

## Ten Propositions for the Law of Increasing Marginal Utility

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**Abstract:** It is called “the law of diminishing marginal utility” that Marginal utilities are diminishing across the ranges relevant to decision-making. However, it will not always hold. Sometimes an amount added brings things past a desired “tipping point”, or an amount subtracted causes them to fall short. In such cases, the marginal utility of a good or service might actually be increasing. This paper investigates Xinfai Corporation’s rapid growth, and proposes ten propositions for the law of increasing marginal utility. [Nature and Science. 2007;5(3):72-77]. (ISSN: 1545-0740).

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### 1. Introduction

Since 1986, Xinfai Corporation, a Chinese high-tech company, grows rapidly. In this paper, we compare the development of Xinfai Corporation with the development of other Chinese companies and some foreign companies, and conclude that: (1) Under China’s new market economy mechanism, Xinfai developed in a new progressive mode, “Invest → Increase → Re-invest → Re-increase”; (2) The most important fact of Xinfai’s development is “Innovation”. These two conclusions can partially prove the law of increasing marginal utility. Thereby, management innovation can be constructed on this law. The law of increasing marginal utility provides a new economic theory for business management innovation. We also propose ten propositions for this law. These ten propositions play a significant role in economics, which can be considered as economic “Goldbach Conjectures”.

### 2. The law of increasing marginal utility

#### 2.1 Related work

In this paper, we focus on the proof and explanation for the law of increasing marginal utility based on the reality of Xifei’s amazing development. Using this law, a new development mode for companies in the current era based on information economics is proposed as: “Innovation → More Innovation”. This mode will result in a new revolution for companies’ administration. Up to the present, the law of increasing marginal utility is still a state-of-arts theory.

In *The Manifesto of Communism* [1], K. Marx and F. Engels proposed that the bourgeoisie cannot exist without constantly revolutionizing the instruments of production, and thereby the relations of production, and with them the whole relations of society...The bourgeoisie, during its rule of scarce one hundred years, has created more massive and more colossal productive forces than have all preceding generations together.

In *Capitalism, Socialism and Democracy* [2], J. Schumpeter proposed that as soon as quality competition and sales effort are admitted into the sacred precincts of theory, the price variable is ousted

from its dominant position... But in capitalist reality as distinguished from its textbook picture, it is not that kind of competition which counts but the competition from the new commodity, the new technology, the new source of supply, the new type of organization (the largest-scale unit of control for instance) – competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of the existing firms but at their foundations and their very lives. This kind of competition is as much more effective than the other as a bombardment is in comparison with forcing a door...

The above propositions have explained why capitalist economy grew such rapidly, and how this economy machine ran automatically. In addition, they discussed how innovation plays an important role in the open market economy, and explained the open market economy by “innovation”. Our research, the law of increasing marginal utility, is actually based on K. Marks, F. Engels, and J. Schumpeter’s illustrations about the development miracle of the open market economy. Our research includes: (1) Combining their theories with the practice of enterprise’s development under the new environment of new times, new economy conditions, and new productive forces; (2) Their theories about enterprise’s activities under the conditions of the open market economy. The most important point of their theories is “innovation”. A new microeconomics theory, the law of increasing marginal utility, can be concluded based on a series of K. Marks, F. Engels, and J. Schumpeter’s theories. This new theory not only analyzes how Xinefe Corporation breaks through the law of diminishing marginal utility, but it also combines a new essential factor, “the knowledge”, with productive forces, thereby forms the law of increasing marginal utility. The development miracle of Xinefe Corporation is the innovation machine described in the law of increasing marginal utility, and the inexhaustible power source for any company’s development.

## **2.2 The application of the law of increasing marginal utility**

The law of increasing marginal utility based on the research of Xinefe Corporation has following practical applications:

(1) Design “market innovation machine” under the knowledge economy system. Make corporations develop based on this law. Create a new miracle of microeconomics growth.

(2) Show the most important difference between the knowledge economic system and the other economic systems, i.e. forcing companies to unceasingly innovate by the pressure of market economy. The effect released by innovation is to break the traditional economic law of diminishing marginal utility, to prove the new economic law of increasing marginal utility, to create much more social wealth, and to make society progress rapidly.

(3) Construct a theory system based on the law of increasing marginal utility. In the future, under the knowledge economy, the competition between companies will no longer focus on the price, but on the innovation. The mode, “compete → innovate → re-compete”, results in a miraculous economic development. Therefore, in other words, the knowledge economy can be considered as a kind of cyclic economy. And the law of increasing marginal utility for the 21st century can also be concluded as a growing path: “innovate, innovate, and unceasingly innovate.”

(4) Construct a new mode for the enterprise management. The purpose of researching Xinefe Corporation is to research its innovation and its management mode with combining hard technology and soft technology together. Based on the law of increasing marginal utility, a new business management mode,

“21st Century Three-Color Business Management”, will be proposed.

### **3. The fundamental of the conjecture: five research subjects and ten propositions**

We have studied Xinefei’s miraculous development, Xinefei’s road of new industrialization, and Xinefei’s innovative management mode and effect. But the most important point is to construct the theory system based on the law of the increasing marginal utility, and to prove its scientificness and expansibility. Innovation is the core of this theory system.

#### **3.1 Five research subjects**

Subject 1. Research of the core of the modern innovation: The integration of the engineering technology and the modern business management technology.

Subject 2. Research of the mechanism of the modern innovation – the profit-driven mechanism: the value of technology and business trade.

Subject 3. Research of the business resource configuration of a company and the applicable mode of the innovation. It can prove the overflow effect of the innovation and the cyclic economy system. In other words, it is the research of the process of knowledge economy.

Subject 4. Research of the economic effect of “the innovation machine”. This research can prove the relation between marginal utility and the increasing profit.

Subject 5. Research of the development of “the innovation machine”. This research can explain the relation between the innovation and the business benefits. It can also be used in the process of constructing a harmonious society.

#### **3.2 Ten propositions for the law of increasing marginal utility**

We firstly research the knowledge economic system itself and the difference between this system and other economic systems, then explain the development miracle of enterprise by innovation, and solve the competition, the innovative change, the production innovation, the innovative spirit of entrepreneurs, the system of innovation, the creation of harmonious society, and the technological innovation based business exchange. All of these problems can be solved by the theory system of the law of increasing marginal utility based on following ten propositions.

(1) The knowledge economy is the basic economy obtained by enterprise, having amazing increasing rate, and having the characteristic of the law of the marginal utility. It is so-called the cyclic economy. The cyclic economy includes four circulations: a) macroeconomics circulation, develop → innovate → re-develop; b) microeconomics circulation, develop → invest → re-develop; c) integrated circulation for production elements, integrate → select → re-integrate; d) combinational circulation for technology and production, product → research → re-product.

(2) “The innovation machine” is the core of the microeconomics theory, including five parts: a) the value of the innovation; b) the competition of the innovation; c) the mechanism of the innovation and its revolution; d) the circulation and the cyclic economy based on the innovation; e) the relation between the innovative motivation and the innovative profit.

(3) The “technological innovation” consistency for the personal profit and the social wealth: a) The overflow effect of the technological innovation; b) the relation between the technology communication and

the driven-based innovation; c) the exchange value of the technological innovation; d) the league and monopoly for the trade of the technological innovation; e) the new mode for the technological innovation and the investment.

(4) The technology trading market for enterprises: a) the inner technological monopoly for an enterprise; b) the market value of the technology trading; c) the inner and outer effects of the technology trading; d) the role of market and market pressure in the technology trading.

(5) The substitution relation between the innovative driven factor and the personal profit: a) the relation between the overflow effect of the innovation and the market pressure; b) the united innovative system consisting of the marginal utility, the total cost, and the social benefit; c) the analysis for the optimal model of the innovation.

(6) The compensation for the enterprises' competition and innovation: a) the status and function of the modern management technology; b) the new competition model for enterprises (the competition not for price); c) the environment and effect of the innovation for production and process; d) the effect of the successful innovation for the social welfare.

(7) The effect of the marginal utility for "the innovation machine": a) the mechanism for the compensation of the innovation's cost; b) the relation between the innovation and the price (pressure); c) the marginal cost and the maximum profit; d) the cost efficiency for the continuous large scale economy; e) the rotating balance and the enterprise's spiral development; f) the centralization of the innovation and the release of the market effect.

(8) The core of the elements of production is the knowledge capital: a) the knowledge itself is a kind of capital; b) the innovation of the knowledge capital and the energy effect of the financing innovation; c) the function of the mechanism of the knowledge economy, i.e. the integration of price, innovation and information.

(9) The optimal schedule model for enterprises. This is the second model of the law of increasing marginal utility, for how to choose the innovation and how to optimize the innovation: a) the structure of the optimal selection model; b) the effect of the optimal schedule; c) the optimal model for the combination of the optimal schedule model and the optimal relation.

(10) The theory for the rules and the regulations of enterprises, which can guarantee the rapid development of enterprises: a) the trade-off between the rule and the efficiency of the profit; b) the trade-off between the innovation and the communication; c) the resource configuration of the technological innovation trading; d) the efficiency of assignment for the innovation and the technological communication.

#### **4. Expected research model and the business management pattern based on the innovation**

The expected results are the law of increasing marginal utility and the business management pattern based on this law, which consist of following contents:

- (1) the innovation of the law of increasing marginal utility;
- (2) the state-of-the-art economic theory based on this law;
- (3) the business management pattern based on the innovation, including humanism, technology and the innovation machine, which is so-called "Red-Blue-Green" Three-Color Business Management;
- (4) the model of the law of increasing marginal utility.

#### 4.1 The description and the model of the law of increasing marginal utility

This model is a theory for describing the economy increase, and belongs to microeconomics.

(1) The important research of this model is the increase of economy. The input variables of the model are technology, human resource, and capital. The output is the increment of economy. This model shows the function of economic activities and economic relations.

(2) This model is described by a differential equation. This differential equation shows the relation between input variables, time and some specific conditions. It illustrates the increasing property of the economy.

(3) Denote input variables C, M, N and K as control variable, dynamic human variable, technology variable, and capital respectively.  $MaxV$  means the optimal increasing economy [3].

(4) The mathematic model is as:  $MaxV = \int_0^T u[M(t) \cdot N(t) \cdot K(t) \cdot C(t) \cdot T]dt$ , where  $t$  is time, and  $u$  is the basic function [4].

#### 4.2 “Red-Blue-Green” Three-Color Business Management

##### 4.2.1 Red Business Management

The red business management considers technology as the management core, converts economic resources from one place with lower productivity to another place with higher productivity, and realizes the theory of “Technology is the first productivity”. The economy of the USA in 1990s can be considered as an economy for startup. Knowledge, technology and creativity are its three power sources. The purpose of business management is converting knowledge into wealth. Therefore, creation becomes the main behavioral path of technology. In other words, the “creation” is the process of the activity of red business management. The environment of red business management consists of six risks: risk of chance, risk of technology, risk of market, risk of capital, risk of management, and risk of environment. The creation can be divided into four stages: recognizing and estimating the technological chances in market; designing the creative management; creating and acquiring resources; creating business management. The four fundamental factors of red business management are: creator, human resource, technology, and capital.

##### 4.2.2 Blue Business Management

Blue business management is a kind of management transforming the management of quality to the management of culture. Its main characteristics are:

- (1) it is a human-based business management;
- (2) it is a standard management for how people should think and behave in a specific society;
- (3) it is a management combining ideology into development of material;
- (4) it is a blue culture-based management;
- (5) it is a management to show “the law of increasing marginal utility” in knowledge economy.

In one word, blue business management can release a huge effect of wealth. Its theoretical structure includes:

- (1) the value of an organization is the core;
- (2) the purpose is the huge profit increase;

- (3) the main body of blue management system is intellectual resource;
- (4) the method of blue management is to enlarge people's intelligence by innovative machines;
- (5) the basic mode of blue business management is a kind of management based on humanity.

#### **4.2.3 Green Business Management**

Green business management is to guide an enterprise to develop under a reasonable environment. The main functions of green business management are realizing large-scale management, diversifying contents of management, and guaranteeing an enterprise to safely develop. Its theoretical structure including:

- (1) creating a good environment for development;
- (2) optimizing market resources for management;
- (3) combining technology, capital and traditional management theories into a new integrated pattern for the modern business management;
- (4) this modern business management consists of ten innovation systems (thought innovation, rule innovation, stimulus innovation, dynamic innovation, production innovation, method innovation, strategy innovation, decision innovation, organization innovation, and technology innovation).
- (5) the new pattern and systems are the product transformation system, technological innovation system, management innovation system, capital innovation system, human stimulus system.

#### **5. Conclusion**

The law of increasing marginal utility and its ten propositions are considered as economic "Goldbach Conjectures". They are an innovative theory of economics. Based on this theory, we can construct the movement of knowledge economy era, create a new Three-Color business management mode, and find a new path for enterprises to generate much more profit than ever before.

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