Enterprise Business Model Innovation Under Open Data

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ABSTRACT

In the big data era, enterprise competition environment has changed. Business model innovation has a multiplier effect on the development of enterprises. The key to successful business model is to use data as an asset and as the basis for business model innovation. The open data of web community can realize innovation application, inspire mass entrepreneurship and bring economic value to enterprise. This article first introduces the status quo and economic value of open data. Then it analyzes enterprise business model innovation approaches under open data through the typical enterprise application cases at home and abroad, so as to provide reference for enterprises to carry out business model innovation. The innovation approaches include "take the customer demand as the guidance", "sharing co-operation", “enterprise releases open data”, “incubator creates emerging enterprises using open data”.

Key words: open data; business model innovation; sharing co-operation

INTRODUCTION

The father of modern management Peter Drucker said: "The competition between today's enterprises is not the competition between products but is business model." With the rapid development of the Internet, the business competition environment of enterprises has also changed, and a number of new enterprises have sprung up relying on business model innovation. Business model innovation plays a multiplier effect on enterprise development.

What is business model innovation? In short, business model innovation is process innovation which creates and delivers customer value and enterprise value. It [1] is not a simple technical improvement or reconstruction of the value chain. It is a complex system integration innovation involving the recombination of enterprise multiple modules. How does business model innovation? The source of business model innovation "value proposition" has been recognized in the industry (Osterwalder, 2005) [2]. Value proposition is in view of customer potential demand and emphasizes enterprise co-operation.

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Enterprises need to integrate existing resources based on this concept, trigger and lead stakeholders together to develop and utilize network resources, transfer and implement new value of this concept, thus realize enterprise business model innovation.

So it can be seen that in the big data era, the development and utilization of data resources become the inevitable way of enterprises business model innovation. With the rise of big data and cloud computing technologies, the data is breaking free from the old constraints and becoming a real production factor. A lot of economic activity, innovation and growth is impossible without the data. Therefore, in the big data era, the key factor of enterprise success is to use data as an asset, as the basis of business model innovation.

OPEN DATA

"Open Knowledge Foundation" defines open data as: open data is the data which anyone with any purpose can be freedom and free access, use, modification, reuse and redistribution, the only restriction is to indicate the source of the data and keep open sharing. In 2006, the founder of the world wide web Tim Berners-lee put forward the thought of Web of Data. Under the impetus of Web of Data, there is an open government data plan at abroad, a large number of government public information can be freely used without restrictions. In China, since 2012, more than ten local governments such as Beijing, Shanghai, Zhejiang, Wuhan and Qingdao etc, had launched open data portals.

Open data promotes social and economic innovation. Only in EU, the economic value of open data has reached several billion Euros a year. In 2013, the international well-known consultancy McKinsey released "Open Data: Unlocking Innovation and Performance with Liquid Information" [3], pointed out that the economic value per year could realize $3 trillion because of open data. In 2014, the Australian consultancy, Lateral Economics reported "Open for Business: How the Open Data Can Help your the G20 Growth Target" [4], pointed out that integrating the G20 (G20) countries economy, the value of open data in the next five years would achieve the growth of the $13 trillion, contributing to the G20 countries about 1.1% of GDP growth, accounting for 55% of the G20 GDP growth target (2%).

More and more evidences show the economic impact of open data. In 2016, the world bank digital data experts Alla Morrison [5] pointed: "big data is changing enterprise's core business functions and the nature of competition, so as to fundamentally change the enterprise's business model. The world bank has released an open data evaluation and collaboration tool for enterprises to help the government push the private sectors to use big data such as government open data.

APPLICATIONS OF OPEN DATA IN ENTERPRISES

At the 2015 digital government conference, Anneke Zuiderwijk et al [6] pointed out that open data could bring economic growth, innovation, improvement of product and service for government and enterprises. Government expected enterprises use open data, many enterprises produced the strong interest of open data. Let's look at the typical cases of open data in domestic and foreign enterprises.

Application of Open Data in Foreign Enterprises

(1) England

In order to encourage enterprises to use open data to innovate and find the right business model, a batch of incubators focused on open data are emerging. British Open Data Institute (ODI) founded by the founder of the world wide web Tim Berners-lee is the one of the pioneers of incubators. Today, ODI has successfully incubated eleven companies including OpenCorportates, which provides the world's largest open database of corporate information,
and Placr, which integrates and provides traffic data API. In the new project, twelve emerging enterprises enters ODI, including star enterprise Spend Network and FoodTrade.

In the aspect of open data research, in 2015, ODI conducted research on the use of open data in UK enterprises, and published open data means business report [7]. The report analyzed 270 UK companies which use, produce or invest in open data as part of their business. Nearly half (49%) of the surveyed companies used open data from non-government sources, including data generated by companies such as OpenCorporates, non-profit associations such as p-lei.org and numerous community projects such as DBpedia, Geonames and Wikipedia. This reflects the existence of sharing economy, where companies often use data created by each other and build new business model with the concept of co-operation. The vast majority of respondents (57%) releases their own data and provides products and services, anyone could obtain freely. One of the key drivers of this was open data products could attract customers to focus on other products and services of enterprises, so as to get more customers. In 2016, ODI proposed the idea of open enterprise and published the open enterprise[8] report. According to the report, some of the British market leading companies started to release their own data, such as Thomson Reuters, Arup and Syngenta.

(2) America

In America, Smart Disclosure is the foundation of corporate business decisions. Smart Disclosure [9] refers to "timely release of complex information and data in a standard machine-readable form so consumers can make informed decisions". At present, Smart Disclosure has created great economic value, and has spawned a large number of data products and new services in the commercial areas such as real estate, finance and insurance.

Zillow used the land transaction records United States government open to establish housing valuation model. It created an online real estate trading platform. House property owner, the buyer and the renter, mediation all could use the platform to find and share estate and related information (such as loans). The company has a market value of $3 billion. Climate Corp company used the 60 years of crop data, more than 1 million meteorological data of meteorological stations and the soil quality data of 14 TB United States government open to provide farmers with agricultural auxiliary information and financial decisions. The main product, "all-weather insurance" would automatically pay farmers' losses when the system predicts bad weather, without the actual loss of the farmers’ evidence.

(3) Germany

Germany focuses on the integration of enterprise partner data in open data applications. In April 2013, German government proposed the "industry 4.0", launched the German industrial digital innovation of industrial data space component (IDS) [10], focused on cross-industry proxy data exchange and data applications, integrated data dispersed in each partner in together, converted to a credible data network space, effectively support "smart factory", "intelligent" and "smart logistics" intelligent engineering. Currently there are more than 30 enterprises from Germany and even international support, including the world top 500 enterprises such as the European famous insurance company Allianz, world famous Bayer company, world top accounting firm price water house cooper, etc. The role of IDS is to connect upstream "intelligent production" factories and "smart logistics" companies and downstream individuals and corporate customers who need "smart services". In this web space, data can be shared between authenticated partners when users need data provide value-added services.

Application of Open Data in Domestic Enterprises

In China, typical examples of open data applications include Alibaba, Baidu and Tencent. Alibaba is the world's largest retailer, for example below.

As early as 2008, Alibaba tasted the advantages of big data use. Before the economic crisis, Alibaba already proposed “Alibaba should be prepared for the winter” in its internal meeting.
Why Alibaba was able to make this judgment? Because it obtained data in the process of service for the enterprises, made judgments on the basis of data analysis. So data is the key of Alibaba success in business.

Alibaba [11] put forward that the power of new economy embodied in three sources: new infrastructure (cloud + net + end), new production factor (data), new structure (mass collaboration). So how does it leverage cloud computing and big data technology to make data play a role in large-scale collaboration? From innovative services provided by Alibaba using big data, we can see the role of data as a factor of production.

(1) Alibaba combines big data with credit, realizes sesame credit, builds personal credit system. Sesame credit data covers the credit card payment, online shopping, transfer, financial management, rent information, address relocation history, social relations, etc.. From July 2015, it cooperates with the Supreme Court, limits the "LaoLai" more than 130000 people to buy air tickets, rent cars, loans. More than 5300 faithless person subjected to execution pay off debts.

(2) Intelligent transportation: Based on the big data, Alibaba built a public service platform for high virtue traffic information, which was used to predict the road conditions and stop the traffic jam in real time.

(3) In 2015, as the leading Internet financial enterprise in China, ant financial services fully opened data, technology and channels to financial institutions. Financial institutions no longer need self-built "Internet+" platform.

ENTERPRISE BUSINESS MODEL INNOVATION APPROACH

As mentioned above, value proposition is in view of the potential demand of the customers, to highlight the enterprise co-operation concept. Under the open data environment, if enterprises want to achieve business model innovation, they need integrate existing resources based on the value proposition, take the customer demand as the guidance, share co-operation between enterprises, adopt the open method to adapt the new market. Here the Open is not only the use of open data of government, enterprises and other community groups. Enterprises must embed the open principles in data manipulation, create innovative products and services.

Enterprise Should Take the Customer Demand as the Guidance

Business model innovation based on “Internet+” and open data need take the customer demand as the guidance, provide better service for customers by exploring the personalized needs of customers, thus create value for the enterprise. On the one hand, enterprises can capture the change trend of customer demand through open data in a timely manner. On the other hand, enterprises can effectively communicate with customers through the Internet, so as to make customers more and more involved in the creation process of enterprise value, thus create enterprise value.

The application case of open data at home and abroad also confirms the correctness of "customer-oriented". The results of UK ODI survey show that open data can attract customers' attention to the products and services of the enterprise, thus gain more customers. U.S. smart disclosure takes helping consumers make informed decisions as the guidance. Zillow and Climate Corp are the triumph of business model innovation using open data to meet customer demand.

It is because of taking customer demand as the guidance, enterprise and customer both rely on information of public communication. It is possible to realize work which is unable to complete unilaterally.

Sharing Co-operation
On "shared economy" implementation mechanisms, Carliss Baldwin and Eric von Hippel [12] pointed that due to the "modular" and the widely application of the "Internet", "design cost" and "communication cost" in the enterprise significantly reduce, from the simple rely on "producer innovation", extending to the "user innovation" and "open cooperation innovation". Taking the customer demand as the guidance, making the customer participate in the enterprise value creation process is the embodiment of "user innovation". Open cooperation innovation requires enterprises cooperate the upstream and downstream stakeholders with an open principle. Therefore, "sharing co-operation" is an effective means of enterprise business model innovation under the open data environment, which contains two meanings: "Shared platform" and "enterprise co-operation".

Enterprise co-operation emphasizes value co-creation and the competition and cooperation relationship between enterprises. The competitive advantage of enterprises come from the business ecosystem of enterprises. At the same time, the participating enterprises are no longer a closed system, but an open platform system. On the basis of equality, all the stakeholders participate in the open, sharing, win-win network platform. In the era of "Internet+", customer demand is changeable and unpredictable. When making decisions, enterprises only rely on their own resources are difficult to meet the personalized needs of customers. They may also need other products or industry survey information about consumer preferences. Open data includes cross information in the different industry and region. Enterprises get required data through the sharing platform of business ecosystem for the decision-making, pool resources with the fastest speed to meet the diversity of customer demand, realizes open collaboration innovation across the data boundaries. The ODI survey in 2015 also reflects the existence of shared economy. Companies often use data created by each other to build new business model using cooperation as concept. Germany IDS program integrated the data from factories and logistics companies, public data from government departments and data from the value chain third party. The data could be shared between certified partner, help enterprises to develop their own value-added services. In China, Alibaba cooperates with government to build sesame credit, scott traffic information platform, and ant gold. They are typical representatives of the shared platform.

**Enterprises Release Open Data**

The release of open data is a further step by foreign enterprises in open data application. In the ODI survey, 57% of respondents and leading companies such as Reuters, Arup and Syngent began to publish their own open data. America's smart disclosure encourages companies to open more data so consumers can make informed decisions. The open data-driven business model creates value by releasing open data, increasing user loyalty and engagement. Therefore, it is an inevitable choice for enterprises to release open data for their business model innovation.

**Incubators Create Emerging Enterprises Using Open Data**

It can be seen from foreign successful cases that the incubator has played an important role for the use of open data in enterprises. ODI is a successful model of this kind of incubator. Inspired by ODI, in 2015 the EU launched the open data incubator (ODINE). China has created a similar incubator. In 2015, Shanghai Municipal Commission of Economy and Information Technology and Shanghai Municipal Traffic Commission launched SODA competition. They opened traffic information data to the public, attracted private ace to develop innovative Internet products, to look for countermeasures for eliminating road congestion, optimizing of public transport planning. Shanghai municipal government named many excellent scheme and guided angel investment, incubator to foster teams.
CONCLUSION

Open data has brought new opportunities for enterprise business model innovation. By analyzing the typical cases of open data in the enterprise applications at home and abroad, this article comes to enterprise business model innovation approach: "take the customer demand as the guidance", "sharing co-operation", “enterprise release open data” and “incubator creates emerging enterprises using open data”, provides reference for enterprises to carry on business model innovation.

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