# A Formula to Support an Online Marketing Strategy Implemented on College Students

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## ABSTRACT

In recent decades, an increased number of graduates has led to more fiercer competition in the job market. Therefore, the Chinese government offers a wide variety of policies to support citizen innovation, incentivising many college to start their own business, and replace the typical career path. Meanwhile, with the vast expansion of the Internet marketing of China, more and more college students are focusing on online marketing. However, the majority of entrepreneurs blindly start their internet marketing businesses or cannot find the idea start-up, that might succeed, mainly because that most entrepreneurs are not acquainted with policies, marketing strategies, start-up processes, and funding ideas . In this article, the trends of online marketing are combined by analysing the intense competitive job market faced by college students in China, the college student start-ups are connected with online marketing and the use of online marketing start-ups are studied to provide entrepreneurs with some theories and guidance. A low cost start-up evaluation model allows entrepreneurs to tweak and optimise their start-up projects.

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## 1. INTRODUCTION

The amount of college students in China is currently growing. According to the data of Ministry of Education of the Peoples Republic of China, in 2004, the number of fresh graduates from colleges and universities in China was 28,000,000, but, in 2017, the number of fresh graduates from colleges and universities in China increased to 79,500,000. In addition, Employment rates for new college graduates of China was 74 percent in 2004, and then twelve years later, the employment rates for new college graduates of China was 77.3 percent [1]. Compared with sharply increased demand for jobs, the slowly increased supply of jobs has not been able to meet this demand of jobs. Thus, Chinese society is under considerable severe employment pressure. To address this problem, the Chinese government has provided some policies which encourage citizens to start their own businesses and prompt many college students to embark a start-up. The start-up means that a person has discovered a business opportunity and took action to translate the opportunity into concrete social form, gain benefit, and realize value. With the potential of the e-commerce market, most unemployed and college students who planned to start a business online determined to use the e-commerce market. However, lacking data references and guidance in a wide variety of online marketing is causing most entrepreneurs to blindly choose products and marketing patterns for online sales. Therefore, university utilise university students in Sichuan Province of China were used as a sample to conduct research on college students and low cost online entrepreneurship. Although there many studies about the e-commerce market, most of them are focus on macro-economics, consumers, and big companies. In addition, there are few guidelines for start-up marketing for low-cost entrepreneurs. Thus, this article is mainly focused on analysing China online sales data, illustrating the existing network of online start-ups, predicting China online marketing trends and creating a low-cost start-up evaluation model. This research strives to inspire and help those people who want to start their own businesses online to choose an appropriate start-up although they do not specialise in this field.

## 2. A BRIEF INTRODUCTION TO ONLINE MARKETING, CHINA'S MARKET AND FUTURE TRENDS

### 2.1 A Brief Introduction of Online Marketing

Online marketing is the process of using internet technology to maximise customer demand, achieve low costs, expand markets and increase profit targets. Online marketing is also a way of two-way communication through the internet where the operator can sell products, services, and the advertisements stored on websites that they have established which allows consumers to browse through the internet. Consumers can get substantially useful information from these websites and can buy goods or foreign stuffs directly [2].

### 2.2 A Brief Introduction of China Market Macroscopic and Future Trend of E-commerce Platform

Commerce electronically digitises the traditional business process, replacing the physical flow with the electronic flow, which can reduce the manpower and material resources and reduce the cost. In contrast, the restriction of time and space has been breached so that trading activities can be performed at any time and any place, thus greatly improving efficiency. The openness and global characteristics of e-commerce create more trade opportunities for enterprises. In pursuit of more benefits, the e-commerce platform appeared. With the advance of Internet, the e-commerce of China has entered into a stage of large-scale development. A report in 2016 from the China e-Business Research Center predicted that the overall level of the e-commerce of China will continue to obtain rapid development in the next 5 or 10 years. The e-commerce of China is growing steadily and entering the new normal, which is also shown in that report. In the online retail market, an important change is occurring in the mobile terminal market (the number of people who want to buy something, or the type of people who want to buy it). The number of mobile terminal users has exceeded the number of PC users, taking the number of Wechat (a Chinese mobile communication app) users in 2016 as an example, there are almost 917

million Wechat users. Thus, the potential of selling goods in a Wechat circle of friends, Weibo mobile terminal, or some kinds of mobile apps is shown. According to the monitoring data from the China e-Business Research Center (China biggest e-commerce professional research institute), the proportion showed that the proportion of the online retail market size of China of total retail sales of social consumer goods data from 2010 to 2016 will continue to grow [3]. Online shopping has stimulated the domestic demand of China, changed Chinese shopping habits, and even inspired shopping potential for Chinese citizens. Matlab was used to fit the prediction data from 2017 to 2019 by the first half of 2016 China e-Business Research Center data report, and Fig. 1 shows the e-commerce market forecast for the next three years.

This figure shows the prospects for China e-commerce market, and it is not difficult to consider why many people start their own business online. To encourage entrepreneurship to ease employment pressure, the government of China has instigated many encouragement policies. Additionally, for further benefit, many e-commerce platforms provide preferential policies to attract more capital and merchants.

## 2.3 Some Supporting Policies of China Government and E-commerce Platform

### 2.3.1 Some supporting policies of China Government

#### 1. Some parts of the China state council financial preferential policies for e-commerce entrepreneurs

E-commerce entrepreneurs who are approved by Ministry of Industry and Commerce and are formal registered with a legal institution can enjoy the employment entrepreneurship supporting policy which typically is provided to the traditional entity undertaking. While the e-commerce entrepreneurs who are not approved by the business sector are identified as freelancers, they can enjoy the freelancers supporting policy. In this part, some online merchant entrepreneurs who are registered in network platform have stable operations, and a good reputation can enjoy guaranteed small loans and a discount policy.

## 2. E-commerce support policy in some China's provinces and cities

Every province in China has its own e-commerce supporting policy. Cities such as Shenzhen and Shijiazhuang provide public service platforms for e-commerce entrepreneurs. To cluster ecommerce and lower professional e-commerce company buildings and running costs, Shenzhen, Fuzhou, and Suzhou set up innovation online special zone model to reduce the threshold of online businesses and support healthy e-commerce service platforms. In Sichuan province, the local commercial department has established an e-commerce development fund to support ecommerce as supporting policy for e-commerce demonstration in a area and rural e-commerce demonstration base.

## 3. Entrepreneurship support of the state council in China toward college students

During funding, qualified college students who want to become self-employed can apply for guaranteed loans according to the provisions in the place where they start their business, and the loan volume is 100,000. Undergraduates who have graduated from college in two years and engaged in individual businesses (excepting the industry that is restricted by government) can be exempt from administrative fees such as management, registration, certification and provided tax incentives and an interest subsidy if they are first registered on the ministry of commerce within three years. However, every local government has its own incentive policy, so entrepreneurs must pay close attention to these policies in the city where they plan to start businesses.

As the issue of free service is provided by government, college students have free access to the public employment service agencies and entrepreneurial guidance services which are offered by talent service agencies. These services include policy advice, information services, project developments, risk assessments, practice guidances, financing service, and tracking support. Various universities provide self-employment college students full-period instruction and opening courses in entrepreneurship education to strengthen their innovative business practices.
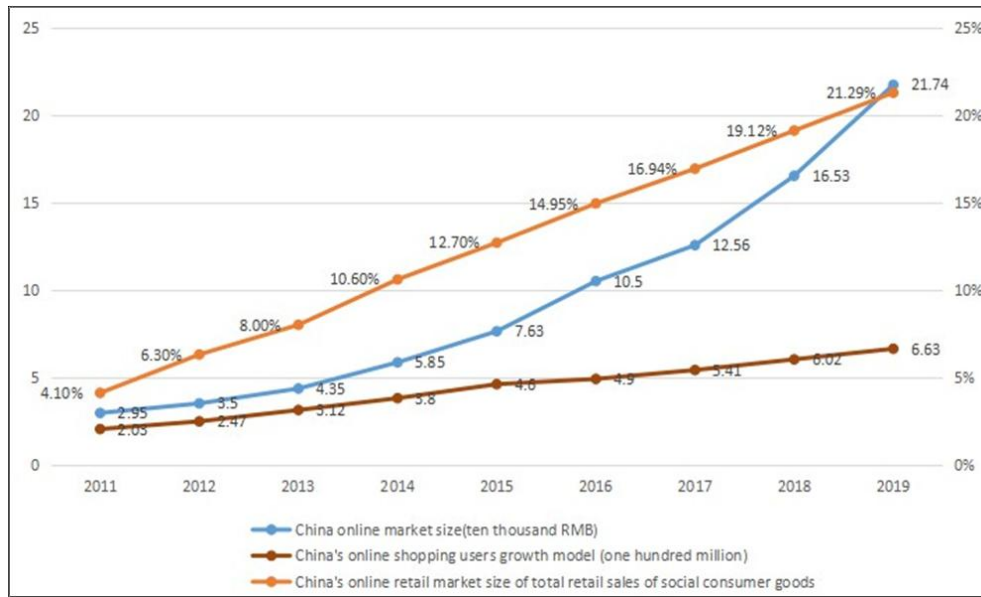
**Fig. 1. China online market data from 2010 to 2016 and prediction data from 2017 to 2019**

### 2.3.2 The recommended part of the e-commerce platform and their policy

1. TaoBao Opening a shop is free in Taobao, but if entrepreneurs decide to work at their businesses for a long period on this website, paying a deposit which costs RMB 1,000. Because the shop, which pay a deposit, are easily searched by buyers and the icon of the goods of this shop are new and offering after-sales service are shown. Shop decorations and software updates cost extra. Qualification or requirements of this website include presenting a copy of an identification card (two-sided) and two pictures, the first showing that one is an applicant holding an identification card and other is the applicant holding the local newspaper. In addition, the applicant needs to have an Alipay account. The plus payback period is normally 15 days [1].

2. DangDang The deposit on this platform costs between RMB 10,000 to RMB 100,000, and members also need to pay an annual fee which costs between RMB 6,000 to RMB 30,000. A qualification or requirement of this platform is that the application is from a legitimate company or enterprise. The plus payback period is normally 30 days.

3. Amazon It is free to open a shop on Amazon. To qualify for this website, the business in which entrepreneurs engage must be legal. This platform only charges trading commissions and no extra charges for selling. There is a tip about opening a shop on Amazon. If entrepreneurs want their stuff to have the chance to be shown on this website, they must put their stuff in the store of this website and select their delivery service. Furthermore, entrepreneurs should follow the steps of information which is offered by this website when they fill in the commodity information. The most important thing of this tip is that entrepreneurs should be careful when filling in the label attribute information, best matches of the goods including word introduction especially Chinese entrepreneurs, because the using habit of this website is quite different from TaoBao, which is commonly used in China.

## 3. THE ADVANTAGES, OPPORTUNITIES, AND THREATS OF THE NETWORK ENTREPRENEURSHIP OF COLLEGE STUDENTS

### 3.1 Advantages

The internet covers a large amount of information and is not restricted by time and space. So information transmission of online marketing is smooth and effective, especially when expressing complicated subjects such as logic relations. Using the hypertext files can be a

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better way to show its efficiency. Performing marketing activities online saves cost and reduces the product delivery process, meaning that merchant can speed up the circulation of the products greatly and effectively reduce the cost [4]. In the process of online marketing, entrepreneurs realise the two-way flow of information by sending emails, enrolling a public Wechat account and public Weibo account. Online marketing can be used not only for mass communication and targeted minority communication and used with digital technology to achieve a one-to-one marketing to provide customers with customised products [5].

In 2016, according to the report from the China e-Business Research Center's report [3], the number of China online shoppers was 490 million, meaning that the e-commerce market potential is very large. At the same time, the rapid development of the logistics industry makes online shopping favorable to more and more people.

## 3.2 The Opportunity Analysis of the Online Marketing Business of College Students

The netizen population of China reached 688.26 million people, the internet computer for a total of 2,469,827 million units, and there were 31,914 domain names in 2015 according to the national bureau of statistics, so there is a huge market. Some websites (such as iResearch) offer entrepreneurs data such as the number of software market users, sex ratio, and age stages. Presently, the rapid development of the e-commerce and logistics industry creates entrepreneurial opportunities for college students and benefits college students in that they can accept new things easily. At the same time, college students can use various social softwares to connect with more people than with typical sales strategies.

## 3.3 The Threat Analysis of College Students Using Online Marketing Businesses

The first threatening thing of online marketing is security threats. These treats come mainly from spam, malware, false news, fraud, spyware, viruses, hackers technology, and phishing attacks [6]. The second threat is that the law is imperfect about online marketing. Presently, legislative work in this field of China is not

perfect [7]. Things such as intellectual property rights, dispute settlements, and other issues restrict the online student businesses.

## 4. THE RECOMMENDATION OF LOW COSTS ONLINE PROJECT FOR COLLEGE STUDENTS

### 4.1 High-tech Area

The college students have an advantage in this area. Because they are in the forefront of high technology. For example, fanso and ShiMeiLe show the success of entrepreneurial companies of college students which have benefited from the technological advantage. In this field, college students start-up costs are not necessarily when starting their projects, because most of them may already have the tool such as computer. College students who are interested in starting a business in this field can participate in different kinds of business competitions to attract the attention of venture capitalists, and the following business opportunities in this field are recommended: software development, web-page making, and internet services. There are also numerous websites that offer entrepreneurs a platform to sell their products such as www.sxsoft.com and www.bizsfts.com.

### 4.2 Intelligence Service

Intelligence is a kind of college students venture capital, so university students entrepreneurs can do well in the areas of intelligence service. For instance, tutoring online, joining some online classes at institutions for teaching or doing some reality living show. These intelligence services have low start-up costs, and entrepreneurs even open a start-up only with a computer. The recommended business opportunities are as follows: online advertising, foreign language training, translation bureau, and design company.

### 4.3 Franchise Chain Field

The statistics show that rate of individual entrepreneur success is lower than 20 percent, while joined venture is as high as 80 percent in the same business field. For college students and the entrepreneurs who have limited entrepreneurial resources, with the help of the franchise chain brand, digital printing tactics, marketing and advantaged entrepreneurs can lower the threshold of realization of their own businesses. Generally speaking, if the financial

strength of college students is weak, college students choose the start-up with less capital and manpower. It is advisable to start with at least a small amount of capital. In addition, entrepreneurs would better choose a mature brand which is more than five years and has more than 10 franchisees. Operations are more convenient, and it is easier for college students to join an online brand. Joining a franchise brand that students do not have to worry about sources and the usual partner of the franchise only needs entrepreneurs to be the middlemen to learn price differences. Example recommended business opportunities are as follows: join an online brand clothing store and join an online grocery store.

## 4.4 Set up Shop in an Online Business Platform

College students can open an online store by registering on some online business platform or they can also open their shop on some social software such as Wechat. Specifically, college students can make full use of their natural student customer resources. However, college students are familiar with their peers, so they can attract customers more economically. In addition, the startup capital of college student entrepreneurs is limited, so they use means of distributing pamphlets to improve visibility and attract attention.

At the same time, the supply of goods would be more of a concern for the students start-up an online business or social software. The following lists some sources channel respectively.

1. Regular wholesale market. Every city has this kind of market and examples include Chengdu taihua clothing wholesale market, Guangzhou liuhua clothing wholesale market, and Yiwu small commodity. This is the simplest way to look for a supply of goods, but many sellers will ignore this simple method and turn to the country of origin of the goods. In fact, at the initial stage, if entrepreneurs commodity sales do not reach a certain amount, the local market can meet entrepreneurs requirements completely. The benefit of this is that entrepreneurs can update their goods quickly and the market offer varieties goods for the entrepreneurs; however, the entrepreneur might meet the supply shortage and difficult to control the quality of goods.

2. Brand argent. To open a shop, entrepreneurs need to be an observant, so they canlook at exclusive shops and get in touch with these shops. Entrepreneurs can connect with brand dealers directly when they need more retail purchases. In addition, brands with greater reputations receive higher discounts. , this method is risky for college students, because they have no money and no warehouse to buy and store these goods. However, if entrepreneurs were in a stable stage, developed to a certain extent, and want to proceed down a regular route, method is a good choice. In this method, there is a stable supply, formal channel and the goods are not easily broken goods, although the update is slow and the price is relatively high.

3. Commission type suppliers are a very popular way of supplying online. In this method, the supplier provide pictures and introduction of goods, and then the supplier directly ships the goods after the entrepreneurs finish selling. It is a good choice for newcomers, because all goods information is complete. The key point of this is how entrepreneurs sell the goods. It is important that entrepreneurs need to make notes of the supplier credit and product quality to avoid a dispute. This method is simple and convenient, entrepreneurs only need to click the mouse and not worry about delivering their goods. The advantage is low risk and little investment. However, entrepreneurs do not handle goods with this method, so the quality is difficult to control. Lacking knowledge of the goods and intricate customer communication may cause entrepreneurs businesses to receive bad reviews.

4. Entrepreneurs can focus on the foreign trade products or original equipment manufacturer products, these products prices are usually 20 percent to 40 percent of normal prices.

Consequently, this is a very good supply channel.

5. Entrepreneurs can find some special supply channels. For example, if entrepreneurs have relatives or friends in other countries, the entrepreneurs could ask them for help on buying some goods which cannot be found in domestic

markets or as some low priced goods from other countries.

6. If entrepreneurs have any relatives or friends make some kind of product or sale, they can sell these goods online. The price of these goods are not searchable by search engines, so this is a healthy profit.

## 5. COLLEGE STUDENTS FUNDING CHANNELS

Own funding includes funds on hand and start-up funding of relatives and friends.

Debt financing refers that entrepreneurs or small and medium-sized enterprises loans from banks that financial institutions or non-financial institutions (non-governmental loan) finance and must repay the principal and interest payments after the expiration of the limit time. Lending to financial institutions requires collateral, credit, and non-financial institution is more dependent on credit and third-party guarantees.

Policy-based lending refers to the fact that governments implement some small-loan policy to increase a certain group of business beginners. Such as a small-loan of laid-off and unemployed workers. This also includes numerous funds for supporting the development of small and medium-sized enterprises such as small and medium enterprise development fund and innovation fund. These policy loans have low interest, long periods of repayment, policy-approved subsidies and no interest on the industry which gain little profit. However, if entrepreneurs want to obtain the funds, they must meet certain policy conditions.

Financial leasing corresponds to the lessee's lease equipment and the selected supplier, the lessor provides financing for the lessee by buying the equipment, and the lessee signed a finance lease contract with the lessee to get the long-term use of the device by paying the rent. For the lessees, they use the way of financing lease realise the purpose of financing.

Other methods include short-term pawn and angel investors. Angel investors refers to individuals or families which have a certain capital they can invest in some potential startups during an early stage. Angel investment provides timely help of venture investment for unique invention plans, seed enterprises, and some

seed projects which have not been thought of previously.

## 6. EVALUATION MODEL OF LOW COST ONLINE MARKETING BUSINESS PROJECT

### 6.1 Evaluation Index Design

Objective and scientific project evaluation indexs are based on a project evaluation model. They also play a critical role in evaluation projects and the project evaluation process. This article started from documentation; then, the method of logical analysis was adopted to establish the relationship between indicators in the online marketing project and the method of factor analysis to screen evaluation index of online marketing project by doing a questionnaire on college students who live in Southwest China.

According to several studies, some items are related to the low cost [8,9,10], we screened some of the evaluation factors which may influence the online marketing business. Then, data was obtained by doing a survey on college students in Southwest China [11].

### 6.2 The Comparison of Model Methods

1. One of the traditional methods of evaluation models is called the cash-flow model method. The evaluation method of cash flow mainly focuses on the economic evaluation of the project, evaluating the project from the perspective of accounting, and its essence is based on the cash-basis. However, there are certain premises of this method such as the following: the project can recover the assumed income periodically and the market of this project will not change dramatically or does not to appear strong competitors. Therefore, the evaluation method based on economic indicators lacks the consideration for other factors in the project. Considering the indexes which relates to the Internet start-ups venture, the evaluation method of economic indicators is obviously not applicable.
2. Fuzzy integrated evaluation is also one of traditional evaluation model methods. It is an evaluation method for the object system which involves fuzzy factors and solving the fuzzy performance of the factors in the evaluation. Thus, the

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characteristics of the object are reflected objectively. However, the demerits of this method are that the hierarchy is not clear, the relationship between indicators is fuzzy, and the indicators are not easy to distinguish, which generats errors [9].

3. Artificial neural network method is a new method which is a mathematical model tosimulate the structure of neural protruding connections in the brain. This approach is more closely related to the human brain. An artificial neural network requires a large number of samples as a training network model. The training network model gives the network a method for experts to evaluate and connect the factors. Then, the simulation expert evaluation can be realised by using computer aided design. In recent years, many venture capital evaluation models are more likely to adopt an artificial neural network. However, this model should be trained and studied with known samples in advance, and these samples should be sufficient, typical, and accurate [12]. Considering our evaluation model should be used by the students who may not have a mathematical background, this relatively complex model was not used.

4. Real option evaluation is a new method, but it is essentially a cash-flow model method. Nonetheless, it is a new method from the perspective of the degree of application and theoretical perfection. The merit of this method is that it takes the factors influencing the market changes into account, which can reflect the value of the project. Nonetheless, this method is mainly aimed at financial assets and is not fully used for Internet project entrepreneurship evaluation.

5. Analytic hierarchy model was presented by professor T. L. Saaty of the university of Pittsburgh in the mid-1970s. Its basic idea is decomposing a complex problem into constituent elements and group these factors into a dominant relationship. Therefore, an orderly hierarchical structure is formed. The relative importance of the factors in the hierarchy is determined by means of two or two comparisons, and then the general order of the relative importance of decision factors is determined by synthesizing human judgment. The emergence of analytic hierarchy process has brought great convenience to decision makers to solve difficult decision making problems that are difficult to describe quantitatively, thus making its application almost any scientific field [8]. Our group adopted this method to design the evaluation model. Although there are many items and indexes needed to manage, compared with other methods, this method is the more scientific and simple for students.
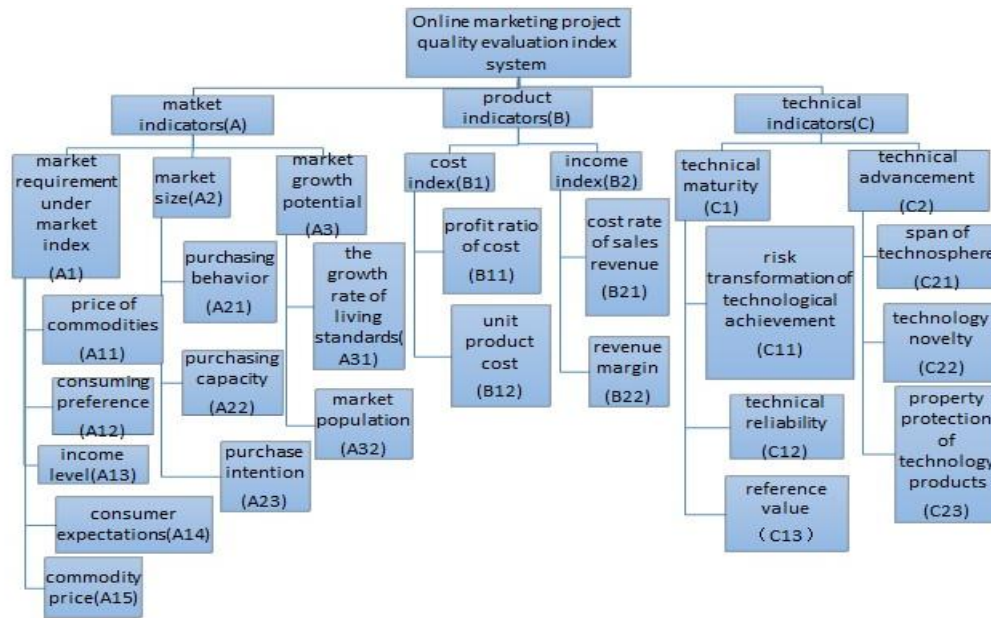


**Fig. 2. Online marketing project quality evaluation index system**

### 6.2.1 Online marketing project quality evaluation index system

The whole indicator system has three levels which have three first grade indicators, seven second grade indicators and 19 third grade indicators. This index system is based on market indicators, product indicators and technical indicators (the first class indicator). The second grade indicators include market requirement under market index, market size, market growth potential, cost index, income index, technical indicators, and technical advancement. The third grade indicators covers price of commodities, consuming preference, income level, consumer expectations commodity price, purchasing behavior, purchasing capacity, purchase intention, the growth rate of living standards, market population, profit ratio of cost, unit product cost, cost rate of sales revenue, revenue margin, risk transformation of technological achievement, technical reliability, reference value, span of techno-sphere, technology novelty, and property protection of technology products. This index system is shown in Fig. 2 [8].

### 6.2.2 Index analysis

For index analysis, this paper used quantitative levels, quantities which have definite or general limits, and qualitative levels, which means to determine the nature of things, level for each indicator to differentiate and score to the analysis and calculation. We used two ways to level and score indicators to meet two different conditions. The first method is that the industry standard was analysed, and it gave the corresponding score based on the Standardization Law of the People's Republic of China. The other method relates to hierarchy and scoring standard with the characteristics directly for the industry standard which are not set.

### 6.2.3 Index score

There are five influencing factors of commodity market demand which include similar commodity prices, preference, income, expectation, and related commodity prices. The price of commodities is the most important factor affecting the demand of commodities market. The following example shows the similar commodity index score. Similarly, other indicators also can be scored by the above method, making the system easy to measure.

The preferences mentioned here are related to the consumers' personal interests, personalities, social customs, traditional customs, and fashion of consumers. Some timeliness strong commodities (such as fashion, music album) demand is sensitive to social preferences, even if prices are constant, "due to changes in social fashion and popular fashion change. As a result, there will be dramatic changes in demand. In general, demand is positively related to income and under the equal condition of other things, higher income corresponds to higher demand for goods. This is because the high income represents the higher purchase ability and the ability to pay, while the demand is bound by ability to pay. Demand depends on the price of the commodity itself and depends on the extent that the demand is influenced by other commodity prices. Among other commodities, there are two kinds of products that have the most impact. One kind is alternative, which can replace each other in the consumer goods, such as pork and beef and Coca-Cola and Pepsi cola. Generally, speaking, higher prices of a commodity make the alternative commodity seem relatively cheap, increasing the demand for this commodity, and vice versa. Five indexes of market demand are assigned, and entrepreneurs can get the demand index of the comprehensive score by adding those five indicators scores.

There are three factors to influence the market size, including purchasing behavior, purchasing capacity, and purchase intention. First, the factors are related to consumers own which include consumer economy, the career and status of the consumers, the age and gender of consumers, personality, and self concept of consumers. The second is a social factor that covers socio-cultural factor and social related masses. The last is the enterprise and product factors which means that product features are consistent with the decisive factors in the eyes of consumers. In this part, the factors need to be considered comprehensively; thus, different products have different concepts of evaluation. In addition, the scores of these factors depend on the state.

Market growth has been affected by two factors that are living standard growth and market population. The following is an example of determining the living standard growth index score.

**Table 1. The similar commodity index score**

| Growth of similar commodity | Rapid increase | Slow growth | Stable | Decrease slowly | Decrease rapidly |
|---|---|---|---|---|---|
| Value | -2 | -1 | 0 | 1 | 2 |

**Table 2. Living standard growth index score**

| Life level of growth | Negative growth | Gentle | Positive growth |
|---|---|---|---|
| Value | -1 | 0 | 1 |

*On one part, the influencing factors of cost index include cost-profit ratio (cost − profit − ratio = profit ÷ cost × 100%) and unit cost. The following is an example of determining the cost profit*

**Table 3. Cost profit margin index score**

| Cost-profit ratio | < −50% | −50%–0% | 0% | 0–10% | 10%–15% | > 15% |
|---|---|---|---|---|---|---|
| Value | -2 | -1 | 0 | 1 | 2 | 3 |

**Table 4. The technical reliability and the reference value scores**

| Value Term | Over 10 years | 8-9 years | 6-7 years | 4-5 years | 2-3 years | 0-1 year |
|---|---|---|---|---|---|---|
| Technical reliability | 6 | 5 | 4 | 3 | 2 | 1 |
| reference value | 6 | 5 | 4 | 3 | 2 | 1 |

This example shows that higher indexes indicate that lower cost gives enterprises larger profits; thus, better cost control increases profitability.

For the other part, the income indicator includes the revenue cost rate (*revenue − cost − rate = cost÷income×100%*) and the revenue position (*revenue−position = profit÷income× 100%*). This part also can be scored by certain standards (industry standard or a variety of technical indicators in the same industry) in the same way.

Technical indicators include the technically mature and technologically advanced degrees [13]. The influencing factors of technical maturity indicators have risk transformations of technological achievement, technical reliability, and reference value. The following is an example on the technical reliability and the reference value to be scored [11].

The influencing factors of advanced mature degree indexes are technology span, technical novelty, and technical property rights protection. The index of three-level indicators still can be scored by certain standards in the same way.

## 6.3 Assessment Method

### 6.3.1 Determination of weight coefficient

In this paper, weight coefficient includes the primary indexes of three weight coefficient (market $\omega_A$, product $\omega_B$, and technical $\omega_C$) and the secondary indicators (market demand $\omega_{A1}$, market-size $\omega_{A2}$, market growth potential $\omega_{A3}$; cost index $\omega_{B1}$, and income index $\omega_{B2}$; technical maturity under the technical index $\omega_{C1}$, and technical advancement $\omega_{C2}$. Every weight coefficient can be defined by experts which can be found online and the guidance departments, and the weights are then attributed using the weighted method to synthesise all the opinions.

### 6.3.2 Calculated estimate value

According to the market investigation and expert assessment of market, the three aspects of market, product, and technology can be assigned, respectively, as $\omega_A$, $\omega_B$, and $\omega_C$ ($\omega_A + \omega_B + \omega_C = 1$).

According to the presented 19 level-3 comment index assignments, the next higher level, which is the secondary index, of the score is obtained as $P_{A1}, P_{A2}, P_{A3}, P_{B1}, P_{B2}, P_{C1}, P_{C2}$ by adding the level-3 index of the same category.

Given the weight for the secondary index by considering the importance of each primary index of secondary indicators, these weights are defined as $\omega_{A1}, \omega_{A2}, \omega_{A3}, \omega_{B1}, \omega_{B2}, \omega_{C1}, \omega_{C2}$.

($\omega A1 + \omega A2 + \omega A3 = 1, \omega B1 + \omega B2 = 1, \omega C1 + \omega C2 = 1$).

Calculate the score of the primary indicators

$$PA = \omega A1 \times PA1 + \omega A2 \times PA2 + \omega A3 \times PA3 \quad (1)$$

$$PB = \omega B1 \times PB1 + \omega B2 \times PB2 \quad (2)$$

$$PC = \omega C1 \times PC1 + \omega C2 \times PC2 \quad (3)$$

Calculate the project quality comprehensive evaluation value [11]:

$$P = \omega_A \times P_A + \omega_B \times P_B + \omega_C \times P_C \quad (4)$$

Here is an example to show how to practically use this model. A student has adequate capital to start his business and hesitates to choose the merchandise between two clothing brands. Thus, this model can be used to help him or her make a decision, which may help him to evaluate these two brands in a relatively comprehensive way. Since this merchandise does not involve technology, he or she only needs to think about the first two primary indexes. The first step for him or her is to set the weight coefficient of the first two primary indexes such market index and product index as fifty percent and fifty percent. Then, the weight coefficient of the secondary indicators of market index can be obtained from the Internet, some endowed professors, or trusted hosting organizations, so the weight coefficients of the secondary indicators of market index are market demand, market-size, and market growth potential as fifty percent, thirty percent, and twenty percent, respectively. Next, the sub-indexes of the three secondary indicators can be graded by comparing the sales of the two brands, personal preferences of the student and comments from others. this calculation, higher scores indicate better indexes. n addition, the student should all scores of each sub-index of the secondary indicators of these two brands as $P_{A11} = 3$, $P_{A12} = 4$, $P_{A13} = 7$, $P_{A21} = 5$, $P_{A22} = 6$, and $P_{A23} = 1$ (the first scores represents the first brand and the second scores means the other brand). Equations (1) and (2) can be used to evaluate these two brands as $P_{A1} = 0.5 \times P_{A11} + 0.3 \times P_{A12} + 0.2 \times P_{A13} = 4.1$ and $P_{A2} = 0.5 \times P_{A21} + 0.3 \times P_{A22} + 0.2 \times P_{A23} = 4.5$. Moreover, the student can determine the weight coefficient of the secondary indicators of product index by considering cost and income as fifty percent and fifty percent. Accordingly, this student can score the sub-indexes of the secondary indicators and add all scores of each secondary indicators' sub-indexes as $P_{B11} = 2, P_{B12} = 9$ and $P_{B21} = 6, P_{B22} = 3$. Then, according to Equation (2), the student can

obtain that $P_{B1} = 0.5 \times P_{B11} + 0.5 \times P_{B12} = 5.5$ and $P_{B2} = 0.5 \times P_{B21} + 0.5 \times P_{B22} = 4.5$, by using the equation (2). The final step is using the equation (4) to obtain that $P1 = 0.5 \times P_{A1} + 0.5 \times P_{B1} = 4.8$ and $P2 = 0.5 \times P_{A2} + 0.5 \times P_{B2} = 4.5$. Compared the size of these two scores, this student can choose the second brand, who has a higher score, to invest his capital. (The data is not related to any real product in this passage).

## 7. CONCLUSION OF THIS ASSESSMENT METHOD

This model used quantitative and qualitative methods to divide the level and give the corresponding score to provide the basis of the evaluation method of computing. This method is the easist way for those who have little mathematics backgrounds to use. In the actual operation process, the characteristics of different schemes are different, so they also have different evaluation indexes. Therefore, entrepreneurs should use the specific situation and select the appropriate evaluation index which established in this paper to treat as a standard of measure.

In future research, additional examples will be calculated.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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