

# Metaphor Analysis Based on Corpora Research in Digital Economy Discourses

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**Abstract:** In recent years, the rise of the digital economy has become a hot topic all over the world. In this context, it is of great significance to study the metaphor in the digital economy corpus to discover people's attitudes toward it and the guidance of official media to the public's concept construction of the digital economy. Therefore, based on the self-built China Daily corpus, this paper finds out the expected metaphorical characteristics of the digital economy, including digital economy as a plant, digital economy as a human being, digital economy as a machine, digital economy as a war, and digital economy as a building. By doing so, this paper discovers the positive attitudes of Chinese official media to the digital economy and their willingness to inspire public confidence in the digital economy.

**Keywords:** Conceptual metaphor, Digital economy, Corpora analysis

## 1. Introduction

The digital economy is one of the hottest topics in the 21st century without a doubt. Digitalization is considered the fourth Industrial Revolution for the sake of its key role in social and economic development<sup>[1]</sup>. The digital economy is now a new socioeconomic form following the agricultural and industrial economies, which improves resource allocation, integration, and synergy<sup>[1]</sup>. In recent years, with the accelerated innovation of the internet, big data, cloud computing, artificial intelligence, blockchain, and other technologies, the digital economy has developed rapidly. China's digital economy has ranked second in the world for many years. The national "14th Five-Year Plan for Digital Economy Development" calls for the deep integration of digital technology and the real economy, empowering the transformation and upgrading of traditional industries, expediting the introduction of new industries, new forms, and new models, and continuing to make China's digital economy stronger, better and bigger.

Under such a context, how the media portrays this emerging and crucial hot spot—digital economy is particularly important, which may greatly influence or even construct the way the mass perceive and respond to the digital economy. Among many digital economy discourses accessed, the extensive use of metaphor is particularly noteworthy.

It is stated that "Metaphor is primarily a matter of thought and action<sup>[2]</sup>, and only derivatively a matter of language", meaning that metaphor is more than just a rhetorical embellishment of language; rather, they reflect how our brains conceptualize reality and can influence how reality itself is constructed by society.

More specifically, Lakoff and Johnson<sup>[3]</sup> claim that abstract ideas and conceptual domains are more easily understood by human beings in terms of concrete experiences involving bodily movement and sensations (sensory perception, motor activity, physical pain, and pleasure, etc.); by functioning through subtle associations of thought, metaphors can instantly convey contents and emotions without the need for arguments and for conscious logical reasoning<sup>[4]</sup>. Although not ideological in themselves, metaphors can also be used ideologically—that is, to the end of legitimizing the given social order by representing it as necessary or moral, while concealing its shortcomings and contradictions. Metaphors are in fact selective interpretations of reality, which emphasize some elements of it (those shared by the target and the source domain) while hiding others<sup>[2]</sup>.

## 2. Literature review

Lakoff and Johnson first put forward the concept of conceptual metaphor in their book *Metaphors We Live By*. They think metaphors are not just a stylistically attractive way of expressing ideas but means

of language, and a way of thinking about things<sup>[2]</sup>. They also conclude two characteristics of metaphor, universality and conceptuality. First of all, metaphor is pervasive in everyday life, not just in language but in thought and action. Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature<sup>[2]</sup>; In addition, metaphor is a way of thinking and cognitive tools that help us structure our thoughts and experiences in the world around us<sup>[2]</sup>. The essence of metaphor is understanding and experiencing one kind of thing in terms of another<sup>[2]</sup>. Generally, we use concrete familiar concepts to understand abstract and unfamiliar concepts.

Conceptual metaphor mainly includes three types: spatial metaphor, ontological metaphor, and structural metaphor.

There are many research directions in the field of conceptual metaphor, such as conceptual metaphor in literature and metaphor in translation and philosophy. Among these, conceptual metaphors in economic discourses have been paid attention to and studied extensively. Due to its abstract quality, the economy is a field where a large number of metaphors are needed to help people understand various complicated and obscure economic concepts. Besides, as the economy plays a more and more important role in the modern neoliberalism society and exerts more and more influence on people's lives, people tend to familiarize this relatively new field with various metaphorical concepts close to daily life.

In the past century, scholars all over the world have conducted extensive research and exploration of metaphors in economic discourses, involving many hot topics in the field of economy, reflecting the development of the times and discovering the changes in people's cognition. For example, the metaphor of the economic crisis in 2008<sup>[4]</sup> and the metaphor of the bubble economy<sup>[5]</sup>. However, the metaphor of the digital economy, the fourth industrial revolution that has emerged in recent years, is still almost absent. The author believes that it is very necessary to keep up with the pace of the times and make up for the blank of metaphor research on this hot topic. In addition, metaphor analysis based on corpus research is still in the initial stage. This paper uses the method of corpus analysis to make qualitative and quantitative research on digital economy metaphors in economic discourses, which can provide useful exploration for metaphor study based on corpus research.

### 3. Method

#### 3.1 The Conceptual Mapping (CM) Model

Based on the Contemporary Theory of Metaphor<sup>[2]</sup>, the CM Model not only retains the idea that metaphors are paired in a systematic way from their source to their target domain but also originally generates the hypothesis that systematic pairings are principled and that these principles can be formulated from a linguistic analysis of conventional metaphorical expression<sup>[6]</sup>. There are mainly five steps to identify metaphors via CM Model: firstly, generate all items related to the target concept; then categorize these items into similar source concepts; third, generate the conceptual real-world knowledge regarding this source domain; fourth, filter out non-conventional expressions generated in the first step; last, compare the actual mapping between the target and source with what could possibly be mapped in the real world<sup>[6]</sup>.

#### 3.2 Process

Using the CM Model, I analyzed the metaphor of DIGITAL ECONOMY based on the self-build corpora. The whole process is as follows:

##### Step 1: Build the corpora

The corpus was built by manually downloading economic discourse related to the digital economy from China Daily, which contains 40473 words.

##### Step 2: Locate the key term

The key term “digital economy” was searched in AntConc 3.4.4.

##### Step 3: Recognize metaphors

A metaphor is identified when there is a mapping from a mapping of DIGITAL ECONOMY to a concrete domain such as PLANT in the following example.

*China will scale up measures to spur the growth of the (digital economy) to inject new impetus into*

*the economy and foster high-quality development.*

The underlined word belongs to the domain of PLANT and the bracketed words belong to the domain of the DIGITAL ECONOMY. These identified metaphors were then categorized according to the different metaphors (DIGITAL ECONOMY IS PLANT, DIGITAL ECONOMY IS HUMAN BEING, etc.). The instances of expressions within each type of metaphor were counted.

#### 4. Results

Our analysis yielded 135 tokens of economy metaphors, with 4 recurring patterns of economy metaphors. These 4 metaphors are shown in Table 1.

*Table 1: All 'Digital Economy' Metaphors found in the Corpora*

Metaphors	Tokens
THE DIGITAL ECONOMY IS A PLANT	19
THE DIGITAL ECONOMY IS A HUMAN BEING	10
THE DIGITAL ECONOMY IS A MACHINE	14
THE DIGITAL ECONOMY IS A WAR	6
THE DIGITAL ECONOMY IS BUILDING	4
OTHERS	11
Total	64

In each metaphor, there are various vehicle terms, and they are presented in Table 2.

*Table 2: Distributions of Digital Economy Metaphors in the Corpora*

Source domain	types	vehicle terms
PLANT	4	grow, growth, flourishing, fruits
HUMAN BEING	5	carve out, embrace, use, strong, healthy, create
MACHINE	6	pivot, engine, driving force, driver, drive, accelerate
WAR	3	collaboration, participate, competition
BUILDING	4	building, expand, build, foundation

#### 5. Discussion

##### 5.1 Digital economy as a plant

● *Ge Huijun, publicity chief of Zhejiang province, said the region's (digital economy) has grown fast since the first World Internet Conference in 2014.*

● *China will scale up measures to spur the growth of the digital economy to inject new impetus into the economy and foster high-quality development.*

● *China has probably the most abundant data resources in the world, which has laid a solid foundation for its flourishing digital economy.*

● *Data-driven, software-defined, platform-supported, intelligent-led and value-driven products and services have enabled the digital economy to grow rapidly.*

● *New rules must be drawn up for the digital economy, so as to promote innovations by small and medium-sized enterprises and allow the whole society to share the fruits of the digital economy.*

The plant metaphor includes plants and living entities themselves and their behaviors and activities. Plants and living things move, make noises, grow strong, get sick, die, come back to life, etc. The same is true of the economy. In the beginning, economic activities and organizations are very vigorous. Due to the impact of the economic crisis, improper economic strategies and mechanisms, they may suffer from a poor economic operation or even collapse, or they may recover due to government support and policy adjustments.

Most of the PLANT metaphors found in this study emphasize the strong growth of the source domain and its thriving characteristics. The mapping to the target domain shows that the digital economy is currently extremely vibrant, with a rapid and sound development trend. The intentions of official media using such a metaphor are obvious. On the one hand, it is to objectively state the facts that the digital

economy is emerging; on the other hand, it is a method to enhance the public's confidence in the digital economy and encourage the public to participate in the innovative activities of the digital economy, not only gains huge benefits from this "blue ocean", but also promotes the development of the digital economy.

### 5.2 Digital economy as a human

- *China is building a healthy digital economy.*
- *The digital economy is carving out new divides between capital and labor, by allowing one company, or a small number of companies, to capture an increasingly large market share.*
- *Haier's digitalization drive offers a glimpse of how Chinese manufacturers, especially those in traditional industries, are embracing the digital economy, which is mainly represented by emerging information technologies and has become a key engine driving economic growth.*
- *The agricultural economy and industrial economy use land, labor and capital as key production factors while the digital economy uses data as the key production factor.*
- *According to official data, the digital economy created 191 million jobs in China in 2018 — accounting for nearly 25 percent of the total employment generated that year—an increase of 11.5 percent year-on-year, which was significantly higher than the country's total employment growth rate.*
- *Tongxiang embraces promising digital economy*
- *Hangzhou, the capital of East China's Zhejiang province, has dramatically grown from a tourism-oriented city to an emerging city with a strong digital economy, according to a news conference held by local authorities on Sept 16.*
- *We're focused on jobs, but we're skipping a necessary discussion of how the digital economy is shaping those jobs.*

Human being metaphors are also common in economic discourses because humans have a life cycle and the economy has a growth cycle<sup>[7]</sup>. By mapping the various stages of human life, certain actions, and physical characteristics to the economic field, we can better understand some economic phenomena.

Many human being metaphors have also been found in the corpus studied in this paper. As can be seen from the above examples, these related human metaphors include "sound", "healthy" and "strong" to describe physical conditions. It is not difficult to find that these are positive adjectives, indicating that the development of the digital economy is optimistic, giving people confidence in the digital economy. In addition, there are metaphors about human movements, such as "embrace". These words indicate the open and welcoming attitude of different industries to the emerging digital economy because the embrace between people expresses an attitude of friendly cooperation. At the same time, words like "carve out" and "create", which embody human entrepreneurship, also show that there is much to be done in the digital economy and that it is meant to create a whole new situation.

### 5.3 Digital economy as a machine

- *Fueled by booming new technologies and the government's supportive policies, the digital economy is gradually becoming the key driving force boosting China's economic development.*
- *Beijing's digital economy accelerates.*
- *The digital economy is a major force in the development of China's economy*
- *It says that the digital economy is driving the overall economy to a high-quality level and becoming more integrated with the brick-and-mortar economy.*
- *The digital economy has become a major driving force for the high-quality development of the Chinese economy, according to a blue book released on Tuesday.*

The economy as a machine is also one of the most commonly used metaphors in economic discourses. The dominance of natural and mechanical metaphors reflects well the tension that arises around an essentially uncontrollable economic phenomenon, but which at the same time gives the impression of being able to be managed under human leadership<sup>[5]</sup>.

The above examples extracted from the China Daily corpus are machine metaphors. It can be seen

that a prominent feature of machine metaphors about the digital economy is the "driving force", indicating that the digital economy is considered to be very potential to facilitate the development of the national economy and has a huge influence and function on it.

#### 5.4 Digital economy as a war

● *More efforts are also needed to speed up the construction of digital infrastructure; promote the large-scale commercial deployment of 5G; accelerate the digital, networked, and intelligent transformation of manufacturing; improve data services; and strengthen international exchanges and cooperation in the digital economy, Xiao said.*

● *Restoring competition in the digital economy.*

● *In other words, while local users participate in the digital economy and contribute to crucial data resources, local governments have a hard time taxing digital enterprises for this under the traditional tax system, greatly reducing the tax payable for digital businesses.*

● *Moreover, the plan details key tasks in eight areas, including optimizing and upgrading digital infrastructure, pushing forward the digital shift of enterprises, and expanding international cooperation on the digital economy.*

● *China and Arab countries are expected to further tap their great collaboration potential in the digital economy in a bid to shore up global economic growth, said participants in the Fourth China-Arab Trade and Investment Summit held in Xiamen, Fujian province, on Wednesday.*

The war metaphor is often used in economic discourse. The concept of war used in the economic sphere has a deep social and cultural basis. War is closely related to economics as there are many similarities between military and economic activities such as the competition between two parties, the cooperation between allies, and winning and losing in a battle<sup>[8]</sup>.

As can be seen from the above examples, although there is both competition and cooperation in the battle of the digital economy, China is more inclined to cooperate and tends to seek a win-win situation. China knows well that in today's globalized world, the fourth revolution of the digital economy cannot be limited to a certain region or country, and the digital economy is destined to have the greatest potential and vitality only when it is popular all over the world. Well aware of this in the early days of the digital economy, Chinese officials also conveyed an open and friendly attitude to international cooperation. Even if this economic activity is a war, China and other countries are not competitive counterparts, but cooperative alliances.

#### 5.5 Digital economy as a building

● *He said Beijing has a solid industry foundation in the digital economy.*

● *A recent survey from the Dentsu Aegis Network, a global network that helps clients build consumer relationships through creative digital execution, showed that China ranks third among the 10 leading digital economies in 2018 in terms of how well it is building a digital economy that works for everyone in society.*

● *Yantai looks to expand the digital economy.*

● *Huang Kunming, a member of the Political Bureau of the Communist Party of China Central Committee, called for advancing the building of a digital economy that is high in standards and quality, stressing the role of information technology in promoting high-quality development in a keynote speech at the opening ceremony of the summit.*

● *At a time when people live ever more of their lives online, the crypto-revolution could even remake the architecture of the digital economy.*

The building is another traditional metaphor in economic discourse. Most of the metaphors in the BUILDING source section refer to some general meaning of the construction process (e.g., building a business) or to general structural supports of a building (e.g., supporting expanded commerce)<sup>[9]</sup>.

The examples in this paper are mainly about the construction process of building the digital economy. It can be seen from the words "foundation", "expand" and so on that, the digital economy is still in its initial stage. China also wants to attract more citizens to participate in the construction of the digital economy through the description of this process.

## 6. Conclusion

By studying the metaphor of digital economy reports in China Daily, we can see that China attaches great importance to the digital economy, and holds a relatively positive attitudes towards the coming digital economy. It also intends to use the positive metaphor in the media to guide the public to have full confidence in the development of the digital economy and actively invest in the construction of the digital economy. Let us wait and see how China will seize the opportunity of digital economy transformation to boost China's economy and inject another strong impetus into soaring China.

Admittedly, this paper also has many limitations, because all the metaphorical confirmation in this paper is a manual operation, which is inevitably subjective to some extent. In the next paper, more automated or refined cutting-edge metaphor confirmation methods will be considered to increase the objectivity of analysis results and make larger corpus analysis possible. In addition, since a metaphorical analysis of the digital economy can be carried out on Chinese mainstream media, a metaphorical analysis of Western media's reports on the digital economy is also feasible. The subsequent research will consider relevant corpus analysis on well-known Western economies media such as The Economist and Harvard Business Review, and make a comparative analysis of the analysis results with Chinese corpus to explore the different attitudes towards digital economy between China and the West in different cultural contexts.

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