Research on the Influencing Factors of New Energy Vehicle Consumption under the Background of Digital Economy

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Abstract. Developing new energy vehicles is an effective way to get rid of oil dependence and realize energy security and sustainable development of transportation. As a strategic emerging industry, new energy vehicles have received strong support from the government in recent years and developed rapidly. Under the guidance of many government encouragement policies, many automobile enterprises have joined in the field of new energy vehicles. The strategic emerging industries leading the development of science and technology have great development potential, and the development of new energy vehicles can not be separated from the guidance of science and technology. Under the background of cyber Economic, user demand has become the primary goal of enterprise innovation. Weilai, a new energy vehicle enterprise established and developed with the trend, has gradually highlighted its business mode and competitive ecology, which has injected new vitality into promoting the ecologicalization of enterprise industrial model. At the same time, new energy, as a substitute for conventional fuels, can reduce environmental pollution and have extremely high ecological and social benefits. Based on this, this paper combines the current development status of new energy vehicles in China, and conducts an empirical study on some important factors that affect s' attitudes towards new energy vehicles from the multiple perspectives of government, enterprises and s, using quantitative research methods.

Keywords: Digital economy, New energy vehicles, Influence factor

1. Introduction

China has always paid more attention to the development of the new energy vehicle industry. In recent years, the country has paid unprecedented attention to the development of the new energy vehicle industry, whether from the policy level or capital investment. In the context of global energy conservation and emission reduction, as the world's second largest carbon emission industry after the power and heat production industry, the transportation industry has attracted much attention from all sectors of society in terms of energy consumption, and the realization of the total amount control target of transportation energy consumption is facing huge pressure [1]. In addition, the acceleration of urbanization and motorization has further aggravated the crisis of energy security, urban air pollution and traffic congestion in China. At the same time, because China's oil import and export are greatly affected by the international environment, the price of domestic oil products fluctuates constantly. According to statistics, from 2010 to 2012, China's gasoline and diesel prices fluctuated 15 times. Excessive volatility of the commodity market will be detrimental to the steady development of China's economic pattern [2]. As a substitute for gasoline and diesel, the emergence and application of new energy has brought new ideas for the optimization and adjustment of China's automobile industry pattern. Under the guidance of the national macro policies, more and more automobile enterprises have transformed into the new energy automobile market, and more and more s and insiders have begun to pay continuous attention to new energy vehicles, which has led to the vigorous development of the new energy automobile industry [3]. However, it is undeniable that the domestic new energy vehicle market is still unstable, with a large gap compared with the conventional automobile industry, and the prospect is not yet clear. There are many drawbacks, so it is necessary and urgent to conduct relevant empirical research on it. In the context of the big data era, with the implementation of the G20 Summit in 2016, the "cyber Economic" officially appeared in the public's view for the first time [4]. Digital economy is the product of the continuous improvement of social productivity, and also has a huge impact on our lives. The most intuitive feeling is that a large number of traditional industry and service industry operating procedures have gradually shifted from a single, inefficient way to a multi-functional, efficient operating mode, which has truly facilitated the lives of the people and greatly improved the efficiency of resource

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optimization and allocation. Digital economy itself is an ecological economy, which can not only rely on the development of one type of enterprises, but also need to pay attention to the survival and development environment of all enterprises. The original value creation is only the participation of enterprises. In the cyber Economic environment, s, suppliers, scientific research institutions and other stakeholders are integrated, such as users' deep participation in the production process [5].

China is a big country in automobile production and sales. The overall automobile industry is growing slowly, and it is in the stage of conversion of old and new kinetic energy and structural adjustment. New energy vehicles are rapidly entering the market driven by policies. Because of the small user base of new energy vehicles, if they are in a state of neglect for a long time, the gap between them and the social development goals will become wider and wider [6]. In order to break through the dilemma of "hot policy and cold market", each enterprise not only needs to innovate in technology, but also should pay attention to the innovation of commercial promotion mode, and strive to seek new breakthrough points and power points from both products and services. Compared with traditional energy sources, new energy sources have the characteristics of large reserves and less pollution, such as solar energy, wind energy, geothermal energy, water energy and tidal energy, which are renewable, and have great significance in solving the problems of environmental pollution and resource depletion [7]. At the same time, the emergence of new energy vehicles can not only improve China's energy structure, but also complement the national concept of energy conservation, emission reduction and low-carbon consumption, bringing vitality to the transformation of China's industrial enterprises and promoting the sustainable development of China's energy resources. This is the third reason for choosing this topic. The main body of the cyber Economic belongs to the real economy, and digital technology is accelerating the change of the industrial form, and at the same time, it has an impact on high-quality innovation of enterprises. The new format and mode of consumption promote the development of cyber Economic. The development of cyber Economic must have digital products, which are an important link for enterprises to innovate their business models. Digital economy is a multilateral market. By building a digital management platform, it can realize digitalization and online, and stimulate the creativity and innovation of enterprises.

2. Design and implementation

2.1 Model construction and research hypothesis

At present, the classification of new energy vehicles has strategic division at the national level and technical division at the expert level. In foreign countries, new energy vehicles are generally referred to as products whose power energy is clean energy or alternative energy, mainly including clean combustible gas fuels, such as natural gas and hydrogen, biomass fuel and electric energy [8]. The power battery provides electric energy to the motor, which can be converted into mechanical energy to maintain the operation of the automobile through the transmission device. It is a new energy vehicle with the advantages of simple structure, low noise and low energy consumption. The main core components of pure electric vehicle are motor and energy control system, which is different from traditional internal combustion vehicles. Its core components include power supply, driving motor and motor speed control device [9]. The main work of the first two parts is to complete the energy conversion inside the vehicle, that is, the conversion from electric energy to mechanical energy, while the motor speed regulating device is mainly used to control and adjust the form speed and driving direction. Hybrid electric vehicles, as products in the transition period from traditional fuel vehicles to new energy vehicles, have reduced their dependence on crude oil in the use of fuel, but they still have to rely on traditional fuel engines to provide power sources [10]. Comparatively speaking, pure electric vehicles have the characteristics of high energy efficiency, good technical feasibility, etc., and are the key models to be promoted in China. They are suitable for the breakthrough of the development of new energy vehicles. Therefore, choosing pure electric vehicles as the research object of this study has certain representativeness. For example, Ye Nan uses the structural interpretation model to systematically analyze the factors that affect the adoption intention of new energy vehicle s, summarizes the reasons at three hierarchical levels, and uses the ISM structural interpretation model to analyze and verify this. The surface causes include many factors that lead to the formation of reputation, such as reputation, price, performance, ease of use and use cost; The shallow reason mainly refers to the factors that affect the vehicle operation and daily convenience, and often government subsidies and supporting construction are the key; On the one hand, the underlying reason is the environmental protection attribute of new energy vehicles. On the other hand, the most fundamental one is the power technology of new energy vehicles, which drives the development of new energy vehicles, but also restricts the promotion of new energy vehicles to a certain extent. Therefore, this paper will build a theoretical model from these three dimensions, and determine that the purchase intention of new energy vehicle is the dependent variable, and the government policy, cognition and corporate public image are the independent variables, as shown in Figure 1.
Under the background of cyber Economic, the strategic decision-making of enterprises is particularly important. Good business management accounting can help the whole enterprise turn the corner and avoid risks in time. Management accounting is an indispensable link in the new energy automobile enterprises. It can evaluate the current economic events and transactions, predict the future development trend, provide effective and accurate information for business operators, and provide basis for business operators to make correct strategic decisions.

2.2 A review of the application of technology acceptance model in innovation

Although the technology acceptance model was originally mainly used to study the adoption of information technology, its main application fields are computer and information technology. However, the follow-up scholars found through empirical research that the technology acceptance model has good adaptability and scientificity. As long as it is properly corrected and expanded, and used to explain and predict the process of users' new technology adoption under the background of other technologies or disciplines, the technology acceptance model can still show good fitting and stability. Nowadays, it is not uncommon for enterprise information to be leaked, so enterprise managers should have innovative thinking and establish and improve the information guarantee system of new energy automobile enterprises according to the characteristics and shortcomings of enterprises. The latent variable of "behavior habits" has a significant direct impact on "car purchase budget", which is significant at the level of 0.01, with a path coefficient of 0.137, and the impact is negative. According to the classification code of "car purchase budget", the higher the car purchase budget, the lower the frequency of rental behavior. s with high car purchase budgets are in good economic condition, and have low demand for the economic convenience and advantages brought by the rental model. It shows that behavior and attitude are most affected by behavior habits; From the perspective that "behavioral intention" is affected by other potential variables, "perceived behavioral control", "behavioral habits" and "cognitive and technological confidence" have a direct and significant impact at 0.01 level, indicating that the direct factors affecting decision-making choices are product characteristics, product ease of use and their own buying habits, of which "behavioral attitude" has the largest impact on "behavioral intention", The path coefficient reaches 0.750. From this, we can also calculate the direct effect, indirect effect and total effect of each psychological potential variable on behavior intention. The total effect is the sum of direct effect and indirect effect, and the indirect effect is the sum of the products of each segmented path. The results are shown in Table 1.

<table>
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<tr>
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<th>Direct influence</th>
<th>Intermediate variable</th>
<th>Indirect impact</th>
<th>Total impact</th>
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<tr>
<td>Cognitive and technical information</td>
<td>0.694</td>
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<td>0.694</td>
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<tr>
<td>Subjective norm</td>
<td>Behavior attitude</td>
<td>0.272</td>
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<tr>
<td>Behavioral habits</td>
<td>Subjective norm,</td>
<td>0.465</td>
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<tr>
<td>Behavior habits</td>
<td>0.381</td>
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<tr>
<td>Cognitive and technical information</td>
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It shows that behavior attitude is the first factor that affects s' behavior intention, that is, s' purchasing motivation and positive attitude have the greatest driving effect on s' choice of behavior intention. Secondly, it is the influence of s' behavior habits. In daily life, the frequency of s' use of other product rental modes affects s' acceptance of renting pure electric vehicles. Thirdly, cognitive and technical confidence and perceived behavior control, that is, s' understanding and cognition of pure electric vehicles and their recognition of the ease of use and usefulness of the rental model play a key role in behavior intention.

3. The Influence of Digital Economy on Business Model Innovation of Enterprises

3.1 Probability Analysis and Definition of Class Members

China's automobile consumption market tends to become a very personalized market. Therefore, subdividing the market is helpful to understand s' preferences. Market segmentation means that enterprises divide different s into different groups according to their demographic characteristics, demand characteristics and purchasing practices. The characteristics are that each group has differences, and the demand characteristics and purchasing behaviors of the same group have homogeneity. Under the new situation of cyber Economic, data as an independent means of production, using data to
quantify business, collecting, processing and analyzing data, reconstructing traditional industries and organizational forms, thus promoting the innovation and development of enterprise business model. Mao Jiye, a scholar, pointed out that business model innovation in the cyber Economic era is driven by demand and consumption. Business model innovation is based on the era of mobile Internet. With the development of digital technology application and Internet platform, the innovation of technology, management and business model improves the productivity of manufacturing industry, breaks the boundary of region, organization and technology, and promotes resource allocation. The development trends of high-level management, employee creation, user integration and community stratification are increasingly apparent.

Conditional probability represents the reflection tendency of each level value of the explicit variable in each potential category. The larger the conditional probability value is, the higher the response tendency of the potential category's respondents in this category is; The attribution probability represents the proportion of each level of the variable being classified into each category. The larger the attribution probability value is, the more people who choose this level value are classified into a certain category. s belonging to the first category accounted for 49.49% of the total sample. From the perspective of personal attribute characteristics, compared with the other two categories, s in the first category show differences in age and educational background: most of them are young in age, and people aged 26 to 35 account for 0.5233 in this category. In terms of education level, these s have higher educational background, and undergraduate education accounts for 0.6827. Judging from the responses to the psychological vertigo measurement items * On the whole, this type of group is familiar with pure electric vehicles and has a positive attitude towards the lease mode. The average conditional probability of responses to each potential variable is the highest in the three categories, of which the highest conditional probability is the recognition of the ease of use feature that the lease mode can relieve economic pressure. The conditional probability that the answer is "agree" or "not agree" is 0.7638. From the perspective of price, the three types of s tend to have lower prices, especially the first and third types of s, who are very sensitive to prices. When prices rise from low, the propensity changes significantly. According to the characteristics of these two types of s, price is a key factor in the competitiveness of the leasing model.

3.2 Research results and discussion

Based on the technology acceptance model and innovation diffusion theory, this paper systematically and completely studies the impact mechanism of the public market diffusion of new energy vehicles from three aspects: individual, product and interface, and constructs a new energy vehicle adoption intention impact relationship model. Through data analysis, the empirical research results show that: all the dimensional variable assumptions in individual factors are valid; In the product factor, except H3b hypothesis of brand value dimension, that is, the higher the brand value is, the stronger the perceived usefulness of s to new energy vehicles is not tenable, other assumptions are tenable; Among the interface factors, the assumption of structural guarantee dimension is valid, while the assumption of related group dimension is not valid, that is, the assumption that related groups positively affect the adoption intention of new energy vehicle s is not valid. After the introduction of the leasing model, the characteristics of s in all categories have changed slightly. 41.02% of s showed the characteristics of "medium education, low budget, willing, young and middle-aged", and the changes in price, use cost, and fueling time had a great impact on them; 19.01% of s showed the characteristics of "good economic situation, willingness to try new products, and maturity". The sensitivity of these s to the characteristics of the Mou car attribute was ranked from large to small, in order: use cost, mileage, price; Another 39.96% of s showed the characteristics of "high education, unwillingness and young age", and such s were more sensitive to the use cost, mileage and number of gas stations.

Individuals with higher innovation have stronger perception of the usefulness of new energy vehicles and are more willing to adopt new energy vehicles; This is consistent with the point of view of some scholars who consider the influence of innovation on the adoption of innovative products. Innovation will stimulate individual's source of interest and spirit of exploration, which not only means that they are more willing to study new things, but also shows that they are more optimistic about risks, and have better resistance to uncertain risks. As an innovative product, new energy vehicles just need people to know about it, and the uncertainty brought by new things also tests the anti-risk ability of the adopters. The reason may be that s' cognition of the usefulness of new energy vehicles is based on the whole new energy vehicle industry, and its measurement is based on the overall average level of the industry. Therefore, to improve s' cognition of new energy vehicles, it is not only a certain brand, but also the supplier enterprises in the whole new energy vehicle field need to make collaborative innovation to jointly improve the overall level of the industry. With the development and innovation of new energy enterprises on the basis of cyber Economic, the innovation of data information management and system has become the focus of our attention. It is necessary to establish an information management platform suitable for new energy automobile enterprises, and display the changing trend of the market through this platform. Enterprise managers can pay attention to the development trend at any time so as to make timely adjustments, which is conducive to improving economic benefits, clarifying the division of labor and efficient operation of the whole enterprise structure.

4. Conclusions

The shortage of energy resources, the change of environment and climate, and the urgent requirement of
energy saving and emission reduction make it of practical value to develop pure electric vehicles and promote the sustainable development of transportation and automobile industry. Industrial policy is the sum total of policies that the government intervenes in the formation and development of industry in order to achieve certain economic and social goals. All industrial policies are based on the overall interests of the state and society. The reason why the government supports the new energy automobile industry is not only because of its huge commercial value, but also because of its social benefit and ecological value of promoting social sustainable development. The research shows that at this stage, the two paths of brand value in product factors and the relevant group dimension of interface factors play a weak role. They respectively indicate that, first, the key factors to improve the market diffusion of the new energy automobile industry today cannot simply rely on s' perception of a brand, but should introduce industry standards to jointly innovate and develop, and improve the level of the entire industry. Second, the audience area of new energy vehicles is still small, and it is difficult for ordinary people to obtain relevant useful information from the surrounding groups.

References