

Study on the Adaptation of Corporate Business Strategy to E-commerce Practice

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Abstract

Corporate strategic objectives refer to ideas or activities of corporations in the future competitive environment. According to these detailed ideas and plans, the managers of all units should assess plans. In the process, E-commerce practices would be selected. Careful verification can ensure the feasibility of this strategic idea. Thus, the goal of this study is to examine corporate business strategies and E-commerce technologies and to extract the adaptive strategy of business strategies and E-commerce technology items. Grey relational analysis is used to extract the important business strategies, and the E-commerce technology most adaptive to each strategy selected via Pareto principle is presented. Based on the results of this study, a new decision-making model of E-commerce technology for an important business strategy should be made available.

JEL classification numbers: L81, M31

Keywords: Corporate business strategy, E-commerce, Grey relational analysis, Pareto principle

1 Introduction

In the era of global competition, successful businesses should effectively integrate and manage various resources to form effective competitive advantages. Among these resources, the application of E-commerce is an essential part of current business behavior. E-commerce utilizes digitized communication networks and computers or modern information technology (IT) tools instead of the traditional transaction process. The difference between a network and a real competitive market is that the network can last

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24 hours a day for a straight year, meeting consumer demand for home economy. With the assistance of a browser program or translation software, consumers (or clients) can search the products, services, or information they want or need online without any language problem, whenever and wherever. Therefore, global enterprises should establish online sites. Network commercialization has become an irresistible trend. As such, E-commerce has an unbreakable tie with current commercial behaviors. Access to online behaviors from previous physical business behaviors enables the rapid completion of original commercial behaviors with less time and cost.

Given the continuous innovations in computer technology and IT, E-commerce information application technologies have become increasingly diverse. General enterprises refer to the methods that competitors or those in the same occupation have adopted in response to the changing E-commerce or the E-commerce operation built on the basis of the advantages of system information provided by the supplier. However, such process of decision making seems to cause a higher failure rate. Kalakota (1996) believed that even after E-commerce is accepted by enterprises, the potential benefit remains unknown. Regardless of the type of commercial behaviors, researchers believe that E-commerce is one of the means of helping enterprises achieve strategic objectives. However, an invisible barrier exists between the ideas of E-commerce participants for achieving specific strategic objectives and the means or practices that business operators depend on to complete the strategic objectives. Business operators always focus on the physical business behaviors and benefits generated, whereas E-commerce experts are more inclined to focus on the effects resulting from the application of network technologies. Studies on mobile E-commerce in literature have focused on the development of mobile technology and mobile communication technology (Gartner Group, 2013; Forrester Research, 2013; IDC, 2013a, b, c). Therefore, if decision making is only based on the angle of E-commerce and established cost of E-commerce technology, then the business may be prone to risk. Practically, a value level with more competitive advantage is determined by using a business strategy. That is to say, enterprises should have the corresponding business strategy when faced with different behaviors. Therefore, faced with current diverse E-commerce technologies, business operators should consider how to select the matching E-commerce technology to achieve the business strategy from various focused business strategies.

In order to attain the most favorable and appropriate environment, enterprises should have a set of survival methods. This set of survival methods is the business strategy of enterprises. The common business strategies are cost-leading and differentiation strategies (Dess and Davis, 1984; Porter, 1998; Zheng, 001). Cost-leading strategies are used to control costs at a level that is lower than those of competitors, based on the maximum experience value accumulated in the industry. Differentiation strategies are used to provide unique products and services that are different from those of other enterprises. In addition, customer relationship management strategies (Christopher et al., 2012) are used in the attempt to create, develop, and enhance the relationship with the target customers or provide innovative ability or service (Robbins and Judge, 2010; Drucker, 1999; Lai et al., 1997). Faced with the global competition provided by modern enterprises, successful enterprises should have a set of effective and useful competitive advantages. Therefore, these enterprises can become excellent examples for companies, through which the companies can learn business strategies and consequently achieve the level where the companies can be comparable to or even surpass their competitors. Moreover, the resources owned by each enterprise are different from the external environments. As such,

the appropriate business strategies are different for each enterprise. The daily change in electronic technologies and annual update and development of technical infrastructure encourage enterprise operators to focus on different strategies. To ensure that enterprises can distribute the limited resources to important business strategies in the competitive market more effectively, this study aims to determine the important business strategy affecting the development trend of enterprises or organizations by means of grey relational analysis (Deng, 1989). This method has been extensively used in all fields. For example, Lee et al. (2006) used grey relational analysis to determine the important factors affecting applications and models of mobile commerce by choosing E-commerce as the object of study. Kung et al. (2009) used grey relational analysis to determine the factors responsible for increasing consumer satisfaction by regarding the marketing strategy of landscape restaurants and customer experience of service quality as the object of study to generate suggestions for landscape restaurants. The advantage of grey relational analysis is the complete determination of the importance of extracted factors from the collected data by means of simple and direct mathematic calculation. Therefore, grey relational analysis is applicable in decision making and as a decision-making reference in the commercial environment (Hou, 2010).

This study aims to examine corporate business strategies and E-commerce technologies and to extract the adaptive strategy of business strategies and E-commerce technology items. The so-called adaptive strategy is used to extract important business strategies based on the comments of business operators. Moreover, the strategy is used to determine the kinds of E-commerce technologies suitable for certain solutions of corporate business strategy from the perspective of E-commerce experts and based on the current E-commerce technology items. With this procedure, the most suitable E-commerce technology item corresponding to the business strategy of each company can be obtained. This paper is organized as follows. Section 2 integrates corporate business strategies with the E-commerce technology trend. The result of the integration, achieved through collecting related literature, will be used as the reference in extracting the important factors of corporate business strategies and the resource of E-commerce technology and practice. Section 3 investigates how prominent Taiwanese business operators regard business strategies and which E-commerce technologies can be used to achieve the strategic business goal stipulated in the strategic direction established by Taiwanese business operators based on the integrated business strategy development questionnaire. Section 4 extracts the strategic business goals that business operators focus on by means of grey relational analysis. The undertaking aims to generalize the most suitable E-commerce technology after business operators have determined the important business strategies based on the current situation of industries and the integrated comments of E-commerce experts on E-commerce technology derived from the strategies. Finally, the conclusion is presented.

2 Literature Investigation

Based on the objectives of this study, the literature is divided into two parts: corporate business strategy and E-commerce technology.

2.1 Corporate Business Strategy

Since 1994, Common Wealth has been Taiwan's most famous industrial and economic magazine. Annually, benchmark enterprises are selected from various industries in Taiwan by business people. For the current list of enterprises in the Top 1,000 Enterprises Survey, no loss-making enterprises with high revenue ranking in the past year, excluding the disputed enterprises, are screened out from various industries for inclusion in the Taiwan Benchmark Enterprises with the Best Reputation Survey. Each enterprise will be evaluated by a person employed within the industry and by experts on competency indicators. This evaluation will be used to create the value model for Taiwanese enterprises. The Top 1,000 Enterprises Survey in Common Wealth (2012) selected the past year's no-loss enterprises with high revenue ranking from various industries based on the industrial classification standard. Subsequently, the selected enterprises were scored using 11 competency indicators generated by Common Wealth ("Competency indicators generated by Common Wealth" in Figure 1). Finally, the Top 1,000 Enterprises were voted. This study regarded these 11 indicators as part of data resources for promoting business strategy items. In addition, this study investigated the corporate quality of Company A, with certain influence and an increasing business empire through the years, as data resource for studying business strategy items. Company A is one of the main manufacturers of key parts of machinery, with annual expansion of operating territory and highly increased turnover. Based on this study, 11 business strategy items were obtained during the interaction process among high-level managers of Company A ("Business strategy of Company A" in Figure 1). In order to obtain enterprise strategy items that more operators use in corporate operation to improve the integrity of corporate business strategy items, the actual interviews with enterprise operators are conducted. After integrating strategic items identified by 11 enterprise operators and eliminating strategic items that overlap with the 11 business strategies of Company A and the 11 indicators of benchmark enterprises of Common Wealth, a total of 11 strategic items were added ("Strategic items by interviewing enterprise operators" in Figure 1).

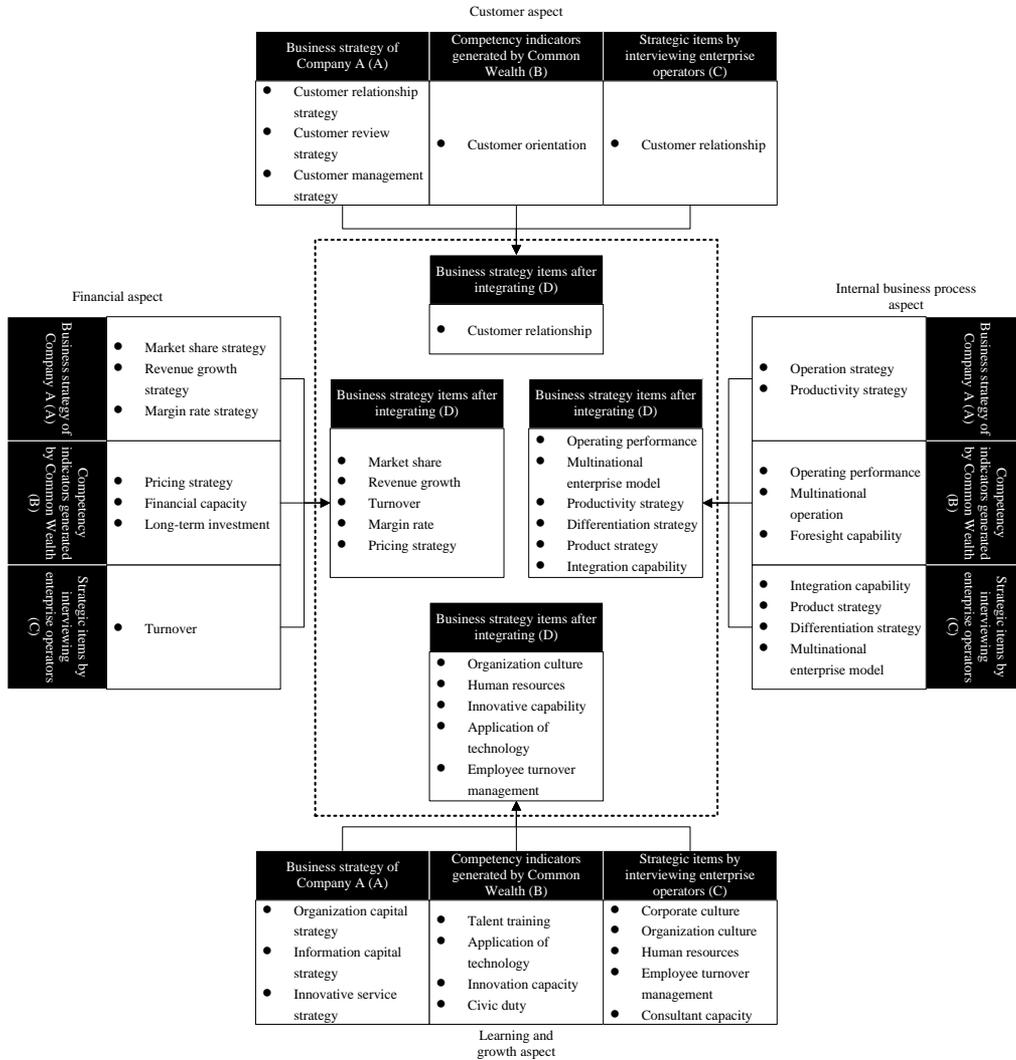


Figure 1: Business strategy items

When discussing the business strategy items that enterprises focused on, business strategies tend to produce only an external environment strategy, which renders enterprises unable to completely develop. Thus, the concept of the balanced score card (Kaplan and Norton, 1992) was added in this study. By regarding four aspects of the balanced score card as a basis for the classification of 33 corporate business strategy items, 33 items of corporate-focused business strategy can take customer aspect, financial aspect, internal business process aspect, and learning and growth aspect into consideration. Thus, the execution of the application of E-commerce technology under different corporate business strategies could be closer to the strategy direction of the all-round development of current enterprises. After arranging four aspects by means of the balanced score card and integrating those with similar meaning among 33 items of corporate business strategy, a total of 17 business strategy items were obtained ("Business strategy items after integrating" in Figure 1). Figure 1 shows whether Company A or the competency indicators of Common Wealth will take each perspective of the strategy items into

consideration. For corporate operation and development, most managers focus more attention on business performance, when in fact, business performance will be confirmed by the all-round and comprehensive performance of the whole enterprise. The definition of these corporate business strategy items is shown in Table 1, and then these 17 business strategy items were used as questionnaire items on the investigation of corporate-focused business strategies.

2.2 E-commerce Technology Trend

This study aims to investigate E-commerce technology or E-commerce trend items on the basis of the results of a questionnaire survey of the chief information officers of globally important or famous enterprises conducted by market research companies in 2010 to 2013 (IDC, 2013a; IDC, 2013b; IDC, 2013c; Forrester Research, 2010; Gartner Group, 2013). Then, the present study eliminated irrelevant items to E-commerce technology in the five ICT reports and removed repeated or similar items of E-commerce technology trend in the same year until only one E-commerce technology trend remained. A total of 16 items would be used as questionnaire items in the development of the applications of E-commerce technology under different corporate business strategies (Table 2).

3 Questionnaire Design and Analysis Method

The following section explains the questionnaire design and analysis method. Subsequently, we investigated the importance that the current business operators of Taiwan place on business strategies and determined the E-commerce technologies that can be used to achieve business strategic goals in the strategic direction established by Taiwan's business operators.

Table 1: Definition of corporate business strategy

Item	Source	Definition and contents
S1. Customer relationship	Christopher et al. (2012)	A management approach that attempts to build, develop, and enhance the target customers' relationship.
S2. Market share	Investopedia.com (2013)	The proportion of sales volume of an enterprise to total sales in a certain industry or a market during a specific period.
S3. Revenue growth	Huefner (2011)	Revenue growth refers to the difference between sales produced by the company's business and previous sales.
S4. Turnover	Price (1977)	Company offers the products and service to obtain the income.
S5. Margin rate	Sexton (2009)	An indicator measuring the profitability of products, which is the gross profit rate divided by net sales.
S6. Pricing strategy	Smith (2012)	To study the strategy of setting and changing the price in order to obtain the best marketing effect and the best income.
S7. Operating performance	Lee and Lo (2002)	It is the operational efficiency of enterprises and the achievement of entrepreneurs during a specific period.
S8. Multinational enterprise model	Chen and Mo (2000)	Under the global operation model, goods flow, information exchange between production and order, and delivery of final products or semi-products can meet the requirements of the final customers in physical logistics, information flow, and financial flow through the integration of the supply chain. With timely delivery and rapid response, manufacturers can balance between the lowest operation costs and the best service, ensuring that the manufacture, sales, and repair management of enterprises meets the optimal operation advantage through the global strategy.
S9. Productivity strategy	Wu (1990)	The ratio of input to output refers to efficiency. To completely reflect the meaning of productivity, the concept of quality (efficacy) should be utilized, which is necessary in the industries or organizations focusing on services.
S10. Differentiation strategy	Porter (1998), and Zheng (2001)	Enterprises provide unique products and services by means of the differentiation strategy and improve performance by increasing product or service value on customer perception for obtaining advantages, resulting in differences with other enterprises, namely, causing products to achieve unique features when compared with the products of other enterprises.
S11. Product strategy	McGrath (2000)	Enterprises create the plan for marketing goods to satisfy the demand for the customer.
S12. Integration capability	Van den Bosch et al. (1999)	Original knowledge is integrated to new knowledge capability through communication, interaction, training, and other management approaches.
S13. Organization culture	Tunstall (1985)	The mixture of the common value, behavior patterns, mores, symbols, attitudes, and normative ways.
S14. Human resources	Noe et al. (2013)	Policy measures and systems affecting employee behavior, attitude, and performance.
S15. Innovative capability	Robbins and Judge (2010), Drucker (1999), and Lai et al. (1997)	Innovation means to change the value of resources to consumers and meet their demands, and can be achieved through training and learning to improve products, procedures, or services.
S16. Application of technology	Post and Anderson (1997)	Using the technology in business to simplify the operations and to promote the competitiveness.
S17. Employee turnover management	Chiang (2004)	To study the influence of employee turnover on the operating performance of enterprises.

Table 2: Items of E-commerce technology or E-commerce trend

Item	Source	Definitions and contents
E ₁ . Mobile technology and application	Pandya (2000)	Users can freely move and transmit information at any time and place. To achieve this purpose, various mobile communication systems and technologies are developed to meet different market demands.
E ₂ . Cloud computing	Gartner (2013), Forrester Research (2013), and IDC (2013)	Cloud computing is a method with large-scale and extensible IT-related capability. Cloud computing can be provided to external users as a service through the Internet technology; charging is based on the used resources.
E ₃ . Corporate application software	Wei (2000)	Supporting various operations of enterprises, public units, or governmental organizations.
E ₄ . Service-oriented application and framework (SOA)	Tseng (2013)	SOA is a framework model composed of web service technology and other standardization units.
E ₅ . Technical infrastructure	Laudon and Laudon (2006)	It is composed of a group of experimental devices and application software intended to support the entire corporate operation.
E ₆ . Information security	Caelli et al. (1989)	A collection of information protection-related studies is called information security.
E ₇ . Analysis and business intelligence (BI)	Power (2006), and White (2000)	BI refers to a series of technologies and products providing information to users to solve commercial problems and support strategic business decisions.
E ₈ . Big data	IBM (2013)	Big data were obtained from various resources, such as inductors for collecting weather information, papers posted on social and media websites, digital images and pictures, purchase transaction records, and mobile phone global positioning system signal.
E ₉ . Social Commerce	Ertell (2010)	The main purposes for enterprises to use social commerce software include: 1. To realize retail goods and relative services; and 2. To collect product-related information through other consumers.
E ₁₀ . Virtualization	Singh (2004)	Virtualization is a framework or method, which can separate computer resources into many executive environments. A single concept or multiple concepts or new technologies including hardware or software partition are used to partially or fully simulate other items.
E ₁₁ . End-to-end	Saltzer et al. (1981)	End-to-end flow refers to a series of sequent and active combinations obtained by regarding customers, markets, governments or organizations, and stakeholders as input or output points.
E ₁₂ . Coordinated technology (work flow)	Meilin et al. (1998)	The main function of workflow management system is to define, execute, and manage workflow by computer technology, and to coordinate information interaction among work units and members during the process of coordinating the workflow.
E ₁₃ . IT Management	Hanschke (2009)	Organizations introduce various management problems generated from IT, to analyze the reason, and raise solutions and strategies.
E ₁₄ . Managed print services	Gartner (2013)	It is defined as the active management and optimization of document output device and relative business procedures.
E ₁₅ . Customer relationship management	Chen (2000)	It is a complete procedure that utilizes information technology to massively collect and save information of related customers to be analyzed, to determine useful knowledge, and use the information to assist decision making and plan related business activities to be executed.
E ₁₆ . System updates	Wang et al. (2005)	The original systems of enterprises or organizations are updated due to the higher convenience of new technology compared with that of the old system to meet the demand of internal users and external customers.

3.1 Questionnaire Design

The strategies affecting E-commerce can be executed reliably after determining the proper E-commerce practice by using the established strategy. Therefore, this study investigated the importance of business strategies from the perspective of the current business operators of Taiwan. The data were based on the 17 items of Corporate Business Strategy selected from Table 1 included in the questionnaire. In this questionnaire, the assessment standard is a Likert five-point scale comprising 1 (Very Unconcerned), 2 (Unconcerned), 3 (Average), 4 (Concerned), and 5 (Very Concerned). A higher score indicates that the

questionnaire filler focuses more on the impact described by questions, and vice versa. Based on the result, grey relational analysis is used to investigate business strategic goal which corporate business operators focused on.

Corporate-focused business items obtained by means of grey relational analysis were used as questions for the business strategy section of the questionnaire of the study. These questions were employed to investigate which E-commerce technologies can be used to achieve business strategic goal in the strategic direction established by Taiwan’s business operators. The important business strategy can be determined by the business operator based on current industrial situations. After integrating comments on E-commerce technology provided by the strategies, electronics experts generalized the most suitable E-commerce technology. Thus, 16 items of ICTs in Table 2 were included in the questionnaire.

3.2 Analysis Method

The questionnaire for investigating corporate-focused business strategies were analyzed by means of grey relational analysis to probe into the business strategic goals that corporate operators use. The detailed steps of extracting key factors by grey relational analysis are explained as follows:

Step 1. Likert five-point scale is used as assessment standard. The comparison sequence is $x_i = \{x_i(1), x_i(2), \dots, x_i(k)\}$, where $x_i(k)$ refers to the score for i questionnaire filler to answer k question. The highest score is 5, which indicates that the questionnaire filler focuses on the impact degree of this question. Therefore, the reference sequence is $x_0 = \{x_0(1), x_0(2), \dots, x_0(k)\}$ and $x_0(1) = x_0(2) = \dots = x_0(k) = 5$. Difference sequence is defined as absolute difference between comparison sequence and reference sequence, and it is shown as $\Delta_{0i}(k) = |x_0(k) - x_i(k)|$.

Step 2. The grey relational coefficient is shown in Equation (1). Distinguished coefficient (ζ) is mainly used to compare the comparison sequence with the reference sequence. Generally, the mean value of 0.5 is suggested as distinguished coefficient (Deng, 1989). Grey relational coefficient that is closer to 1 indicates a higher degree of correlation between the reference sequence and the comparison sequence. By contrast, when it is closer to 0, the degree of correlation is lower.

Step 3. The grey relational coefficient can show the degree of correlation in all factors between comparison sequence and reference sequence. To compare, grey relational coefficient information can be focused on one point. Supposed that all factors of comparison sequence and reference sequence, namely, mean value of grey relational coefficients have the same weights, then grey relational degree can be derived by Equation (2). It also represents the degree of correlation between comparison sequence and reference sequence. If two sequences changed consistently, it represents the higher degree of correlation between them; otherwise, the lower degree is represented (Deng, 1997).

Step 4. The numbers representing the degree of correlation between sequences are ranked. Relationship refers to grey relational sequence that can be used as the key basis for analyzing and making decisions.

$$r(x_0(k), x_i(k)) = \frac{\forall_i^{\min} \in i\forall_k^{\min} \Delta_{0i}(k) + \xi \forall_i^{\max} \in i\forall_k^{\max} \Delta_{0i}(k)}{\Delta_{0i}(k) + \xi \forall_i^{\max} \in i\forall_k^{\max} \Delta_{0i}(k)} \quad (1)$$

$$r(x_0, x_i) = \frac{1}{n} \sum_{k=1}^n r(x_0(k), x_i(k)) \quad (2)$$

Corporate-focused business strategy obtained from grey relational analysis was used for the adaption of E-commerce technology as applied to different business strategies. The items in E-commerce technology were ranked based on importance. The responses are open, and two small items were attributed to each question. First, respondents were asked to confirm which of the 16 items in Table 2 correspond to the technology for adaptive practice of strategic objectives. Second, items of adaptive technologies confirmed by the respondents were filled in the second small item. If the number of technology items in the first small item is consistent with that of E-commerce in the second small item, the questionnaire was retained; otherwise, it was rejected. The intention was to allow the respondents generate a complete perspective for individual strategies and E-commerce technology items. In addition, it was intended to generate clear answers with regard to the number of items of E-commerce technology that is adaptive to the corresponding corporate business strategies. Finally, it was intended to answer the questions according to the adaption of E-commerce technology item in relation to the strategy.

In the following sections, the E-commerce technology most adaptive to each strategy selected via Pareto principle (Sanders, 1987) is presented. The adaptive technology item at the top 20% of the total score can be used as the E-commerce technology most adaptive to each strategy. The steps are as follow:

Step 1. Under different business strategies, each respondent designates a score to the adaptive technology items of Question 2 that they have completed. A total of 16 items correspond to E-commerce technology or trend. Therefore, the highest score is 16, and the lowest is 1. The adaptive technology items in the first part represent the most important as exemplified by the highest score (16) and followed by 15. The rest can be done in the same manner.

Step 2. All scores accorded to all respondents against the same adaptive technology item are summed as the weighted score. All weighted scores for adaptive technology items are ranked in descending order to obtain the level of importance.

Step 3. All weighted scores for the adaptive technology items are summed, and the result is multiplied by 20% and used as reference.

Step 4. The weighted scores of adaptive technology items are selected in descending order. When the accumulated weighted scores of the selected items are more than those of the reference, the selection is stopped. The selected items are the most important E-commerce technology items of this strategy.

Pareto principle raised a standard, showing that 80% of the respondents confirmed that the adaptive technology items are from the 20% of E-commerce technology items. Therefore, the adaptive result of Pareto principle indicated that enterprises can invest their limited resources to the 20% of E-commerce technology project, which is the most important consideration in the intention for each strategy to obtain the best interest.

4 Data Analysis and Discussion

The following section explains the important extraction results of the corporate business strategy, as well as the analysis of the questionnaire on E-commerce technology application under different corporate business strategies.

4.1 Important Corporate Business Strategy Extraction Results

The questionnaires were sent to practicing corporate operators. Each associated operator was requested to complete the questionnaires independently. A total of 40 questionnaires were distributed, and 35 of which were retrieved, indicating an 87.5% recovery rate. Subsequently, the answers were examined. Thirty valid questionnaires were obtained; five defective ones were excluded.

Grey relational analysis was applied to the 30 questionnaires to calculate the grey relational degree of the 17 question items, and the items were ranked in descending order. In Figure 2, the vertical axis and the horizontal axis represent the grey relational degrees and the order of grey relational of the 17 question items, respectively. The question items with similar grey relational degrees were combined as one group, and then 17 question items were divided into 6 groups. Daniel (1961) emphasized 3–6 key factors that affect business success. If these key factors are lacking, the business could easily fail. Therefore, this standard was used to assess the important key factors. A total of six factors in the first three groups were selected, namely, customer relationship (S₁, 0.8611) in the first group, integration capability (S₁₂, 0.7578) in the second, differentiation (S₁₀, 0.7333), innovative capability (S₁₅, 0.7302), margin rate (S₅, 0.7278), and human resources (S₁₄, 0.7244) in the third.

Among the important business strategies screened out via grey relational analysis, margin rate was found to belong to financial, customer relationship to customer, integration and differentiation to internal flow, and innovative and human resources to innovation and learning. Overall, these six important business strategies included four big perspectives of the balanced score card. Therefore, this study regarded six corporate-focused business strategies as question items of the questionnaire on the application of E-commerce technology under different corporate business strategies.

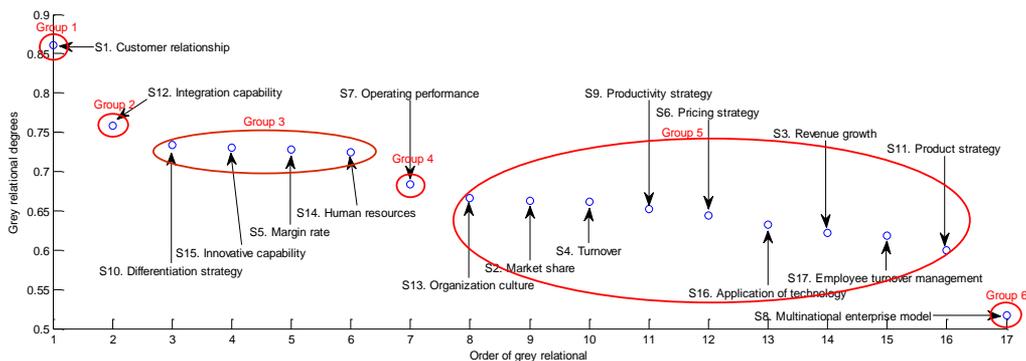


Figure 2: Group of grey relational degree for important corporate business strategy extraction

4.2 Analysis Result of the Questionnaire on E-commerce Technology Application under Different Corporate Business Strategies

A total of 120 questionnaires were sent to participants engaged in E-commerce-related businesses and heads of enterprises. Accordingly, 95 questionnaires were retrieved (80% recovery rate). We examined the answers and 93 valid questionnaires were obtained after 2 defective ones were excluded.

Figure 3 shows the Pareto chart of the weighted scores of E-commerce technology of six important corporate business strategies. For customer relationship (Figure 3(a)), the highest weighted score (1,141) was achieved by customer relationship management (E_{15}), followed by E_4 , service-oriented application and framework (SOA), with a weighted score of 883. The sum of all weighted scores of E-commerce technology items for customer relationship was 7,461. The Pareto principle was used to calculate standard value = $7461 \times 20\% = 1,492.20$. The most important E-commerce technology items in customer relationship were E_{15} and E_4 because the sum of these two weighted scores ($1141 + 883 = 2024$) is higher than the standard value (1492.20). Therefore, the result of analysis on E-commerce technology adaption of the five remaining business strategies could be obtained. The result is explained as follows:

- (1) In Figure 3(a), the most important E-commerce technology items in customer relationship are E_{15} (customer relationship management) and E_4 (SOA and framework). Practically, enterprises must maintain long-term interactive relation with customers. The communication records can be assisted through customer relationship management system to obtain customer integration information for better interactive relation with customers. SOA is a new system management module, which has been recently referred to in IT management. It can generate data from various old information systems and information from new system module to refurbish services as service units for the provision of sustainable management of customer service.
- (2) In Figure 3(b), the most important E-commerce technology items in integration capability are E_3 (corporate application software) and E_2 (cloud computing). The life cycle of application software is difficult to extend to more than 10 years. After the system has been modified, only the basic system files of the original data can be generally retained. For the original transaction files, the old system is used to search. Many enterprises have started to integrate corporate application software in recent years. During the integration, E-commerce experts suggested the establishment of the private cloud system.
- (3) In Figure 3(c), the most important E-commerce technology items in differentiation are E_7 (analysis and business intelligence (BI)), and E_1 (mobile technology and application). To ensure the creation of a unique market and the enhancement of differences, it is important to create products or services that are different from those of the competitors. Therefore, we must know our enemy as well as ourselves. Then, we can analyze systematically the differences from other competitors by using analysis and BI. Ultimately, we can strategically practice and execute through mobile technology and application.
- (4) In Figure 3(d), the most important E-commerce technology items in innovative capability are E_1 (mobile technology and application) and E_7 (analysis and BI). According to Gartner (2013), global mobile advertising revenues will grow to 24.5 billion USD in 2016 because mobile advertisement provides new business

opportunities for application developers, advertising networks, mobile platform suppliers, professional agents, and even communication service suppliers in some areas. Mobile technology and application will also be the investment focus of enterprises. BI system can transform corporate data into knowledge, provide managements with the required information, and help enterprises form intelligent decisions. Moreover, with the knowledge-sharing mechanism, talents in various fields can easily share their knowledge to promote the entire innovative capacity of enterprises.

- (5) In Figure 3(e), the most important E-commerce technology items in margin rate are E₇ (analysis and BI) and E₃ (corporate application software). A growing number of IT managers and corporate operators believe that if enterprises desire to grow, they must know the corporate situations. The information system with the closest financial management is BI and corporate application software. If the data of corporate application system are correct, finance personnel can determine financial information from different changing bills. The information can help corporate operators grasp future corporate financial planning. The BI system can rapidly generate analysis reports from the established modules, which contain useful information for operators.
- (6) In Figure 3(f), the most important E-commerce technology items in human resources are E₃ (corporate application software) and E₁₂ (coordinated technology (workflow)). Talent is closely connected to enterprises' rise and fall. Human bank system and corporate application software in the company can be used to facilitate the employment of the workflow. Through coordinated technology, information about job interviewers and employment workflows is formulated through E-treatment, which can accelerate treatment, reduce errors, and save significant communication costs.

Results of the foregoing analysis show the seven most important E-commerce technology items for six corporate-focused business strategies (Figure 4). Figure 4 shows that E₇ (analysis and BI) and E₃ (corporate application software) have the widest application level for important business strategy among the three items of the most adaptive E-commerce technology.

- (1) E-commerce experts consider BI system as helpful in solving differentiation, innovative capability, and margin rate strategies. Data source of BI system allows for the powerful analysis of the database of related application software and data mining through BI to obtain the information about enterprises with business value. Based on the capability of BI software, various data are transferred to various decision-making reports or research results. Through e-mail, mobile phone, and communication software, new strategic reports are provided to the assigned people; thus, the responsible people can rapidly grasp new information, which shortens the decision-making period. For example, differentiation strategy and margin rate strategy arrangement cannot be derived from imagination. Analyzing previous relative data, generating an analysis report, and transferring knowledge and conclusion for corporate decision-makers are needed to formulate correct decisions. Moreover, governments and private enterprises have encountered competitive pressures in the international market in recent years, which compelled them to focus on innovative capability strategy. Innovation does not come out of nothing. Innovation formed through changing internal organization in the past and based on the experiences of stakeholders, as well as the trend and technology of external environment would create business value. Thus, analysis and BI, based on the result of data analysis, is an important E-commerce technology in achieving corporate business strategy.

- (2) Corporate application software is an important E-commerce technology in achieving integration capability, margin rate, and human resources strategies. The most common system of corporate application software is enterprise resource planning (ERP). System builders hope their ERP will be used by enterprises. System module is increasingly expanded and further subdivided. For massive internal flow management, ERP system reduces not only the time for repeated repair of intermediate conversion system in operation, but also the error. The ERP system can also completely provide work hours, costs, and other information about internal flows needed to arrange corporate business strategy; thus, strong and powerful strategic indicators can be formulated. Therefore, corporate application software mostly focuses on the improvement of internal flows and measurement of operation performance. If internal flows fail, the integration capability of the corporation cannot be improved. Margin rate is based on the calculation of cost structure of internal flows by corporate application software. Both human resources software and ERP system belong to corporate application software. Under the common coordination of two system modules, achieving the human resources strategy is important.

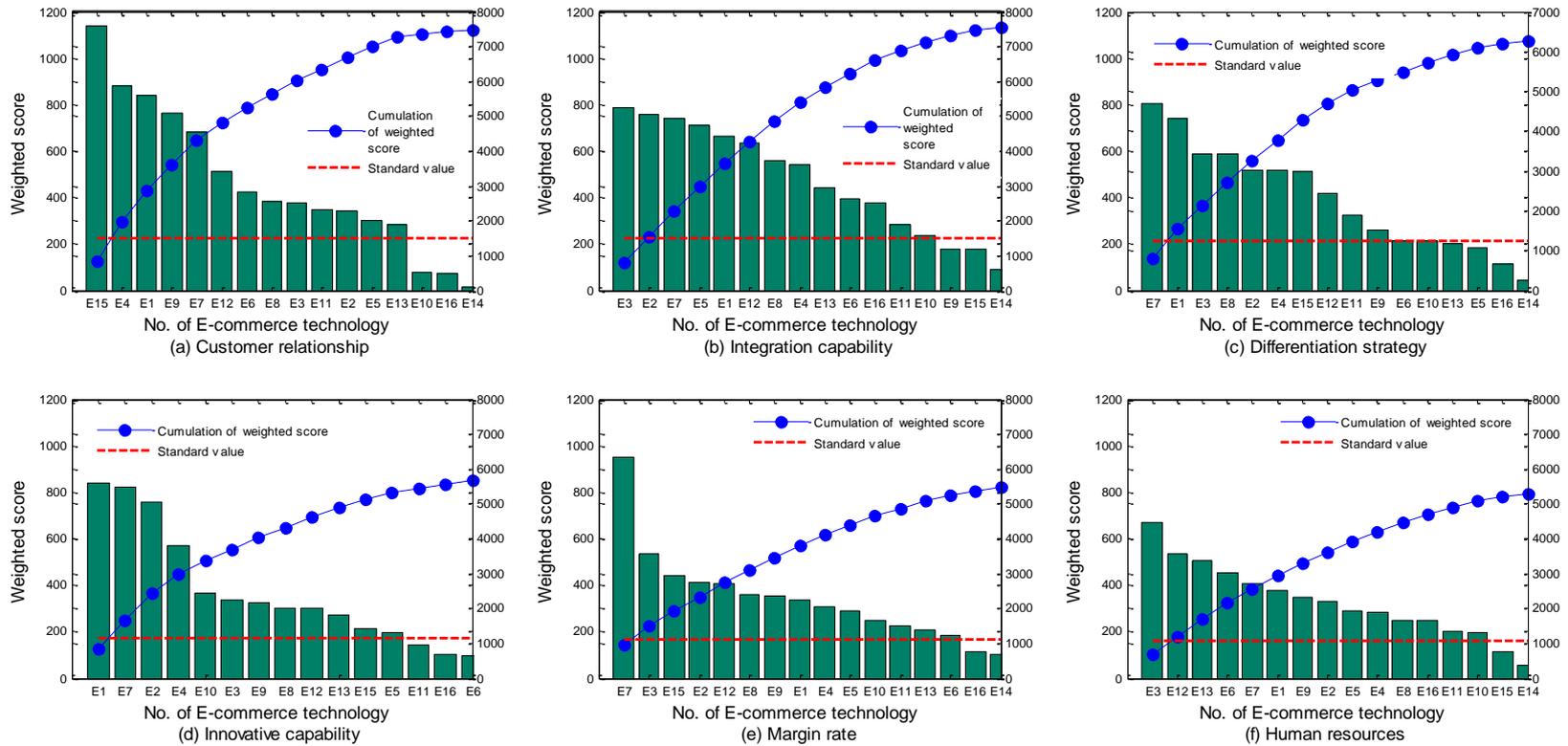


Figure 3: Pareto chart of the weighted scores of E-commerce technology of six important corporate business strategies

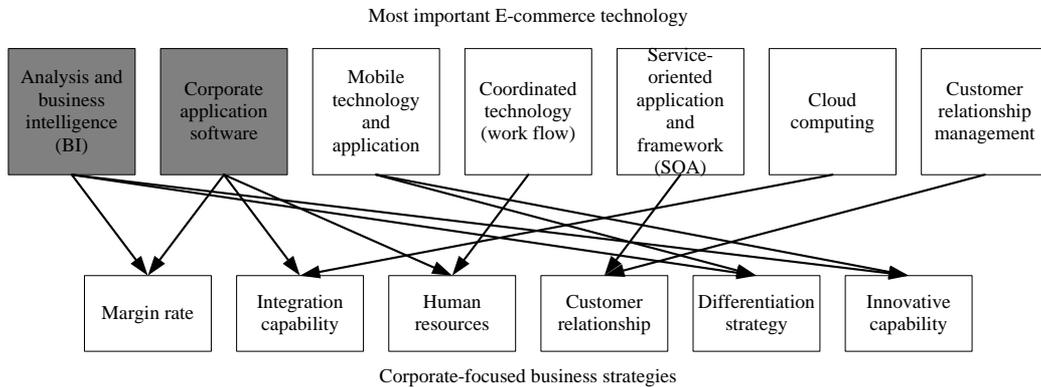


Figure 4: Analysis results of the most important E-commerce technology items for corporate-focused business strategies

5 Conclusion

Corporate strategic objectives refer to ideas or activities of corporations in a future competitive environment. Based on these detailed ideas and plans, managers of all units should assess plans and select practices. Careful verification can ensure the feasibility of any strategic idea. In a general corporate environment, only when the superior has a rough idea, or hopes that the colleagues will raise creative ideas or different opinions, will the flexibility of decision making be developed. The responsibilities of the colleagues for the future can be promoted by engaging in extensive participation or discussion. Thus, this paper highlights that the heads of the decision-making or information units can help achieve the strategy by using the information integration capability of E-commerce technology.

This paper employed grey relational analysis to extract corporate-focused business strategies, namely, customer relationship, integration capability, differentiation, innovative capability, margin rate, and human resources. As a result, the most important E-commerce technology items based on extracted business strategies, namely, analysis and BI, corporate application software, mobile technology and application, coordinated technology (workflow), SAO and framework, cloud computing, and customer relationship management are determined. Based on the result, operators and the units are expected to lead and execute updates of the most important E-commerce technology items, respectively. Attaining this situation can be assisted by collecting the internationally recognized ICT annual reports on E-commerce practice. This concept is based on the establishment of a new decision-making model of E-commerce technology that is available under important corporate business strategies.

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