



## Viewing TIF Domain Financial Intelligence from the Perspective of Data Science

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# Viewing TIF Domain Financial Intelligence from the Perspective of Data Science

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**Abstract.** This paper aims to discuss the *technology of information industry finance TIF domain* with *financial intelligence FI* from the perspective of interdisciplinary and data science, especially from the perspective of large cross-border. The methods are as follows: firstly, from the perspective of human beings, in the context of *TIF domain*, *financial intelligence FI* namely *Rongzhixue* embodies the law of social life, the law of social heredity and the law of social gene expression, and *TIF domain* provides an institutional base for *Rongzhixue* or *smart system studied SSS* including  $SSS\ of\ labor = SSS\ of\ Intelligence + SSS\ of\ science$ . Then, from the perspective of big data and AI, how do English and Chinese interpret or spread *TIF domain* and *SSS* respectively? Finally, from the perspective of data science and interdisciplinary or the great cross-border is derived by the basic way to discuss *TIF domain*. The results not only clarify the relationship between data science and interdisciplinary, but also clarify the connotation of *TIF domain* and *SSS* or *financial intelligence*. Its significance lies in: it is the first time to discuss the profound thought of *TIF domain with SSS or FI* and its system base from the perspective of great cross-border, and to open up a broad space for *TIF domain* and *financial intelligence FI as integration theory* and its *smart system practice*.

**Keywords:** TIF domain; financial intelligence FI; smart system studied SSS; data science; smart system practice SSP.

## 1 Introduction

This paper aims to discuss the technology of information industry finance TIF domain and financial intelligence FI from the perspective of interdisciplinary and data science, especially from the perspective of large cross-border. Among them, it includes not only the traditional rule-based expert knowledge system, but also big data processing based on statistics, machine learning and deep learning, such as a new generation of artificial intelligence AI and even artificial general intelligence AGI, such as GPT+ and LLM+. Professor Xiaohui Zou, an alumnus of Peking University, has been devoted to the theoretical construction and the exploration of the popularization model of *the science of co-intelligence for both HI and AI -Financial Intelligence*, and has made gratifying progress, this co-authored paper is submitted for *the first International Conference on Financial Intelligence* under the opportunity of hosting the *International Financial Intelligence Research Institute at Oxford University*, the purpose of this paper is to expound how the theory of "The domain rich theory of *TIF model*", which has the characteristics of the general mode of social economic operation, realizes the system guarantee for the applied scenario of *Financial Intelligence (FI)*.

*Rong Zhixue* believes that the integration of knowledge and skills in many fields can create more efficient or innovative solutions, thus promoting the sustainable development of economy and society. There are three levels of theoretical framework for *the theory of financial intelligence*: the acquisition and integration of knowledge and skills in multiple fields; Cross-border thinking and creativity after integration; The realization and promotion of cross-border solutions after integration. *The theory of financial intelligence FI* conforms to the emphasis on openness and integration, the theory of self-organization and the practical need of "separation for a long time".

*The theory of financial intelligence or integrating intelligence* can be expanded in many ways, and "*Domain Rich Theory based on TIF mode*" aims to interpret and deduce the connotation of *financial intelligence or integrating intelligence* from the perspective of standardization. *TIF* is the abbreviation of English letters for three broad industries: *Technology* of information, *industry* and *finance*. According to this theory, all kinds of "self-organization" in human society are open and interconnected to form a whole. The basic unit of its sustainable standardization as a whole presents the following four functions: first, to ensure the domain function of "birds of a feather flock together"; Second, the operating platform function of online and offline cloud integration; Third, the function of financial services; Fourth, the growth function of industrial objects served by the above three functions. Different industrial platforms will be integrated into a national social and economic platform; Government, platform and productivity elements will be integrated into a country's operation mode; Different industrial platforms will break through national boundaries to form a global industrial life chain platform. Realize the transformation of the international economy from the traditional "WTO" to "e-WCO" (World Chain Organization) .

It can be seen that the integration of "TIF mode domain richness theory" is an orderly and multi-dimensional entropy reduction and orderly integration, and it is the standardized institutional basis for *the financial intelligence FI or the integration of*

*wisdom*. The following will explain the application of *Rongzhixue* according to the logic of data basis, industrial platform integration, industrial chain integration and national organization integration.

## 2 Method

Its method is to adopt three groups of comparative studies, namely, man-machine mutual assistance and interpersonal mutual assistance, including personal self-help by using AI tools. The methods are as follows: firstly, from the perspective of human beings, in the context of TIF domain, financial intelligence namely *Rongzhixue* embodies the law of social life, the law of social heredity and the law of social gene expression, and TIF domain provides an institutional base for *Rongzhixue* including smart system studied SSS( $\text{SSS of labor} = \text{SSS of Intelligence} + \text{SSS of science}$ ). Then, from the perspective of big data and AI, how do English and Chinese interpret or spread TIF domain and SSS respectively? Finally, from the perspective of data science and interdisciplinary or the great cross-border is derived the basic way to discuss TIF domain.

### 2.1 The exponential index basis of integration

Integration is an inevitable requirement of human society. Integration meets three basic requirements: first, it is the requirement of self-organization law. For an organization to exist and prosper, it must continuously interact with the outside world in terms of matter, energy and information. Only in this way can entropy decrease in order, otherwise it will increase in disorder; The second is the requirement of natural division of labor. People are in different time and space, have different resource endowment characteristics, have different preferences and needs, and only when people and organizations are continuously integrated can they exchange needed goods and maximize their effects; The third is conscious division of labor. Adam Smith explained through the example of needle making that organized division of labor can improve the quantity, skill and innovation of jobs, and the result of division of labor is cooperation.

Division of labor and cooperation are two sides of a coin, and it is the "coin" itself that integrates these two aspects. The continuous existence of human society determines that the cooperation between people is repeated, and the last experience of cooperation will affect the desire of the next cooperation. Two people who don't promise, and one of them doesn't promise, will lead to the continuous rupture of cooperation. Only when two people talk about credit cooperation can it last. This requires the existence of a "three public" platform, objectively recording and actively mining the "cooperation index" of each potential partner, so as to promote the success rate and sustainability of the integration of the two "organizations". "Three publics" refers to justice, fairness and dialectical openness.

The traditional index has some problems, such as few levels, roughness and insufficient standardization. "TIF model domain wealth theory" holds that anyone

who faces the measurement of multiple levels of bottom lines in society can enter the "domain" formed by multiple bottom lines and cooperate with other "organizations". It is usually described by "three lines and four domains". The "three lines" are social bottom line A, market bottom line B and ESG bottom line C respectively, forming "below A, such as prison", "social domain between A and B", "market domain between B and C" and "ESG domain above C". If the cooperative index is lower than the bottom line, it must be "cleared out of the domain", which is called justice; if the index is higher in the same domain, the cooperative welfare is higher, which is called fairness and efficiency; if the original data and cooperative index are known to fewer people as far as possible, the problem of "privacy paradox" can be solved, which is called "dialectical disclosure".

ESG is an acronym for Environment, Social and Governance, originally derived from the church's ethical investment principles, it was first proposed by the United Nations Global Compact in 2004 and has been gaining momentum and momentum globally in recent years.

From data to index, there are specific goals. This process has already been preliminarily described by the decision pyramid model DIKW, namely data (Date), Information (information), Knowledge (knowledge) and Wisdom (wisdom). Profeopenness decision-making, but its contribution is mainly intelligent, which is still different from that of intelligent people with "systematic thinking". ChatGPT, for example, may bite human beings if it is not regulated. Artificial intelligence should be introduced into DIKWP in a limited way to form a new model dikwp. TIF domain model can dialectically and effectively integrate all factors of production, especially people, with low cost, low risk and high efficiency, forcing human beings to improve their talent level and cooperation level.

## **2.2 Platform integration**

The orderly production can not be carried out without four sub-functional platforms: the disclosure of cooperation degree, the platform of cooperation promotion, the financing of cooperation resources and the closed loop of value chain.

A standardized social platform allows ordinary people to exist as ordinary survivors, but encourages a person to exist as a person with social production capacity, so that such a person can take responsibility and have the core value as a social person. Revealing the function of the cooperation platform is conducive to three kinds of "cooperation": first, cooperation between people, which should adhere to the principle of "double no harm", that is, "don't do to others what you don't want them to do to you", and help people form cooperative decisions through the cooperation index; The second is the "cooperation" between people and things, which is generally called resource allocation. Anything that does not meet a certain index, whether it is the means of production or the ultimate commodity, will be "expelled from the domain"; The third is the configuration of things and things. Generally

speaking, there is a certain adaptability between labor time and space, labor tools and labor objects.

Hint: among them, the most difficult is not damaged or win-win co-operation of the identification and its basis or specific cognitive process.

There are two platforms for cooperation, offline platform and online platform. Observing the evolution of the universe: observing BIGBANG 13.8 billion years ago, the Big Bang 3.5 billion years ago, the Big Bang 2.3 million years ago and the BIGBANG in 2021, it is found that with the phased evolution of the universe, the information processing ability of the "new universe" superimposed on the previous universe is gradually increasing. We will also find that the information processing platform is becoming more and more perfect, and it is in an accelerated evolution of continuous intelligence. From the previous O2O and OMO, the platform has reached the platform life, social life and silicon-based life required under the TIF domain, and it has replaced the life niche of natural people and promoted the integration of carbon-based life and silicon-based life. If the metauniverse is the spiritual realm of online and offline integration, then AIGC-GPT is the "soul" in the spiritual realm, which has the "life and death power" of data knowledge and qualification management. AIGC (AI Generated Content) .

The industrial capital in the platform is the industrial capital waiting to grow. Whether it is the upstream or downstream industrial capital, there is a problem of financing. Ensuring the availability of funds is the premise for the growth and transformation of industrial capital. Due to the lack of holographic measurement of credit resources, traditional financial intermediation underestimates the credit resources of financiers. For example, for small and medium-sized enterprises, financing is difficult and expensive because of the lack of collateral, incomplete credit records and short credit records. However, if these small and medium-sized enterprises can be placed in the Dojo of the "three public platforms", they can not only comprehensively collect relevant data of small and medium-sized enterprises, but also enhance their attractiveness by controlling their qualifications for settling down and providing various benefits for them. This attraction is the most valuable new credit resource.

The secret of an enterprise's survival and prosperity lies in its ability to purchase the means of production smoothly, to carry out production activities efficiently and to realize the value of goods quickly. This is the coexistence of the continuity and coexistence of Marx's "industrial capital", which is a buzzword "closed loop of value". From the point of view of upstream and downstream enterprises, this value closed loop contains three big chains: the craftsman chain mainly described by Marx, the education chain mainly described by Schumpeter, and the education chain mainly described by innovation chain and Schultz. The education chain is mainly about the cultivation of priests, founders and artisans, as well as the application of priests' talents. innovation chain is mainly about the application of founders' talents, and the craftsman chain is mainly about the application of artisans' talents. The integration of the three chains is called "industrial life chain", which is the main chain of platform services. In terms of the discourse system of integrating wisdom, the education chain

is the integrated cultivation of wisdom, and the industrial chain is the integrated application of wisdom.

If the index is regarded as the domain right (R:right) of industrial factors instead of domain, then the "TIF domain" will form the "transparent" mode of credit information of RIFT, and the social, economic and financial operation effect of RIFT "away from the lemon market" will be obtained.

Hint: Information asymmetry leads to lemon market effects. That is: good goods suffer obsolescence. The "Lemons" market is a well-known concept introduced by the George Akerlof (1970) into the study of information economics. The theoretical formulation of Information asymmetry is also often referred to as information economics. In 2001, the American economist George Akerlof, in Information asymmetry theory, often referred to the Information asymmetry market as the lemon market. Because of the inevitability of market information asymmetry, poor-quality and good-quality products will co-exist in the market, and the difficulty of distinguishing the good from the bad is inherent in business. In fact, the "Lemon market" theory can explain a lot of economic problems. Today, information economics is becoming the mainstream of the new theory of the market economy. People have broken the free market assumption of complete information and finally discovered the seriousness of the information asymmetry, lemons everywhere. In 2001, George Akerlof, Mikell Spencer and Joseph E. Stiglitz were all Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel for their work on the economics of information.

### 2.3 National integration

The significance of the emergence of the platform lies in compacting, manifesting and activating the looming "meso-economy" in the previous macro-economy, meso-economy and micro-economy. The traditional meso-economy has a grasp because of the "digital platform", which has changed the situation of "government failure" and "market failure" caused by the "excessive and insufficient" of both sides under the previous "government-market" dichotomy. The great economic crisis in the 1920s and 1930s was the embodiment of "government failure", and the passive waiting of workers in planned economy countries was the embodiment of "market failure". The harm caused by excessive state intervention or excessive market indulgence did not go out of the cycle of "controlling death and letting chaos go". It seems that the dichotomy of "government-market" cannot realize the ideal of "effective market for the government". The ideal mechanism is that the government and market elements are in their proper places, which requires the ternary social and economic operation mode of "government-industrial platform-production factors".

There is a saying in China, "Duck Prophet in Spring River Heating". Industrial platforms, like ducks, have the right to obtain data and the right to manage elements in the domain. It can not only perceive the demands of factors at the first time, but also effectively measure and manage the cooperative allocation index of factors, so it is the best candidate to supervise microeconomic factors. The main object of government supervision is not micro-elements, but platforms. The government should

supervise the "three publics" of the platform. The government can test the "fairness" of industrial platforms by sampling microeconomic factors. In this way, the government supervises the industrial platform, the industrial platform supervises the market elements, and the market elements exert supervision pressure on the market platform according to their experiences and preferences, and the market elements also supervise the government through elections. Even within the government, the upper government will also form a TIF domain platform to supervise the lower government.

The second contribution of TIF domain platform is to base the integration on social order, market order and ESG order, which is the consensus of closed-loop value chain formed by "education chain", "innovation chain chain" and "craftsman chain". The purpose of these consensuses is to make the market cooperation lasting, and the ideology of each country is superimposed on the basis of the cooperation order. Therefore, the integration of wisdom can find the concentric heart of marketization and globalization through TIF domain. If a country puts its ideology above the law of concentric circles in the market, it will easily get lost in the low-dimensional decision-making of decoupling and breaking the chain. It can be seen that if countries integrate their own TIF domain platforms through API, they will form an e-WCO(World Chain Organization) based on "Global Industry Chain Platform".

With the operation of e-WCO, the mechanism of "three lines and four domains" makes the workers in the "industrial life chain" gradually move from the social bottom line with less welfare to the market bottom line and ESG bottom line. If these laborers have a heart flow, it is mainly the "probabilistic heart flow" brought by their productivity and daring to challenge, which is in line with Mihali's theory of heart flow. Through the TIF domain model, the theory of financial intelligence emphasizes that integration conforms to preference, ability and social demand, which is equivalent to replacing the variable of challenge with preference and social demand, so that the probabilistic challenge becomes a deterministic choice and the workers can obtain a "constant flow". Furthermore, Rongzhixue dynamically examines the process of people's pursuit of flow through the TIF domain model, and finds that "the scenery is long and the eyes should be open", improves the pattern, and examines the life ecological relationship between the organization in the supersystem and the original organization, so as to produce a high-dimensional cognition of "hello is my good" and achieve "self-organization" or "super flow" in caring for others and achieving "other organizations". In this way, the ideology of human society will gradually converge to a high-dimensional moral standard.

### **3 Result**

The results not only clarify the relation between data science and interdisciplinary, but also clarify the connotation of TIF domain and SSS or financial intelligence. And theoretical premise: social life wisdom theory; theoretical model: what is the TIF model domain rich theory; wisdom-melting mechanism: people-oriented dimension fusion.



The so-called domain wealth theory refers to three problems in the process of transmitting natural genes and social genes in human society: one is scarcity, the other is division of labor and cooperation, that is, credit, and the third is value judgment of division of labor and cooperation, that is, happiness maximization. As far as the division of labor is concerned, things are grouped by birds of a feather, and on this basis, as far as credit is concerned, things are grouped by birds of a feather. If the credit index of human society is properly divided into several standards, we can consider both the problem of people's free choice and the bottom line of people's behavior. So that the division of labor and cooperation of human beings can be done without loss, that is, no one's behavior can harm others for his own gain. If this system of classification, grouping and stratification exists, social and economic development will be not only just and fair, but also happy. TIF domain explains four elements or four sub-platforms (entity+information platform is online and offline platform), industrial chain, credit chain and financial responsibility chain. It is expressed by T, I, R (entry right) and F respectively. Form a transparent form of FRIT credit, and RIFT is far away from the lemon market effect. This platform will lead to two major institutional changes: first, the interactive mechanism of government market will be changed into the model of government-platform-market elements, so as to avoid "controlling death and releasing chaos" and form the effect of "just for the government and effective market"; Secondly, as the connotation of "industrial life chain", TIF domain platform will make it possible for enterprises to get rid of the long arm jurisdiction of the government and realize value in the industrial value chain. Form the evolution form of international cooperation among WTO, e-WC (industrial chain) O and e- WP (platform economy) O.

The summary of system analysis can be found in Table 1 and Table 2:

**Table 1.** *Domain Rich Theory* based on TIF/ITIF mode with four functions.

	Domain Rich Theory	The following four functions
Title	From TIF mode	The basic unit of its sustainable standardization as a whole presents
1 <sup>st</sup> -level	Information Technology	The domain function
2 <sup>nd</sup> -level	Industry	The operating platform function
3 <sup>rd</sup> -level	Finance	The function of financial services
4 <sup>th</sup> -level	To ITIF mode	The growth function of industrial objects served by the above three functions

**Table 2.** *Domain Rich Theory* with two sides and the DIKWP.

	Two sides / Three public	Domain Rich Theory	Decision pyramid model DIKWP
Title	Division	From TIF mode	Date
1 <sup>st</sup> -level	Justice	<b>Technology</b>	<b>Information</b>
2 <sup>nd</sup> -level	Fairness	Industry	Knowledge

3 <sup>rd</sup> -level	Openness	Finance	<b>Wisdom / financial intelligence FI</b>
4 <sup>th</sup> -level	Cooperation	To ITIF mode	Purpose

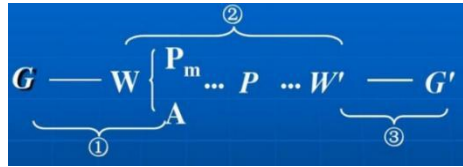
The characteristics of the algorithm path are: financial-oriented TIF; goal-oriented or intention-oriented DIKWP; and the peace strategy-oriented three-wise win-win.

$$T + I = F \quad (1)$$

$$D + I + K + W\&I = P \quad (2)$$

$$SSS + IF + R\&I = 3I \quad (3)$$

Multi-party comparative analysis shows that the development trend diagram is omitted here (because they will change with time). The changes of capital attributes in three different stages can be seen from Figure 1:



**Fig. 1.** ① In the buying phase & stage, the monetary capital (of stocks and bonds) ; ② Production stage, production capital; ③ The selling stage, commodity capital.

Financing money, things, wisdom; outside, inner, wisdom of me. Labor is the most active factor in productivity. Relations of production affect the sustainability of productivity. The energy levels of the workforce affect relations of production. Institution or system is a function of the energy level of labor. Hawkins Energy Scale: Wisdom of me, take care of society; Rational of me, body and mind one; Skin of me, one-sided impulse.

## 4 Conclusion

Its significance lies in: it is the first time to discuss the profound thought of TIF domain integration and its system base from the perspective of great cross-border, and to open up a broad space for TIF domain and financial intelligence as integration theory and its smart system practice. Getting rich depends on cooperation, which is a function of credit index. The theory of domain wealth leads to TIF domain, then to the ternary theory of state operation, and then to the phenomenon of flow, which eventually leads to the globalization of the platform.

Its core is: higher requirements are put forward for human teachers, specifically, teaching practice, teaching research and scientific research must be balanced, and at the same time, data science should be mastered as much as possible to keep pace with the development of big data and AI (man-machine mutual assistance), so as to

optimize the phonetic teaching of Chinese as a foreign language and even the whole process of education (not just specific discrete strategies of teaching). It is particularly noteworthy that the big data processing technology based on machine learning and deep learning, the new generation of AI and even the general artificial intelligence, such as GPT+ and LLM+, and the application of data science principles behind them have a great impact on natural language understanding, especially on the acquisition, expression and reuse of expert knowledge, and on AI-assisted teaching. This paper mainly raises a series of questions.

The conclusion of this paper is that "TIF mode domain wealth theory" provides a pre-standardized human society operation mode based on China facing the world and the present facing the future, and can realize the multi-level, multi-dimensional, multi-scene, multi-agent and dynamic integration of people, characters and things in an orderly, appropriate and effective way, maximize the sustainable prosperity and realize the task of "solving scarce problems", and constantly improve the flow.

This article makes the following suggestions:

1. The essence of financial intelligence is financial integration, and the essence of financial integration is cooperation. Human society will be divided for a long time, and it will be divided for a long time. The development of science of human disciplines has been relatively full, but the development of "systematic science" has not kept up. Therefore, this is an era of finding commonalities and strengthening cooperation. Merging wisdom is the theme (essence) of this era.

2. It is a wish to integrate wisdom, and it is necessary to find a standardized model to achieve effective, sustainable and prosperous integration of wisdom. This paper holds that "TIF domain model" is a standardized social operation model in the digital age that can be popularized globally. Seeking common ground for sustainable development and prosperous market links. Credit is the theme of this era.

3. Credit needs a "three public" platform. Countries should first establish their own "TIF domain" platform, which can be fully improved by their own ideology to benefit their own people. This platform can learn from Academician Li Youping's UCL platform based on "light speed drive". Platform is the theme (tool) of this era.

In short, the "three public" platforms fully tap the cooperable and configurable indexes of all productivity factors in the serviced "industrial life chain", promote the deep integration of factors belonging to the same domain, and promote the sustainable improvement of production level.

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