the areas of hardware and core technology.

Development of the industry "Internet +" has raised new technical requirements. In manufacturing, promoting the intelligent upgrading progress referring to German Industry 4.0 will bring huge market demand for intelligent equipment, such as high-end CNC machine tools, high-end chip, intelligent

robots, intelligent terminals, data processing and simulation of decision-making, etc. In the transportation industry, the integration of Internet and traffic highlights the increasing importance of vehicle networking technology. However, most of the electronic system designs of joint venture automobile in our country are dominated by foreign auto giants. Chips and other communications hardware has been monopolized by Sirf, Boardcom and other brands. Chery, Great Wall, BYD, JAC and other local enterprises should invest more in R&D to become the core technology owners of the car networking, leading the development of the domestic car networking mode.

3.3 Huge amounts of data generate privacy and information security issues.

The core value of big data is to analyze professionally the vast amount of data collected and get what we want. Acquisition and processing of big data is the prerequisites of "Internet +" development. However, it also brings some risks. Private data collected will cause great harm to the users if it is not properly handled. Unfortunately, the lack of rules for collection, storage, management and use of data is serious in Internet industries. What's more, there is no supervision. On the other hand, transparency of government data will also bring information leakage and other network security issues. There is a big challenge to solve the problems by techniques, which is inevitable.

Government, enterprises and individuals should make their own contribution to it. Government should improve the legal system, and guide the "Internet +" to develop healthily. Enterprises should devote to the research of more advanced technology dealing with confidential information security, abide by professional ethics and not at liberty to reveal customers' personal data.

3.4 Disunion of industrial standards affects the development of the integration of traditional industries and "Internet +".

There are no barriers of market entry for traditional industries previously so that there are many products without unified standard flooding the market. It causes an inevitable problem that it is difficult to connect product with new technology in the process of transformation and upgrading of traditional industries. Meanwhile, new formats produced by integration of traditional industries and "Internet +".Industry standard should be set up by the national government and considering the autonomous development of the market.

4. Summary

At present, the Internet technology is imperceptibly penetrating into our lives. "Internet +" refers to information diffusion and practical application of a set of internet-based information technology (mobile internet, cloud computing, big data technology, etc.) in the all areas of economy and social life. Its essence is the datamation and online of traditional industries. Impetus to the development of the Internet can be summarized as technology dynamics and social dynamics, and governments and enterprises should actively promote "Internet +" development base on the characteristics of influence factor what involved in the two aspects.

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