

# Influencing Factors Analysis of China Metropolis Online Business Based on SEM

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**Abstract.** This study aims at identifying the factors that affect the development of online business of China's metropolis from the perspective of innovation diffusion theory. Firstly, nine hypotheses that may have influence on the development of web business are extracted according to the theory of innovation diffusion based on the related foreign and domestic literatures' review, and a structural equation of the affecting factors is constructed. Data is gathered by questionnaires and sample survey then. Reliability test of observed variables is processed by SPSS, and AMOS verifies the overall fitting goodness of the model. Moreover, factors with affecting path and coefficient of the latent variable are calculated out. Studies have shown that five factors, including changing risk of business model, convenience of the system using, degree of competition from the same industry, pressure from partners and the support from corporate chief executives affect the development of online business strongly. These conclusions provide a basis for decision-making in development of China's online business.

## 1 Introduction

As an important method of enterprise resources deployment, online business has been the core of economy with the development of ICT. How to promote and speed the online business is also a critical issue concerned by both state and local government. But most metropolises' online business is still limited to a primary and phase such as information collecting and exchanging because of the restriction of network safety, online payment, social credit and related regulation. Most critical business activities, for example, the signing of orders and contracts, payment and distribution can still not be processed online. What factors affect the development of online business on earth? This paper will explore this question by methods of structural equation model based on the data gathered by questionnaire designing and surveying. The study result will help to make the decision-making more scientific for the development of China's enterprise online business.

## 2 Literatures review

There are mainly two research thoughts about the influencing factors of online business according to sorting the foreign related literatures. The theory introduced in these literatures mainly includes information technology adoption theory, innovation diffusion theory, TOE theory, enterprise resource theory, planned behaviour theory and so on. Though there is a variety of researching theory, methods and influencing factors in these literatures, these studies are still lacking of general sense for the specific

period and industries. There is no mature theory system or methods explaining or supporting the development of online business as a result of its shorter history. Current research in domestic basically limits to qualitative research, lacking of quantitative analysis. This study will explore the influencing factors of Metropolis online business by quantitative analysis based on the combination of SEM and innovation diffusion theory.

## 3 Research hypotheses and model constructing

### 3.1 Research hypotheses

The influence factors of enterprise online business will be analysed empirically from three aspects including the characteristics of behaviours innovation, organizational characteristics and the characteristics of organizational environment based on the innovation diffusion theory.

#### 3.1.1 Innovation Characters of the Online Business Development

Anticipated income is an important factor that should be evaluated seriously proceeding to the development of enterprise's online business. The business model B2B and B2C based on the online business can largely shorten the distribution channel and enhance the marketing efficiency by direct marketing mode from manufactures to customers. Research shows that the more the anticipated income is, the more intense the incentive of enterprise developing online business is. So, there is the following hypothesis:

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H1: Anticipated income influences positively the development of online business.

Cunningham thought that the uncertainty and the possible consequences are the main two factors of perceived risk. A survey related to the online business in 2019 indicates that according to a survey related to the online businesses in 2010, 58.3% of online metropolis believes that the security of online payment for B2B business model is the biggest problem in process of online dealing. This also indicates that credit question is a most serious risk factor. What's more, true information is needed when online metropolis registered as a member and do business online with buyers, but the online platform lacks of necessary protection for enterprise confidential. So, both sides bear risk to some extent. The perceived risk will be relatively higher if enterprise governs belongs to some risk-aversion. So, there is the following hypothesis: H2: Perceived risk influences negatively the development of online business.

Online business technology offers multiple functions from static services to the dynamic online business processing. Enterprise then can provide the information real-time updating of online information and product, which helps to fulfil the product development and online business.

Usability of online system refers to the easy degree of online system using from personal and organizational perspective. It has been widely confirmed that the more complex a technology innovation is, the more difficult the technology will be accepted. So, there is the following hypothesis: H3: Usability of Online System influences positively the development of online business.

### *3.1.2 Organization Characters of Online Business Development*

Colman and Devaney thought that the larger the enterprise scale is, the smaller the constraint that enterprise suffers and more quickly they accept new technology though Deal and Kennedy thought the scale of enterprise has no effect on online business. Although the success whether or not of online business does not definitely depend on the economy scale and employee number, large scale Metropolis are more likely to the adoption and development of online business because of their idle resources, relatively abundant capital and risk tolerance capability, which can be inferred from the present situation of state-owned enterprise whose informatization level is prevalently higher than that of private Metropolis. So, there is the following hypothesis: H4: Metropolis scale influences positively the development of online business.

The application degree of information products such as CRM, HRM and ERP determines the level of enterprise internal information technology and system integration. The informatization level is the base for non-online metropolis to develop online business. In the process of ICT application, the related cap Metropolis of new technology absorption and using will also be improved. Therefore, metropolises that have higher level of the application of information technology are more inclined to online business. So, there is the following hypothesis:

H5: informatization level influences positively the development of online business.

Investment is critical for the introduction of new technology. The amount of resources will directly affect online business activities. At the same time, investment will also improve the ability of new technology absorption. This is a deepening and expanding process for new technology. So, there is the following hypothesis: H6: Investment scale influences positively the development of online business.

The model of top management supports deems that the identification, supports and participation are the key elements that can affect deeply the success of online business. It is the leaders' responsibility of deciding whether or not to develop online business when they face some puzzled issues such as large pre-investment, difficulty assessment on short-term benefits, markets risks, uncertainties and so on. The level of supports and top management's participation directly affects the progress of online commerce. So, there is the following hypothesis: H7: Support from top management influences positively the development of online business.

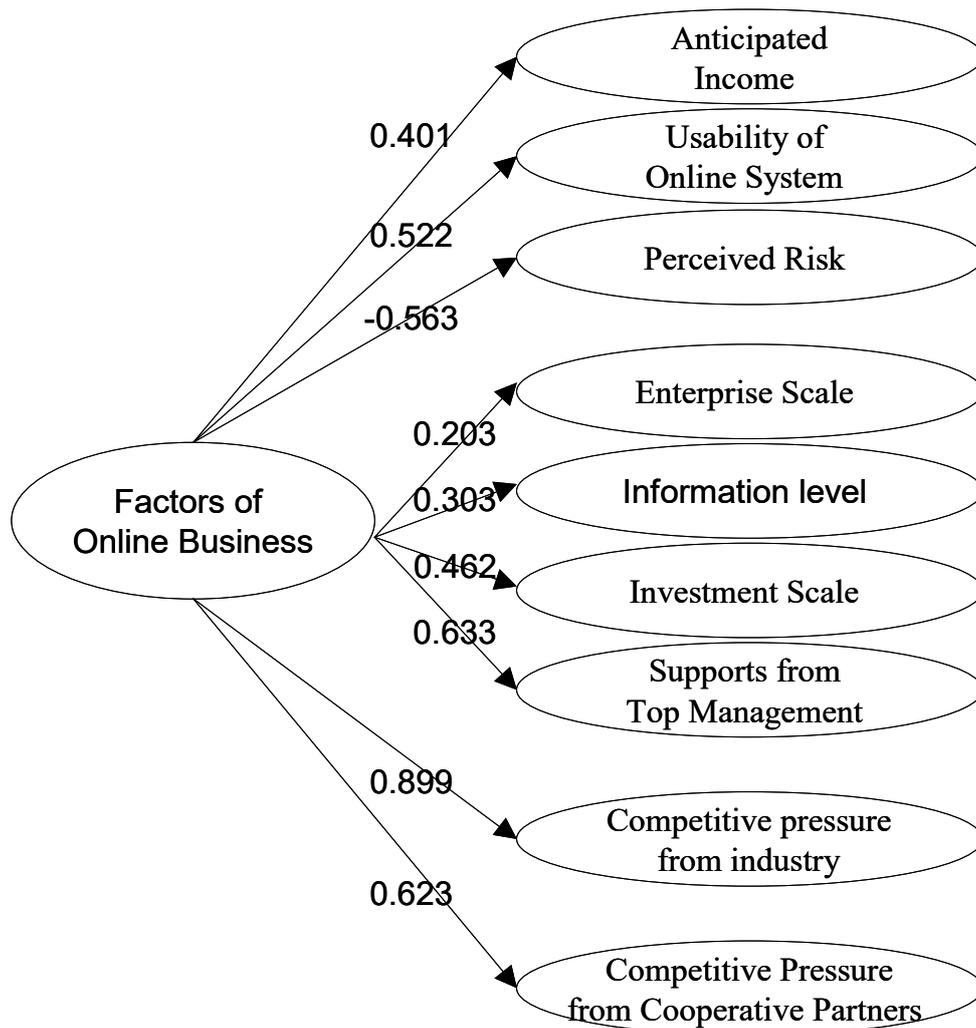
### *3.1.3 Environment Characters of the Online Business Development*

Organizational systems research of Premku and Ramamurthy shows that enterprise will adopt ICT technology initiatively under the pressure of strong internal demand and competition. All innovation from different parts in supply chain upstream and downstream, competitors and the evolution of business model will become enterprise's strong pressure. The greater the perceived competitive pressure is, Metropolis is more inclined to the new business model – online business for maintaining and expanding their competitive advantage. So, there is the following hypothesis:

H8: Competitive pressure from industry influences positively the development of online business.

The applications of online business involve the development and cooperation of entire supply chain. If the cooperative partners and alliance tend to online business based on web, then metropolis has to adopt a compatible online business model in order to stabilize the partners and maintain market share. So, there is the following hypothesis: H9: Competitive Pressure from Cooperative Partners influences positively the development of online business.

## 4 Empirical analyses



**Fig 1.** Model fitting result

The data are gathered from March to June in year 2010. 206 questionnaires are sent back among all the 230 distributed. 22 invalid copies are rejected among the 206 questionnaires by coding processing, and 184 valid samples are gathered totally, effective return rate amounting to 89.3%.

These questionnaires cover 18 textiles and garment Metropolis, 16 chemical manufacturing metropolis, 15 electrical and electronic manufacturing metropolis and 22 retail metropolises. Nine latent variables and fifty measured variables are introduced in questionnaire. Likert 5-point scales are used to measure the variables. The factors, loading coefficient and path analysis see Figure 1.

## 5 Results and future research

This study reaches the following conclusions according to the survey and empirical analysis of the influencing factors of China metropolis online business.

The 5 factors including perceived risks, usability of online system, supports from top management, competitive pressure from industry and cooperative partners affect the development of online business largely. The other 4 factors have lower influence on the

development of online business. The loading coefficient of anticipated income (H1) is 0.401, which means anticipated income influence the online business less. The loading coefficient of usability of online system (H2) is 0.522, which means it impacts the online business greatly. The developed ICT make the threshold of expanding online business lower and lower. But there is a question still unresolved because of specific products and services being based on their own characters rather not industry, and the unresolved question is how to transfer the traditional mode of marketing channel to the network marketing. Therefore, metropolis should integrate their upstream suppliers and downstream dealers for breaking the online business barriers of specific products and services.

As far as some other questions such as how to avoid risks in the process of online business, how to enhance the usability of online business system and how to participate in the promotion of online business for enterprise top management are belonging to the future research needed to be further explored.

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