Critical Success Factors in Implementing Enterprise Resource Planning Systems for Sustainable Corporations

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Abstract: More and more companies are significantly introducing enterprise resource planning (ERP) systems to secure enterprise resources for effective distribution and provide accurate data for sustainable development in enterprise. Recently, Type B laboratory has promoted the utilization of the corporation's own sustainable developments of the business model philosophy to affect the society and to solve social and environmental issues. The form of organizations arising from this certification process is referred to as the B Corporation, and this represents the implementation and commitment to sustainable development. Thus, decision-makers of B Corporation who can utilize ERP system tools well can coordinate sustainable activities better. There is not enough literature at this stage to provide the key success factors of implementing the ERP system for the B Corporation in Taiwan. This study extensively reviews the literature and conducts a modified Delphi expert questionnaire survey to elucidate the critical success factors of B Corporations' implementation of ERP systems. The research results can assist the sustainable value of B Corporation and contribute to the current literature of improving critical success factors. The limitation of this study is that it only represents the perspective of B Corporation in Taiwan. Second, this study is unable to encompass all key success factors (CSFs) pertaining to ERP systems.

Keywords: sustainability; enterprise resource planning; critical success factors; B Corporation

1. Introduction

With the increasing popularity of information technology and the trend of adopting computerized operations in various commercial transactions, more and more companies introduce information systems to assist business operations [1]. In facing the ever-changing globalization of business, increased competition, and rapid growth of information technology, enterprises must adopt enterprise resource planning (ERP) systems equipped with software and hardware facilities [2–4] to meet the technical information requirements of enterprises as well as the desire of administrators to strengthen corporate competitiveness. Several studies have indicated that ERP systems are likely to reduce inventory levels, cut costs, shorten delivery periods, increase productivity, promote corporate communication, hone information and decision-making skills, and improve customer services [5–7]. Due to these potential strengths, an increasing number of small and medium-sized enterprises (SMEs) are attempting to implement and operate ERP systems [6]. Raymond [8] asserts that increasingly fierce competition in the business world has led some SMEs to adapt and change their processes.

In the highly competitive global market, the accuracy of product costs has become a major strategic concern for modern companies [9]. Odenwald and Berg [10] further indicate that leading

enterprises will be more adept at managing resources than their competitors. Therefore, integrating information technology with various enterprise resources is the key to ensuring business liquidity and responsiveness for faster market response and stronger enterprise competitiveness. Classical ERP systems significantly improve business processes and enterprise resource management. Such systems are the nerve center and record system for numerous enterprises [10].

Ideally, while the business pursues an increase in profits and creates new business value, it also aims to achieve sustainability and development. Decision-makers who can instantly obtain data directly from an ERP system to elucidate their business profits and environmental impacts can easily secure enterprise resources for effective distribution, achieve a competitive advantage, and drive cost reduction programs. Subsequently, they can maintain the generated profit in alignment with societal impacts to internalize society and the natural environment, as well as attempt institutionalization through the ERP system to provide sustainability-oriented leadership.

Today's consumers are concerned with more than just quality and price. They are increasingly concerned about the social and environmental impacts of products [10]. Hence, enterprises are increasingly obligated to quantify the environmental sustainability of their products. Therefore, accurate and reliable data are a necessary foundation for the effective implementation and reporting of corporate sustainable development [11,12]. However, how enterprises face sustainability becomes a key issue in business strategies and operations [13]. Since the information technology is rigorously developing and enterprises face severe impacts on their business operations, business management models must be innovative and adaptable to survive and flourish [9].

This elucidates how the proper use of information system tools not only influences financial performance (thereby more effectively facilitating corporate assessment and disclosure of the extended value chain), but also affect the "triple bottom line"-the environment, society, and economy [10]. This shows that information systems are crucial in transforming sustainability data, information, and processes [14].

However, implementing ERP systems is not as simple as merely introducing a set of systems. Enterprises must clearly understand their existing resources and future prospects. The implementation process is complicated and risky [15]. Therefore, enterprises implementing ERP systems are also likely to encounter problems such as ERP built-in controls not necessarily being able to prevent certain intentional system operations. For example, a few control functions may not be activated instantly during the implementation phase [16]. Furthermore, top management may attempt to deactivate certain control functions to manipulate profits and losses for earnings management [17]. In addition, a lack of full understandings of an ERP system's functions among users in an enterprise [18] as well as a lack of appropriate training during such a system's implementation process [19] is all causes of implementation failures. Moreover, implementing ERP systems requires considerable monetary investments [15]. With limited resources, enterprises can rapidly evaluate corporate problems by investing in integrated information system tools.

Thus, the study can measure the critical success factors of information system implementation which can provide the reference for the business planning to implement ERP systems. The paper will be used as the research fundamentals of ERP systems. In previous research, many studies ever discuss the critical success factors of ERP implementation. However, the society gradually cares the environmental protection [9] due to the trend of industry globalization. Environment protection has become the key factors to support the business sustainable developments, affecting the business operation model. However, the researches of the application of ERP system in suitability issues are relatively less. An increasing number of enterprises are adopting stakeholder-driven, sustainable, and socially responsible business practices [20,21]. Moreover, enterprises are treating environmental protection as an indicator of corporate social responsibility (CSR) [22], emphasizing that corporate operations should not only consider their operating and financial conditions but also their impacts on the natural environment and society [9]. Sustainability has become the focus of academic and business communities [23].

The trend of sustainability ensures the business culture change in corporate governance and push companies to add the target of reaching sustainability in the business operation plan [24]. Recently, B Lab promotes the business philosophy of sustainable development vigorously. The idea is to utilize the corporate own business model to affect society positively [25] and to solve social and environmental issues. B Lab will apply a new business model [26] to promote the change of business operation [27] to create the business value. Stubbs [28] indicate that the B Corporation model has a socially and environmentally imbued mission and purpose that are primarily aimed at creating positive societal impacts for its stakeholders rather than maximizing profit, the necessity of creating profits, not for the benefits of the profit itself but to maintain their business and increase its societal impacts through growth [29]. Business practitioners and academicians have indicated that a sustainable hybrid business model such as the B Corporation model is a constantly growing force [30] that will become the mainstream [31].

"B Corporation" are those certified by the Type B laboratory and satisfying the standards set by the "B-type laboratory, B Lab". The B Lab is a non-profit organization established in Philadelphia, Pennsylvania, in 2006. The organization has established "Standards for Social and Environmental Performance, Accountability, and Transparency" [27], Companies can voluntarily apply for certification procedures from B Lab and those who meet the certification standards will be certified. To be certified, the company must be evaluated by Business Impact Assessment (BIA) the influence on the stakeholders [32–35]. A minimum of 80 evaluation points in a total score of 200 is required to obtain a B Corporation certificate [27,33,34].

The biggest difference between these B Corporations and other enterprises is that they voluntarily comply with the certification standards, transparently disclose the corporate information, and spontaneously expand the scope of corporate responsibility, modify the company's articles of association and create benefits for stakeholders [36]. The certification of B Corporation is to transform the vague concept into the specific standard of quantification to provide transparent performance information [37]. The decisive feature of the B Corporation business model is to internalize the impact on society and the environment in the transaction and decision-making processes to reduce negative impacts and increase positive environmental and social impacts [28].

In summary, decision-makers of B Corporation who can utilize information system tools well can coordinate sustainable activities better [10]. There is not enough literature at this stage to provide the key success factor of implementing an information system for the B Corporation, in facing the rise of the new business model. Therefore, this study aims to discuss the key success factors (CSFs) of the most widely used ERP system in B-type enterprises and explores the applicability of the key success factors, which provide the reference for B Corporations. B Corporations have become the focus of global attention. However, the development of B Corporations in Taiwan is still in its infancy, which is a process full of uncertainty for all organizations [24], Thus, this study aims to explore the key success factors of ERP implementation for B Corporation in Taiwan by widely reviewing the literature and applying the modified Delphi expert questionnaire to investigate.

Based on the aforementioned research background and motivation, as well as after a literature review, this study proposed the following research question: Do ERP system experts and users consider the CSFs for ERP system implementation to be related to corporate organizational strategies, system users, consultation teams, suppliers, and corporate performance?

In this study, we design a questionnaire using the modified Delphi method (MDM) and summarize and organize the results through literature analysis. The questionnaire was distributed to ERP system experts and empirically measure and discuss the CSFs of B Corporation implementing ERP systems, thereby bridging the research gap in the literature.

The remainder of this paper is organized as follows. Section 2 introduces the CSFs for ERP system implementation and B Corporation, Section 3 presents the research methods and designs, Section 4 describes in detail the process of data analysis and discussion, and Section 5 discusses the results and presents the limitations and recommendations for future studies.

2. Research Background

2.1. Definition of Enterprise Resource Planning (ERP)

ERP systems evolving as information technologies have become more advanced and business demands have continued to diversify. Current ERP application programs can be traced back to the systems of material requirements planning (MRP) and manufacturing resource planning (MRP-II). The concept of ERP was adapted from MRP-II by the Gartner Group in the early 1990s [38,39]. ERP was initially defined for manufacturing companies [39]. Complementary technologies are used to expand the functions of business application programs, including the Internet of Things (IoT) and telecommunication technologies, to meet the requirements of the e-commerce era [40]. At present, ERP encompasses all integrated information systems that can be used in any organization [39,41].

Following almost a decade of development, ERP systems have become the necessary tool and foundation for modern business operations [42]. From a management efficiency perspective, the idea behind ERP is to optimize the use of a business' internal resources, and it emphasizes the integration of cross-system functions, cross-organizational departments, and cross-geographical regions [43]. From a technology perspective, ERP is an online transaction processing system that differs from a traditional data processing system because of its real-time response and integrated applications [43,44]. ERP is primarily used in financial application programs for business financial management, in human resource application programs for managing employee benefit plans, salaries, and other human resources, and in manufacturing applications for inventory control and production management [40]. The key basic idea of ERP is to use information technology to develop the ability to plan and integrate business resources, such as design, production, procurement, sales, finance, and other application procedures and processes of various functions [39]. Software suppliers have introduced various ERP software programs according to user needs. Therefore, the definition of ERP has different interpretations [1]. Considering the research objective of this study, we define ERP according to the characteristics of industries and SMEs in Taiwan. ERP is a highly integrated real-time application software that links the upstream and downstream work processes of a business' departments or industry, to enable administrative organizations to adequately and effectively manage and use all business functions, including finance, human resources, manufacturing, sales, and marketing. To strengthen a business' competitive advantages, its operators must consider the behaviors of their customers, suppliers, and competitors, as well as changes in- and outside the business (e.g., changes in information technologies) when developing business goals and strategies [43]. The implementation of effective ERP information projects can ensure the integration of appropriate and sufficient information and facilitate business operations [43]. Investing in the implementation of ERP systems is inevitable for Taiwanese industries, which are facing the need to compete and succeed in international business [43].

ERP experts consistently believe that IoT profoundly influences the ERP environment and will govern the next generation of ERP applications [40]. How businesses manage their operations and analyze their data is changing in the IoT era. B Corporation is committed to developing a community of B Corporation through these IoT and ERP management models to more closely meet the sustainable operation requirements of B Corporation. Since a majority of top companies have shifted from developing their own information systems to using the ERP systems provided by suppliers and third-party organizations [42,45,46] some SMEs have followed suit. The ERP system referred to in this study is a software package procured from a market supplier [42]. Organizations implementing an ERP software system can obtain stronger competitive advantages than their competitors because ERP facilitates quality improvements and cost reductions [40].

Most research in the evaluation of the benefits of the ERP implementation discusses whether the system can increase the efficiency or the profit of the enterprise [47]. The business can operate sustainably only by continually creating operating profits [48]. Callaway (1999) [49] divides the benefits generated after the ERP implementation into measurable and unmeasurable benefits. The measurable benefits include the reduction of the material and labor costs and the increase of the operating income.

The unmeasurable benefits include the provision of on-time decision information and the automation and transparency of the production site. Tarn et al. (2002) [50] point out that ERP systems can make businesses achieve fast delivery, reduce costs and improve the overall performance. Chang and Wu (2008) [51] introduce the tangible and intangible benefits of ERP implementation. The tangible benefits include the increase in operating income, labor costs, material costs, and inventory reduction. The intangible benefits include the correct and complete information collection, the automation and transparency of production site, the rapid response to customer needs, the improvement of customer satisfaction, and thus the creation of the new business models and thinking.

Previous paper points that after the implementation of ERP, business can achieve the following objectives:

1. data numerical integration, faithful presentation of financial information,
2. data centralized control to avoid numerical falsification,
3. integration of business process such as production, marketing and inventory management,
4. standardization of business operations,
5. real-time mastery of corporate information, analysis of data, and implementation,
6. evaluation of decision-making programs [52].

However, development is a key aspect of any business. Every business has a long-term goal of continuous improvement and profitability. Sustainable profitability for a business means that an organization provides a service or product that is both profitable and environmentally friendly [53].

The above documents can prove that the ERP system can provide decision-making information between the operation and profit of the enterprise in the overall operation process of the enterprise. ERP is also a tool for supporting the enterprise to achieve sustainable development. Thus, the ERP system can bring continuous growth. Optimization is the management system that drives the company's sustainable operation [52]. The introduction of the ERP system can bring greater benefits to the B Corporation based on the sustainable business model and emphasize the requirements of transparency standards.

All in all, the ERP system brings benefits to the business. The domestic B Corporations increase their willingness to adopt the ERP system because of these expected benefits. Which key success factors will affect the adoption of Taiwan B Corporation? The current literature is relatively scarce. Therefore, B Corporation should avoid blind investment in information technology. In the procurement of ERP systems, it is necessary to clearly understand the key success factors to avoid waste in limited resources.

2.2. B Corporation

2.2.1. About B Lab

As the concept of sustainable development becomes more mature, the goal of sustainable enterprises is not only to pursue profit maximization but also take responsibility for environmental protection and social welfare. How to effectively respond to the wave of sustainable development is the most important issue for Taiwanese companies [54]. For example, "Social Enterprise Alliance" points out that the corporate has transformed into a social enterprise for the pursuit of sustainable development and has begun to advocate that enterprises should have corporate social responsibility [55]. The company will set up a corporate social responsibility department [54].

The concept of social enterprise originated in Europe and North America [55,56]. Social enterprises use business models as a means to resolve social problems. There is no consistent definition of social enterprise but social enterprise is usually defined as organizations that address a basic unmet need or solve a social or environmental problem through a market-driven approach [57,58], The main purpose is to achieve its social goals through the spirit and strategy of the company, thereby benefiting the society [57] Social enterprises will strike a balance between the mission of creating social value and achieving financial sustainability [57,59,60]. Because of the different social needs and development

characteristics of different countries, social enterprises are given different orientations and functions, and their related management and counseling systems are different [61]. The diversity of social enterprise organizations raises the concern of unclear positioning [62]. The business model of social enterprises seems to have many benefits for society. However, unfavorable factors may arise, such as higher administrative and legal costs and greater litigation risk because of the high legal uncertainty [63,64]. Thus, they have been legislated in the United Kingdom (UK) and United States (US) and delivered concrete results [65].

For example, non-profit organizations cooperate with for-profit businesses to propel the social enterprise the federal tax law has not yet defined social enterprises. It regulates that the business whose activities meet the purpose of social welfare and are authorized by the competent authorities can enjoy tax discounts [61]. State governments across the US have granted social enterprises various legal statuses and types, among which benefit corporation legislation has received the most attention [62,66].

Benefit corporation legislation can solve the difficulty of how profit or non-profit organizations define themselves as social enterprises and provide more flexibility in making decisions, which promotes social benefits in a commercial way [61]. In Croatia, the government adopted the Strategy for Social Entrepreneurship Development which defines the social enterprise as: "a business activity based on principles of social, environmental and economic sustainability where gained profits are entirely or partly reinvested towards the community well-being" [67,68]. In Romania, Act No. 219/2015 on social enterprise was adopted in July 2015. This strengthens and completes the previous legal framework for social enterprises [67]. In Italy, the introduction of a new bill in 2016 Stability Law makes this country the second country in the world outside the United States to allow companies to register as Benefit Corporations [67] This new legislation describes Benefit Corporations as "companies that aim at the distribution of profits, but, at the same time, pursue one or more common benefit goals in favor of other stakeholders in the business, including people, communities, territories and the environment, cultural heritage, social activities, entities and associations, by working in a responsible, sustainable and transparent manner" [67]. The UK has introduced a new statutory social investment power to clarify the law on the historically unclear area of social investments made by charities and social enterprises. The Bill is a big step forward in social investment, and it may encourage further developments in the social enterprise sector [67].

To register as a Benefit corporation recognized by US law needs to pass the Benefit corporation legislation. For example, Benefit corporation legislation requires Benefit corporation needs to establish in the state passing the Benefit corporation legislation [62,66]. The annual reports of Benefit Corporation do not require third-party verification, certification, or audits, and socially conscious consumers and investors are reasonably concerned about whether private companies engage in greenwashing through such corporations. Therefore, corresponding protection measures must be adopted to address the concerns of consumers and investors [62,63]. Thus, the US benefit corporation legislation regulates that the establishment of a social enterprise must have a clear public welfare purpose and the positive impacts on society. The management should consider stakeholders' interests when making decisions, not just the purpose of maximizing the profit of shareholders. The social enterprises should be audited by the third party every year and submit the public welfare reports to achieve the transparency and to assist the competent authorities to confirm whether social enterprises are in line with public welfare purposes [61]. Now many institutions in the United States provide third-party certification services for public welfare companies. Benefit corporations can choose the appropriate third-party certification institution. The most widely known non-profit organization is B Lab that the well-known basketball brand AND1, founded by Jay Bart, cooperate with Andrew with financial background. B Lab designs an evaluation from aimed at Benefit corporation with full score 200 including the assessment of suppliers, employees, consumers, communities, and the environment [61,69]. This is setting the gold standard of safeguarding against "greenwashing." In an effort to acquire governmental support and increase the credibility of B Corporation certification, B Lab has convinced state governments across the US to enact benefit corporation legislation, as well as encouraged more enterprises to voluntarily

participate in B Corporation certification after applying to become a benefit corporation. Therefore, B Corporation certification has since become a key to social enterprise certification in the US [62,63,70].

Social enterprises remain a topic of interest in the research community. However, Taiwan lags behind its European and American counterparts in the development of social enterprises. Therefore, exploring the business models of social enterprises to address societal problems in Taiwan is a critical issue [56]. The legislation and conception of B Corporation certified by B Lab in the US have attracted the attention of enterprises in Taiwan. Because the global number of B Corporation increases continuously, B Lab has become a fast-growing nonprofit organization [71,72].

The European Commission has previously defined Corporate Social Responsibility (CSR) as "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis" [73,74]. Corporate social responsibility concerns actions by companies over and above their legal obligations towards society and the environment. GREEN PAPER has established corporate social responsibility in European since the year 2001. Through CSR, enterprises can significantly contribute to the European Union's treaty objectives of sustainable development and a highly competitive social market economy. Although most companies have expressed supports and actions to contribute to the advancement of corporate social responsibility from 2006 to 2011, some companies still do not incorporate social and environmental issues into their operations and core strategies. There are still a few European companies accused of harming human rights and not respecting workers. Therefore, the European Commission has a new definition of corporate social responsibility which is the responsibility of enterprises for their impacts on society in 2011.

Respect for applicable legislation, and for collective agreements between social partners, is a prerequisite for meeting that responsibility. To fully meet their corporate social responsibility, enterprises should with the aim of (1) maximizing the creation of shared value for their owners/shareholders and for their other stakeholders and society at large, (2) identifying, preventing and mitigating their possible adverse impacts. Corporate social responsibility is applicable to all enterprises [74]. To ensure fair competition, the European Commission proposed the legislation for the transparency of social and environmental information of all companies in 2013. The European Parliament approves mandatory corporate social responsibility rules. European Parliament adopted provisions requiring companies to disclose information on their environmental, labor, and human rights impacts, in addition to the financial reports they already deliver on 15 April 2014 [75].

Sheehy (2014) [76] suggests that there is no agreement on the definition of CSR. It is very important to define CSR due to the huge amounts of resources invested from both private and public sectors. Sheehy (2014) [76] after a careful review of the complications and complexities of the CSR debate and distinct disciplinary definitions which turns to approach the problem of definition using the philosophy of science. Sheehy (2014) [76] summarizes four different points making the definition of CSR complicated: the first of the four complications come from the business arena. This highly interested group of actors focuses on whether a particular organization's policies and actions and hence the organization itself, can legitimately claim to be socially responsible. However, it is easy to fall into the trap that business claims that it has environmental certification and other social contributions but at the same time generate social costs and other excessive hazards. The second complication comes from the various academic attempts at definition. The academic method usually focuses on describing and classifying organizational characteristics and behaviors, and further, analyzes whether these characteristics and behaviors are manifestations of corporate social responsibility.

The third the significant debate between political philosophies. These political philosophies are about the public-private divide, the role of government, the place of private enterprise or "markets" and political rights. The fourth, most government tries to use CSR to solve social and environmental problems which expecting to search the lower-cost solution other than public supervision. Obviously, the government has its own agenda. The government needs to fulfill the commitment to the voter, obtain its political self-interests, and achieve the policy requirements of the economic power of

the enterprise. Therefore, the government's definition of CSR is easy to be disputable. Sheehy (2014) indicates that the legal, financial and political investments make CSR definition an imperative. Defining CSR as international private business regulation answers that imperative and provides a unifying framework.

B Lab Taiwan points out that corporate social responsibility is the extra effort that companies with spare time put for the environment and society cares [25]. In sum, social Enterprise is a business model that combines social interests to solve social and environmental problems [77]. Corporate social responsibility is the responsibility of enterprises for their impacts on society and is required to disclose non-financial information. The promotion of B Corporation is not the same as that of social enterprises and corporate social responsibility. It focuses on the companies receiving the B Corporation certification from B Lab who combines inner and outer power and has positive impacts on society and the environment [25].

Cheng [55] indicates that the development of social enterprises has been met with considerable skepticism. However, because of the hybrid nature of social enterprises, social enterprises are not easy to posit themselves. To solve the dilemma of government policy operation caused by the unclear positioning of social enterprises. Some countries have promoted the social enterprise certification mechanism. Social enterprise certification makes the intervention of government policy justified and assists to promote the credibility of social enterprises, create the brand value, and then expand the industrial scale of social enterprises [70], hoping to endow social enterprises with greater political supports as well as the social and market recognition. Presently, countries certify social enterprises either through third-party voluntary certification or government-enforced compulsory certification [62].

The countries adopting voluntary certification mechanisms such as Europe, the United Kingdom, Finland, Germany, and Poland give the certification to social enterprise. The UK government policy encourages the Community Interest Companies (CIC) to award the Social Enterprise Mark (SEM) certification. In Finland, the Association for Finnish Work award "The Finnish Social Enterprise Mark" (F-SEM). Non-profit PHINEO GmbH awards Wirkt Stamp in Germany. In Poland, the "Foundation for Social and Economic Initiatives" (FISE) is responsible for issuing Social Economy Enterprise Certificate [78]. Danish Parliament passed the "Voluntary Register of Social Enterprises" in 2014 [62,78]. In Asia, the Hong Kong General Chamber of Social Enterprises launched the First Accreditation System for Hong Kong Social. Social Enterprise Endorsement Mark (SEE MARK) was launched in 2014 by the Hong Kong Social Enterprise Association [62,79]. In China, in 2015, the China Charity Fair (CCF) was certified by the China Charity Fair (CCF) [62,80]. The social enterprise certification system promoted by the Korea Social Enterprise Promotion Agency (KoSEA) in countries with mandatory certification mechanisms, such as Korea's Korea Social Enterprise Promotion Agency (KoSEA) in 2007, emphasizes that non-certified individuals may not use social enterprises [78,81]. In Taiwan, the Executive Yuan approved the "Social Enterprise Action Plan" for the published companies, which officially incorporates social enterprise issues into the institutional agenda of public policy and must prepare corporate social responsibility reports in accordance with government regulations [82].

B Lab audits and certifies all enterprises as consistently as possible in a wide range of typical social and environmental measures. The form of organization arising from this certification process is referred to as a "B Corporation", "B Corp", "Certified B Corp (CBC)" [71]. B Lab is currently building a global community of B Corporation, with the help of thousands of enterprises, investors, and institutions, to promote the transformation of economic and corporate operating models [27].

2.2.2. About B Corporation

B Corporations are international companies certified by B Lab, a nonprofit organization. Andrew Kassoy, Jay Coen Gilbert, and Bart Houlahan established a nonprofit organization called B Lab (Berwyn, PA, USA) in 2006. In 2007, B Lab implements the B Corporation Certification system, which employs B Impact Assessment or Business Impact Assessment (BIA) and random onsite interviews to ensure that B Corporations meet rigorous and comprehensive third-party audit

standards [27,63]. Certification is focused on establishing environmentally friendly indicators and avoiding the pursuit of personal gains in the name of green enterprises [63,70,83]. The term "benefit corporation" tends to confuse consumers [66], it refers to a legal type of corporation, and B Corporation refers to a certification [77]. The terms "benefit corporations" and "B Corps" or "B Corporations" are used interchangeably [27,63,66]. B Corporation is even used in state legislation [63]. However, it should not be confused with Benefit Corporation or Benefit Corp, a legal status administered by the US [27,63,66].

Companies applying for B Corporation certification can use two free tools provided by B Lab: the BIA [34,35] and B Analytics [84,85]. The BIA can be used by companies to measure and manage their impact on workers, communities, and the environment, and provides indicators for baseline testing [84]. Companies are required to take the initiative to submit a certification application to B Lab. A company must first complete the BIA online. The BIA tool allocates scores based on the mode of operation and business model of the applicant [29]. It is applicable to any company, irrespective of industry and size [86]. Version 6 of the BIA was published on 15 January 2019 [87–89]. After questions are screened from the BIA scale according to the information provided by the company (e.g., company size, number of employees, and industry), 130 to 180 items are proposed for a customized quantification assessment. The items are categorized into five dimensions according to the objective framework: Governance, Workers, Community, Environment, and Customers. The Governance dimension comprises Mission and Engagement, and Ethics and Transparency. The Workers dimension comprises Financial Security, Health, Wellness and Safety, Career Development, and Engagement and Satisfaction. The Community dimension comprises Diversity, Equity and Inclusion, Economic Impact, Civic Engagement and Giving, and Supply Chain Management. The Environment dimensions comprise Environmental Management, Air and Climate, Water, and Land and Life. Finally, the Customers dimension comprises Customer Stewardship [87].

After obtaining BIA data, B Lab randomly assigns auditors from around the world to conduct a telephone interview with the applicant company. The company must receive a minimum assessment score of 80 out of 200 to be certified for a 3-year cycle, meet transparency requirements and legal standards, and sign a document declaring their commitment to a shared collective purpose [33,63,70]. To complete the certification process, companies must sign an official agreement that details the following information: the validity period of the certification is 3 years (originally it was 2 years but was changed to 3 years as of 1 July 2018), after which recertification is required [25,90], companies must meet the performance requirements of B Corporation, The accredited company must be a legally registered organization. Each year, B Lab randomly conducts inspections of 10% of the companies for on-site visits to ensure that the certified company continues following the philosophy of the B Corporation, and the annual certification fee is at least US $500 and at most US $50,000 or above, depending on the company's operating revenue [33].

Companies intending to become a B Corporation must amend their articles of incorporation whenever appropriate [28,29,32,36,71,91,92] to reflect the company's commitment to sustainability and societal goals. This suggests that companies must not only comply with the requirements of B Lab but also openly consider people, plants, and profit when setting their core business goals [71]. In other words, companies must consider the interest of shareholders as well as employees, customers, suppliers, the environment, communities, and societal stakeholders [32]. Stakeholders include groups or individuals directly or indirectly influenced by the company's operation and activities [25], indicating that the company's value remains intact in the event of changes in owners or investors [28,93]. B Lab publishes the BIA reports of B Corporation for people to review the scores of B Corporation across the five dimensions. The application procedures for B Corporation certification and certification guidelines for large enterprises and SMEs are provided on the B Lab website for company access [94].

Stubbs [28] indicates that although B Corporation is only a certification system, it is based on the criteria proposed by Schaltegger et al. [95] for a sustainable business model. Stubbs considers B Corporation to be a sustainable business model. It communicates a company's sustainable value

proposition to stakeholders, how it provides value, and how it acquires economic value while creating social and environmental capital (i.e., positive impacts). Hoffman et al. [96] and McMullen and Warnick [97] also consider B Corporation a hybrid business model.

2.2.3. B Corporation in Taiwan

B Lab established a team of editors and reviewers, which is called B the Change. In 2013, Governance Honoree [98] commissioned by B the Change analyzes BIA data and selects five impact dimensions: Governance, Workers, Environment, Community, and Customers. Companies featured in the Best for The World lists scoring in the top 10% of the B Corporation community in all categories are openly commended and included as Honorees in the Best for The World: Overall List, which is the highest honor for B Corporation. B Lab believes that competing with the world's best businesses is the optimal winning strategy that can lead mainstream businesses to join the movement for change [99]. Individual honoree awards are also given for each dimension [100].

There is no B Corporation certification in Taiwan. The government just promotes Taiwan's business to participate the US certification system proactively. Now there is no clear legal changes schedule [101]. This study uses Taiwan B Corporation as a case study. However, to solve the existing social problems, to take into account the development of the industry and to integrate with international enterprises, Taiwan government held the first Asian City Enterprise Challenge for B Corporation in 2017 [102]. The activity creates international cooperation opportunities. The Economic Development Bureau of Taichung City Government implement the "Taichung City Social Innovation Industry Development Plan" [103] to assist local business to conquer the restrictions and to coach companies to complete B Corporation certification, allowing companies to create profit and creating meaningful social influence, thereby enhancing their competitive advantages and attracting international investors. The concept of B Corporation certification in Taiwan still needs lots of promotions. At present the Taiwan government is committed to taking advantage of the international trend and promotes business to establish management and data process systems to enhance competitiveness.

In Taiwan, 14 enterprises successfully applied for B Corporation certification in 2014, making Taiwan the most active Asian country in terms of applying for this certification. Through their concerted efforts, enterprises in Taiwan received official authorization and established B Lab Taiwan in 2016. The first Chairman of B Lab Taiwan was David Chang, the President of China Credit Information Service, Ltd. [104]. B Lab Taiwan became the world's seventh and Asia's first B Lab [105]. According to the magazine *Global Views* [106], B Corporation in Taiwan has grown at a significantly fast pace in recent years [106]. In 2017, there were 63 B Corporation across 17 Asian countries, 20 of which were located in Taiwan (>30%), the highest proportion in Asia. In addition, of the 2240 companies worldwide that were rated for the Best for The World Honoree List in 2017, five B Corporations were from Taiwan. At the end of 2017, Taiwan-based O-Bank was the first public bank in the world and in Taiwan to be certified as a B Corporation. O-Bank even took action to support the development of B Corporation in Taiwan through providing special banking offers (e.g., savings and salary transfers) to certified companies and employees in Taiwan's B Corporation community [107]. As of 2018, eight companies were included in the Honoree List and received awards, and Taiwan again registered the highest number of B Corporation award winners in Asia [108]. The recognition that these awards represent demonstrates that the number of certifying B Corporation in Taiwan is growing rapidly, and they are having a stronger effect on the world. When enterprises pursue improvement, those of any caliber must properly use system tools to manage their business and employees. In Taiwan, B Corporations that have attracted global attention are still in the nascent stage. For all organizations, the process of development is long and filled with uncertainties [24]. At this point, by investing in effective information systems and using tools to manage businesses and employees, enterprises can more quickly identify, measure, and evaluate business problems, enabling them to become just as competitive as other respectable B Corporation. Under this context, this study was motivated to use B Corporation in Taiwan to explore the CSFs of B Corporation implementing ERP information systems, which are

most extensively used in the corporate community. Extant literature lacks discussions and research on this issue. Thus, the results of this study can provide other B Corporation or certifying B Corporation in Taiwan with a reference for implementing information systems.

2.2.4. B Corporation Imports ERP System Critical Success Factors (CSFs)

ERP is a complex software package containing numerous modules, which necessitate business operators making careful plans and wise decisions when implementing different modules according to individual requirements. Therefore, key topics that companies must address when implementing ERP systems are how to help personnel in the areas of accounting, finance, and information technology to select an appropriate ERP system for their business [109], as well as successfully, systematically, and procedurally implement the system for effective ERP project management [110]. CSFs represent a mechanism for identifying the information needs of the managers of organizations. Research on the CSFs for successful ERP implementation is fragmented [110], and informative materials are still required to elucidate the CSFs for ERP implementation by B Corporation in Taiwan, which is still in the nascent stage. Therefore, this paper presents a study that examines and measures the CSFs for ERP implementation by B Corporation, a new form of business model, to provide other B Corporation or certify B Corporation in Taiwan with a reference for implementing ERP systems. Companies with a stronger understanding of CSFs for system implementation are less likely to experience implementation failures [109].

This study compiles a simple and concise list of historical literature, using a literature analysis method to organize a collection of relevant literature and summarize the CSFs that companies should pay attention to when implementing ERP systems. The research searches EBSCO host, Web Science, Science Direct, Scopus, Airiti Library, HyRead Taiwan full-text database, National Central Library PerioPath Index Taiwan Periodical Literature System, Nation Digital Library of Theses and Dissertations in Taiwan, and Google Scholar by using keywords "sustainability, B Corporations, enterprise resource planning, critical success factors, ERP CSFs". After screening, the study collects 29 articles from the year 1997 to 2013 totally.

Hsieh [43] highlights the same CSFs for ERP implementation as other studies including high-level managers' support, an optimal executive project team, training, coordination and communication, accurate information, and processes re-engineering [43]. Somers and Nelson [19] identify CSFs including the support and commitment of senior management, the redesign of business processes to fit the software, investments in user trainings, avoidance of the customization, uses of business analysts and consultants with both business and technology knowledge, the integration of ERP systems with other businesses, and the ability to build key in-house IT capabilities [19,111,112]. In addition, Somers and Nelson describe other key factors from nonacademic literature, including careful software and vendor selection, standardization, transition planning, and data conversion, upfront business changes, and ongoing vendor supports [19].

The study summarizes 28 articles and induces 72 critical success factors when a business implements the ERP system [113–117]. The paper categorizes 72 critical success factors into four dimensions A. Business organization strategy B. System users C. Consultant team C. Software supplier and makes coding of these factors, listed in Appendix A Table A1.

The reference of the questionnaire in this research is based on Table A1 of Appendix A. First, we calculate the individual numbers of key success factors showed in previous paper summarized in Table A1, and list factors in order. The first top five key success factors are chosen as the questionnaire items. Because some key success factors are discussed quite often, the key success factors shown more than 3 papers in the second screening are selected as questionnaire items. After completing the screening step, the aforementioned discussion is summarized and tabulated into Table 1 (CSFs for ERP implementation). Given this prerequisite, the MDM is used to design our questionnaire. B Corporations in Taiwan are examined to explore the CSFs for the implementation of ERP systems. However, the CSFs may be temporal. Their relative importance changes with the stage of the project life

cycle [19,118]. Therefore, ERP systems and technologies are imperative information tools for acquiring core business data to ensure corporate sustainable development and operation.

Table 1. Key success factors (CSFs) for enterprise resource planning (ERP) implementation.

Dimension	Code	CSFs	No. of Papers	Rank
Business Organization Strategies	A1	Top management support	20	1
	A2	Business process reengineering	15	2
	A5	Change in management/Management of effective organizational changes	5	7
	A7	Cultural and structural changes/Readiness/Organizational culture	3	9
	A8	Standardization of business processes to the extent possible to fit the ERP system	3	9
	A13	Optimal Project Team	13	4
	A14	Project champion/sponsor	4	8
	A16	Project management and evaluation/Project management capabilities	15	2
	A17	Time frame/Schedule	5	7
	A20	Implementation strategy	14	3
	A22	Software migration	3	9
	A23	Integration of other management information/legacy systems within the organization	10	5
	A25	Defining architecture choices	3	9
	A30	Business plan and vision/Management of expectations	7	6
System Users	B1	Interdepartmental communication	16	2
	B2	Enterprise-wide communication/Strong communication inward and outward/Communication plan	3	4
	B5	Training and education/Training employees/User training and education/Job redesign	17	1
	B6	Familiarity with professional competence and processes in the field of work	2	5
	B7	User involvement	5	3
	B10	The role of seed personnel/The role of the project sponsor	2	5
	B17	Entering accurate information/Data accuracy	3	4
	B18	Data analysis and conversion/System analysis	3	4
Counseling Team	C1	Appropriate use of consultants	2	2
	C2	Professional competence of the consultant team	4	1
	C3	The consultant team must possess strong coordination and communication skills	1	3
	C4	Consultant team understands business needs and goals	1	3
	C5	Advisory team personnel's stability	1	3
	C6	Consultant team's project time control ability	1	3
	C7	Service quality provided by the consultant	1	3
	C8	Dedication of the consultants	1	3
	C9	The consultant team having had a successful introduction experience in similar industries	1	3
Software Vendor	D3	Vendor system quality	3	4
	D5	Support of vendor	5	3
	D6	System software vendor's professional competence	2	5
	D9	Differences in ERP versions/Appropriate system version	2	5
	D12	Appropriate configuration of the software/Careful selection of appropriate package	11	1
	D13	Degree of customization/Minimum customization/Avoiding customizations	9	2

3. Research Methods for B Crop

3.1. Research Framework

This study uses Gowin's Vee model to establish the research process [119,120] in Table 2. By reviewing the literature, this research constructs the framework of measuring key success factors of the ERP system and performs the modified Delphi Method (MDM) expert questionnaire as an empirical test. This study does not conduct interview verification.

Table 2. Research framework.

	Research motivation and objectives
Concept	Literature related to B Corporation, CSR, and CSFs for ERP implementation
	Using CSFs for ERP implementation to construct a framework of CSFs for ERP implementation in B Corporation
	Using the first round of the expert MDM-based questionnaire to measure the items of CSFs of B Corporation implementing ERP as well as to revise the framework.
Methodology	Using the second round of the expert MDM-based questionnaire to measure the items of CSFs of B Corporation implementing ERP as well as to revise the framework.
	Analysis and discussion
	Conclusion and recommendations

The typical Delphi method is a research approach where the results of expert group decisions are discussed repeatedly in writing through multiple rounds of questionnaires until experts reach a consensus regarding a complex topic [121–123]. By contrast, the MDM used in this study is less time-consuming, it involves a type of questionnaire compiled from a considerable amount of literature and replaces the Delphi method, which requires expert opinions to be collated first before a survey questionnaire can be designed. In the MDM process, experts can quickly grasp the crux of a problem, thereby not only saving much time but also enabling experts to concentrate on the research question at hand [124].

We invite industry experts and academic representatives in ERP systems to participate in this study. Academic representatives are mainly academics from universities and colleges who provide lectures or research related to this research and serve as associate professors or chief financial officers in academic units. The consultants of the industry representatives are managers or the information engineer. The average service years in the field of ERP are all more than 10 years. Table 3 lists the MDM experts' background information.

Table 3. Modified Delphi method (MDM) experts' background information.

Identity	Code	Service Unit/University/Department	Job Title	Average Years of Work Experience and Use of ERP Systems
Scholar	1.	Education/Accounting Department	Associate Professor	10 years
	2.	Education/International Business Department	Associate Professor and Chief Financial Officer	10 years
Consultant	3.	Accounting firm/Risk consulting service	Assistant Manager	12.5 years
	4.	Computer Software	Manager	14 years
	5.	Computer Software/Development Department	Assistant Manager	18.5 years
Industry Personnel	6.	Trust Investment/Fund Accounting Department	Assistance Vice President	14 years
	7.	Banking/Accounting Department	Manager	27 years
	8.	Plastic Manufacturing/Administration Department	Factory Manager	11.5 years
	9.	IC Design/IT Department	Information Engineer	18.25 years

3.2. MDM Research Design

This study adopts the MDM, the process of which is as follows: (1) establish an expert panel, (2) design an expert questionnaire, (3) distribute the questionnaire to the expert panel and retrieve the completed questionnaires, (4) analyze the questionnaires and make inferences, (5) if a consensus is not achieved, repeat Step (3) until it is to obtain a complete list of need items, and (6) produce a concluding report. The results can help to establish the CSFs of B Corporation implementing ERP systems and provide other B Corporation or potential applicants for B Corporation certification with a reference for implementing information systems.

After the questionnaires are retrieved, the factors are screened and selected to extract the CSFs of B Corporation implementing ERP systems. In this study, we attempt to ensure and increase the content validity of each dimension and item by administering expert questionnaires to obtain the opinions of academic and industry experts. The content validity ratio (CVR) proposed by Lawshe [125] is used to evaluate an item's expert content validity (i.e., level of suitability). The "union" approach, combined with the quartile deviation and standard deviation values proposed by Holden and Wedman [126], is used to test the consistency of each item. In addition, a 5-point Likert scale is used as an indicator of individual expert opinions to indicate an item's degree of importance as perceived by individual experts. The primary purpose of the questionnaire is to determine whether the CSFs are allocated to the correct dimension as well as to propose a set of guidelines for revising the framework. Therefore, the questionnaire contained structured questions and blank space, where experts could fully express their opinions and explain why an item was unsuitable. The testing methods are described below:

1. Expert content validity of an item based on CVR

CVR is the ratio of the number of panelists who perceive an item as "suitable" or "unsuitable" for the expected value. Calculated CVR ranges between −1.0 and 1.0. The higher the CVR, the higher

an item's level of suitability as perceived by the panelists participating in the expert questionnaire. Lawshe's [125] formula for CVR is as follows:

$$CVR = \frac{n_e / (N/2)}{N/2} \tag{1}$$

n_e: The number of panelists indicating "suitable" and "unsuitable"
N: The total number of panelists

The criteria for CVR, as proposed by Lawshe [125], are listed in Table 4:

Table 4. Number of panelists and minimum content validity ratio (CVR) requirements.

No. of Panelists No. of Panelists	Minimum CVR Values MinValue
5	0.99
8	0.75
9	0.78
10	0.62
14	0.51
15	0.49
35	0.31
40	0.29

Minimum Values of CVR and CVRt One Tailed Test, *p* = 0.05.

In this study, a total of nine panelists complete the questionnaire. Lawshe [125] indicates that the CVR must be 0.78 or higher to satisfy the content validity requirement.

2. Using the union test standard, quartile deviation, and standard deviation to evaluate the consistency in opinions regarding an item

According to Holden and Wedman [126], experts' opinions regarding an item are highly consistent, moderately consistent, and not consistent when the quartile deviation is ≤0.6, 0.6–1, and >1, respectively. The calculation formula for quartile deviation (Q) is as follows:

$$Q = \frac{Q_3 - Q_1}{2} \tag{2}$$

Q_1: (First) quartile
Q_3: (Second) quartile

The degree of consistency in this study is based on the quartile deviation, the criteria of which are shown in Figure 1 (quartile deviation consistency criteria).
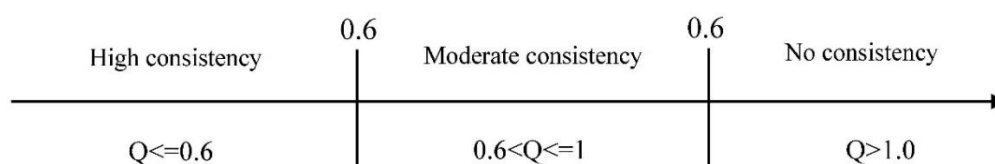
Figure 1. Quartile deviation consistency criteria.

The degree of consistency can also be measured using the standard deviation. Experts' opinions on an item are not consistent when the standard deviation is >1. In other words, the experts do not reach a consensus about an item. The calculation formula for standard deviation is as follows:

$$\sigma = \sqrt{\frac{1}{N}\left(\sum_{i=1}^{N} x_i^2\right) - \bar{x}^2} \tag{3}$$

N: Total number of experts
X: Score indicated by the expert on the 5-point Likert scale
$\bar{x}$: Mean value

3. Using the mean value to assess the level of importance of an item

The expert-perceived level of importance is indicated on a 5-point Likert scale, where 5 = extremely important, 4 = important, 3 = neutral, 2 = low importance, and 1 = not at all important. The higher the score, the higher the level of importance, and vice versa. In other words, items with a higher mean score would be perceived as important by all experts. The calculation formula for the mean value $\bar{x}$ is presented below:

$$\bar{x} = \frac{1}{N}\sum_{i=1}^{N} x_i \tag{4}$$

4. Discussion

The sets of literature data on the CSFs for business implementation of ERP systems (see Table A1 in Appendix A) collected for this study highlights a critical piece of information—Ram et al. [127] identify factors that are differed from the literature in general. These factors include improved timeliness of after-sales services, establishment of strong and continuous relationships with customers, and the acquisition of precise knowledge concerning customer purchasing patterns [127]. By contrast, general literature proposed including ERP project assessment measures at the start of the system implementation to address concerns such as on-time deliveries, customer order-to-ship time, inventory turns, and vendor performances [128]. This information suggests that business operators have begun paying attention to not only typical CSFs but also data evaluations on their relationship with consumers and customers. In this study, we find that these impacts and relationships prompt business operators to notice whether the use of ERP systems affects their CSR management decision performance and product quality control data increases the reliability of internal control, and enhances positive brand image and sustainable operation of enterprises. Based on the aforementioned discussions, ERP systems can help enterprises to collect compute data that benefit the critical stakeholders of B Corporation, providing them with an effective tool for completing the BIA for B Corporation certification. For this reason, we include the traditional key success dimensions for pthe ost-implementation of ERP systems and add another dimension—enterprise performance—yielding a total of 82 CSFs for ERP implementation, which are subsequently coded. The purpose of this addition is to align the questionnaire content design with the core value of B Corporation. After screening, we obtain 47 CSFs of B Corporation implementing ERP. Table 5 details the framework of the questionnaire content design.

Table 5. CSFs of B Corporation implementing ERP.

Dimensions	Code	CSFs	No. of Paper	Rank
Business Organization Strategies (14 items)	A1	Top management support	20	1
	A2	Business process reengineering	15	2
	A5	Change in management/Management of effective organizational changes	5	7
	A7	Cultural and structural changes/Readiness/Organizational culture	3	9
	A8	Standardization of business processes to the extent possible to fit the ERP system	3	9
	A13	Optimal Project Team	13	4
	A14	Project champion/sponsor	4	8
	A16	Project management and evaluation/Project management capabilities	15	2
	A17	Time frame/Schedule	5	7
	A20	Implementation strategy	14	3
	A22	Software migration	3	9
	A23	Integration of other management information/legacy systems within the organization	10	5
	A25	Defining the architecture choices	3	9
	A30	Business plan and vision/Expectation management	7	6
System Users (8 items)	B1	Interdepartmental communication	16	2
	B2	Enterprise-wide communication/Strong communication inward and outward/Communication plan	3	4
	B5	Training and education/Training employees/User training and education/Job redesign	17	1
	B6	Familiarity with professional competence and processes in the field of work	2	5
	B7	User involvement	5	3
	B10	The role of seed personnel/The role of the project sponsor	2	5
	B17	Entering accurate information/Data accuracy	3	4
	B18	Data analysis and conversion/System analysis	3	4
Counseling Team (9 items)	C1	Appropriate use of consultants	2	2
	C2	Professional competence of the consultant team	4	1
	C3	The consultant team must have good coordination and communication skills	1	3
	C4	The consultant team understands business needs and goals	1	3
	C5	Advisory team personnel's stability	1	3
	C6	Consultant team's project time control ability	1	3
	C7	Service quality provided by the consultant	1	3
	C8	Dedication of the consultants	1	3
	C9	The consultant team having had a successful introduction experience in similar industries	1	3
Software Vendor (6 items)	D3	Vendor system quality	3	4
	D5	Support of the vendor	5	3
	D6	System software vendor's professional competence	2	5
	D9	Differences in ERP versions/Appropriate system version	2	5
	D12	Appropriate configuration of the software/Careful selection of the appropriate package	11	1
	D13	Degree of customization/Minimum customization/ Avoiding customizations	9	2
Enterprise Performance (10 items)	E1	Building performance evaluation criteria	6	1
	E2	Improved product delivery cycle time	1	2
	E3	Improved timeliness of after-sales service	1	2
	E4	Improved productivity (e.g., assets, operating costs, and labor costs)	1	2
	E5	Increased sales of existing products	1	2
	E6	Finding new revenue streams (e.g., new products and markets)	1	2
	E7	Establishing strong and continuous relationships with customers	1	2
	E8	Acquiring precise knowledge of customer purchasing patterns	1	2
	E9	Being able to influence CSR management decision performance and product quality control data	1	2
	E10	Increasing the reliability of internal control, enhancing the positive brand image and sustainable operation of enterprises	-	-

The MDM is used to evaluate the framework of the CSFs of B Corporation implementing ERP, which are obtained from the literature review and the newly added dimensions, as well as to determine whether the framework is reasonable. Two rounds of expert questionnaire surveys are performed until an expert consensus is obtained. In the MDM, the expert selection was based on work experiences

related to involvement in, research and development, and use of ERP systems. The MDM expert panel in this study is composed of nine experts. In the first round, the experts are asked to determine whether the questionnaire items are correctly categorized and suitable as CSFs of B Corporation implementing ERP. In the second round, we examine the opinions from the first round to establish an expert consensus and then confirm the framework of the CSFs of B Corporation implementing ERP. This study obtains the framework items for revising the CSFs to strengthen our contribution to practices in the future. The following section describes how the research framework is developed and MDM evaluation is performed.

We invite industry and academic representatives with expertise in ERP systems to participate in this study. The academic representatives are mainly scholars from universities and colleges who provide lectures or conduct research related to this study's focus. The industry representatives were primarily consultants and personnel involved in the domain of ERP systems. The expert questionnaire is designed in Microsoft Office Word and distributes via email, and the completed questionnaires are also collected via email. Table 3 summarizes the background information of the nine experts.

The first round of the questionnaire was administered on 5 July 2019, and all questionnaires were retrieved by the end of 13 July 2019. The purpose of the MDM-based expert questionnaire is to determine the degree of fit between the five main dimensions of the CSFs of B Corporation implementing ERP systems as well as the level of importance of each factor item. The experts apply their experiences and expertise to verify whether an item is suitable as a CSF for implementing ERP systems in B Corporation. Therefore, the scale of measurement is either "suitable" or "unsuitable." Subsequently, the experts verified whether the categorization of an item into a dimension was suitable. For a more accurate categorization, a blank space is provided on the questionnaire for experts to write any opinions regarding revisions, recategorizations, and reasons why the item or categorization was unsuitable.

The first round of the MDM questionnaire comprised three parts. The first examined expert content validity, according to the "suitability" responses in the first round, nine of the 47 items do not exceed the 0.78 Threshold: A2 (business process reengineering), A7 (cultural and structural changes/readiness/organizational culture), A13 (project team), A22 (software migration), A25 (defining the architecture choices), C8 (dedication of the consultants), D13 (degree of customization/minimum customization/avoiding customizations), E5 (increased sales of existing products), and E6 (finding new revenue streams [e.g., new products and markets]). In other words, the experts strongly agreed that the CSFs are suitably categorized into the respective dimensions.

The second part examines whether an item is suitable as a CSF for implementing ERP systems in B Corporation (Table A2 in Appendix B). The results showed that all 37 items satisfied the quartile deviation (<0.6) or standard deviation (<1) criteria, suggesting high consistency. Five items have a quartile deviation > 0.6 or standard deviation < 1, indicating moderate consistency, these items are as follows: A13 (project team), A22 (software migration), D13 (degree of customization/minimum customization/avoiding customizations), E4 (improved productivity (e.g., assets, operating costs, and labor costs)), and E9 (being able to influence CSR management decision performance and product quality control data). Five items have the standard deviation > 1, which ware A25 (defining the architecture choices), B18 (data analysis and conversion/system analysis), C8 (dedication of the consultants), E6 (finding new revenue streams [e.g., new products and markets]), and E7 (establishing strong and continuous relationships with customers). These results ware proposed for discussion in the second round of the questionnaire.

The third part required experts to express their opinions in the blank space provided and explain why items/categories were unsuitable (see Table 6 below). These results are also proposed for discussion in the second round of the questionnaire, which involves double-confirming the opinions, suggestions, and results provided by the experts in the first round. Hence, the second round of the expert questionnaire comprised five parts: items to be eliminated, items to be recategorized, items to be confirmed, items to be combined with the concept and confirmed again, and item names to be revised.

Table 6. Summary of the experts' opinions.

Item No.	Suitability Based on CVR Value	Expert No. and Opinion	Quartile Deviation	Standard Deviation
A2	Unsuitable	8. Strengthen basic product information and recording of incoming and outgoing products. 9. Process could be optimized further, not reengineered completely.	Highly Consistent	Consistent
A7	Unsuitable	1. Cultural change and structural change should be separated.	Highly Consistent	Consistent
A13	Unsuitable	8. Leader's determination. 9. Individual personnel are unique. Human resources must be utilized effectively.	Moderately Consistent	Consistent
A22	Unsuitable	3. The feasibility of data transfer should be assessed carefully because time wasting and failure are possible. 9. New and old system frameworks differ. Data could be recompiled.	Moderately Consistent	Consistent
A25	Unsuitable	2. "Defining architecture choice" is confusing. This item could be clarified further or removed completely.	Moderately Consistent	Not Consistent
B18	Suitable	None	Highly Consistent	Not Consistent
C8	Unsuitable	1. Consultants should focus on service quality, not dedication. 2. "Dedication of the consultants" is confusing and difficult to understand.	Highly Consistent	Not Consistent
D13	Unsuitable	1. This item has three options. I recommend changing it to "providing customized services for businesses." 9. Every business has different needs and different levels of customization.	Moderately Consistent	Consistent
E5	Unsuitable	1. ERP aims to improve operation efficiency, not product sales. 3. [ERP] does not necessarily increase product sales. 6. [ERP] is more relevant to product promotion. 9. Product sales are associated with market supply and demand.	Highly Consistent	Consistent
E6	Unsuitable	1. ERP aims to improve operation efficiency. Seeking new products and new markets is not its main function. 6. [ERP] is more relevant to product promotion.	Moderately Consistent	Not Consistent
E7	Suitable	7. "Establishing strong and continuous relationships with customers" is not directly related to ERP implementation.	Highly Consistent	Not Consistent
E10	Suitable	1. I recommend changing the item to "increase the reliability of internal control to enhance positive brand image and the sustainable operation of enterprises."	Highly Consistent	Consistent

1. Items to be eliminated: Items that failed the content validity test and items that required experts to confirm whether they were suitable to be part of the mechanism of this study.
2. Items to be recategorized: Items that failed to meet the quartile deviation and standard deviation criteria, and items that required detailed descriptions of CSFs and recategorization into another dimension according to the experts' opinions.
3. Items to be confirmed: Items that failed to meet the quartile deviation and standard deviation criteria, and items that required detailed descriptions of CSFs and recategorization into another dimension according to the experts' opinions.
4. Items to be combined with the concept and confirmed again: Items that failed to meet the quartile deviation and standard deviation criteria, and items to be combined with similar CSFs and confirmed again according to the experts' opinions.
5. Item names to be revised: Items that passed the expert content validity test, and items that required their names to be changed and reconfirmed according to experts' opinions.

Nine questionnaires are distributed and recovered in the second round, yielding a response rate of 100%. In the first round, items A2 (business process reengineering), A7 (cultural and structural changes/readiness/organizational culture), A13 (project team), A22 (software migration), D13 (degree of customization/minimum customization/avoiding customizations), and E5 (increased sales of existing products) do not pass the content validity test. In the second round, the experts indicate that these six items are deemed unsuitable as CSFs of B Corporation implementing ERP systems. Therefore, we adopt the experts' opinions and remove these CSFs.

The results of the second round of the questionnaire indicate the items to be confirmed again are A25 (defining the architecture choices), C8 (dedication of the consultants), and E6 (finding new revenue streams [e.g., new products and markets]), which are revised as suggested. After the revisions, the items have CVRs > 0.78, satisfying the minimum requirement, and their standard deviation is <1, implying consistent opinions. The other two items to be confirmed again, B18 (data analysis and conversion/system analysis) and E7 (establishing strong and continuous relationships with customers), are also revised as advised, and their standard deviations are <1 after revision, indicating consistent opinions. The phrase in Item E10 (increase the reliability of internal control, enhance the positive brand image and the sustainable operation of enterprises) is revised as suggested. After the revision, the item has a CVR > 0.78, and its quartile and standard deviations indicate consistent opinions. Table 7 summarizes the changes made as suggested and the actions we took after the second round of the questionnaire.

Table 7. Expert opinions and actions.

Item No.	1st Round Questionnaire Results				2nd Round Questionnaire Results				This Study's Response
	CVR Value	Expert No. and Opinion	Quartile Deviation	Standard Deviation	Changes Made as Suggested	CVR Value	Quartile Deviation	Standard Deviation	
A2	Unsuitable	8. Strengthen basic product information and recording of incoming and outgoing products. 9. Process could be optimized further, not reengineered completely.	Highly Consistent	Consistent		Unsuitable			Eliminated
A7	Unsuitable	1. Cultural change and structural change should be separated.	Highly Consistent	Consistent		Unsuitable			Eliminated
A13	Unsuitable	8. Leader's determination. 9. Individual personnel are unique. Human resources must be utilized effectively.	Moderately Consistent	Consistent		Unsuitable			Eliminated
A22	Unsuitable	3. The feasibility of data transfer should be assessed carefully because time-wasting and failure are possible. 9. New and old system frameworks differ. Data could be recompiled.	Moderately Consistent	Consistent		Unsuitable			Eliminated
A25	Unsuitable	2. "Defining architecture choice" is confusing. This item could be clarified further or removed completely.	Moderately Consistent	Not Consistent	Clearly defining the main operating process for a framework selection system	Suitable	Highly Consistent	Consistent	Adopted
B18	Suitable	None	Highly Consistent	Not Consistent	Data migration and analysis are the outcomes of corporate computerization. Users should learn to maintain the system	Suitable	Highly Consistent	Consistent	Adopted
C8	Unsuitable	1. Consultants should focus on service quality, not dedication. 2. "Dedication of the consultants" is confusing and difficult to understand.	Highly Consistent	Not Consistent	Consultants' service quality	Suitable	Highly Consistent	Consistent	Adopted

Table 7. *Cont.*

Item No.	1st Round Questionnaire Results				2nd Round Questionnaire Results				This Study's Response
	CVR Value	Expert No. and Opinion	Quartile Deviation	Standard Deviation	Changes Made as Suggested	CVR Value	Quartile Deviation	Standard Deviation	
D13	Unsuitable	1. This item has three options. I recommend changing it to "providing customized services for businesses." 9. Every business has different needs and different levels of customization.	Moderately Consistent	Consistent		Unsuitable			Eliminated
E5	Unsuitable	1. ERP aims to improve operation efficiency, not product sales. 3. [ERP] does not necessarily increase product sales. 6. [ERP] is more relevant to product promotion. 9. Product sales are associated with market supply and demand.	Highly Consistent	Consistent		Unsuitable			Eliminated
E6	Unsuitable	1. ERP aims to improve operation efficiency. Seeking new products and new markets is not its main function. 6. [ERP] is more relevant to product promotion.	Moderately Consistent	Not Con sistent	Increasing internal operating efficiency and product promotion	Suitable	Highly Consistent	Consistent	Adopted
E7	Suitable	7. "Establishing strong and continuous relationships with customers" is not directly related to ERP implementation.	Highly Consistent	Not Con sistent	Establishing a customer relationship management module to track progress in the collection of customer needs data	Suitable	Highly Consistent	Consistent	Adopted
E10	Suitable	1. I recommend changing the item to "increase the reliability of internal control to enhance positive brand image and the sustainable operation of enterprises."	Highly Consistent	Consistent	Increasing the reliability of internal control to enhance positive brand image and the sustainable operation of enterprises	Suitable	Moderately Consistent	Consistent	Adopted

After the framework of CSFs is revised following the two rounds of the MDM questionnaire, the results show that 38 CSFs pass the content validity test in the first round, 42 factors achieve expert consensus, nine factors have to be eliminated because they fail the content validity test in the first round, five factors have to be confirmed again, and one factor requires its name to be changed. After the second round that MDM questionnaires are retrieved, six CSFs are eliminated, and the items from the first round are combined with the initial 38 items in the second round to produce 41 items in total. Through the two rounds of the MDM questionnaire, we obtain the CSFs of B Corporation implementing ERP systems that achieve expert consensus. Overall, the framework of this study comprises five major dimensions and 41 CSFs.

This study finds that in the five major areas, the key success factors eliminated through expert results, such as the Business Organization Strategies, indicate that when the B Corporation adopts the ERP system, it does not necessarily need to significantly change the culture, structure and transformation process within the organization or have the best project team to import ERP system. As long as the B Corporation promotes the adoption of ERP system, in addition to obtaining high-level supervisor support, clearly defines the operation process, improves the standardization of the operating procedures and further constructs product data, companies still can successfully implement the ERP system. In the System Users facet, it shows the importance of communication and education training to users. Effective communication and education training can help reduce user resistance and make it easier to accept new systems. In the Counseling Team facet, the "C8 Dedication of the consultants" is revised as the "C8 Consultants' service quality" in the second round. The expert results unanimously agree with the nine critical key factors. It supports that capability of the Counseling Team is important in the implementing process.

The customization of the ERP system is not an important factor in the process of importing the system for B Corporation. Finally, in the Enterprise Performance facet, B Corporation that needs to pass the BIA evaluation and certification. The results of the expert questionnaire show that ERP system is reliable. The application of the ERP system is used to improve the reliability of internal control which assists the enterprise to effectively control the product quality and enhances the corporate brand image and the sustainable value of the enterprise. The expert results show that the key success factors of high consistency and multi-expression are mostly concentrated in "System Users" and "Counseling Team". Therefore, B Corporation can put more resources in these two facets to get better performance. In the process of importing ERP system, if the key factors can be imported in each stage, the system will be imported more smoothly. At present, there are only a few studies on the key success factor of adopting ERP system in the new B Corporation, especially for the study of factors in the Enterprise Performance structure. We believe that the model constructed in this research after the experts' questionnaire can bring benefits to the B type enterprise system users when implementing ERP system.

5. Conclusions

B Corporations use the power of business to solve societal and environmental problems and build a more inclusive and sustainable economy. B Corporation opens sustainable business opportunities, paving the way for creating sustainable corporate operations through a sustainable business model. In recent years, B Corporations in Taiwan have grown at an impressive speed. Given the market mechanism, businesses must advance toward the internationalization. Sustainable operations rely on a continuous, effective management model that implements technologies and information system applications to optimize business operating efficiency, thereby prompting businesses to continuously improve and maintain pace with contemporary trends. Information systems have advanced from technological applications into the competitive advantage of a business [129]. However, the literature review reveals a dearth of research on the CSFs of B Corporations, which own several small enterprises, after the implementation of information systems. Through this research, we hope to provide a reference for other B Corporation decision-makers and administrators when they implement ERP systems. Through conducting a literature review, this study establishes a framework of CSFs of B Corporation

implementing ERP systems. Using the MDM questionnaire, we collect experts' practical perspectives to bridge the theoretical research gap. Subsequently, this identifies revised CSFs, yielding 41 CSFs across five major dimensions.

B Corporations emphasize the importance of future sustainable operation models. Our expert questionnaire results reveal that the experts achieved a consensus on the item E10 (increase the reliability of internal control to enhance the positive brand image and sustainable operation of enterprises). In other words, the factor that contributes to the success of B Corporation after they implement ERP systems is that these systems can increase the reliability of internal control, enhancing enterprises' brand image and increasing the value of their sustainable operations. Therefore, B Corporations implementing ERP systems can facilitate corporate sustainable development.

Unlike studies on the CSFs of ordinary companies implementing ERP systems, the present study proposes a framework of key factors that contribute to the success of the novel B Corporation business model after ERP systems are implemented. The findings of this study can guide B Corporation organizations to pay attention to the selection and management of ERP systems, and provide the following insights:

1. Practical implication

   This study provides helpful information regarding the selection standards for B Corporation that are planning to use ERP systems in the future.

2. Originality/Value

   This study contributes new CSFs to existing ones for the implementation of ERP systems. In a fast-growing society where technologies are developed vigorously, CSFs must also be updated to maintain pace with the times. The key factors proposed in several studies are no longer applicable to contemporary society. By introducing new CSFs and soliciting opinions through expert questionnaires, we contribute to the literature by updating the existing CSFs. To satisfy the requirements of B Corporation, this study introduces a new CSF associated with enterprise performance: an ERP system increases the reliability of internal control to enhance enterprises' positive brand image and sustainable operations. The experts in this study reach a consensus that this factor is a suitable CSF for the implementation of ERP systems. In addition, this new CSF inspires future researchers to rethink innovative analysis methods.

In addition to exploring the possibility of establishing a new CSF framework, we acquire knowledge from the participated experts. This study has the following limitations. First, the results of this study only represent the perspective of B Corporation in Taiwan. Thus, different business contexts, cultural backgrounds, and environmental settings may generate different results in future studies. Second, considering future uncertainties in the business environment, this study is unable to encompass all CSFs pertaining to ERP systems.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. CSFs for ERP implementation Critical success factor.

No.	Dimension	Factor	1 Vasilash (1997) [18]	2 Bancroft et al. (1998) [130]	3 Ptak & Schragenheim (1999) [131]	4 Bingi et al. (1999) [132]	5 Holland & Light (1999) [133]	6 Laughlin (1999) [134]	7 Sumner (2000) [135]	8 Esteves & PastorCollado (2000) [117]	9 Motwani et al. (2002) [136]	10 Umble (2003) [128]	11 AlMashari (2003) [137]	12 Somers & Nelson (2004) [19]	13 Motwani et al. (2005) [138]	14 Wang et al. (2005) [139]	15 Baki and Cakar (2005) [140]	16 Nah & Delgado (2006) [141]	17 Olson & Zhao (2007) [142]	18 Finney & Corbett (2007) [143]	19 Vathanophas (2007) [144]	20 Plant & Willcocks (2007) [145]	21 Tai (2007) [114]	22 Dezdar & Sulaiman (2009) [146]	23 Snider et al. (2009) [147]	24 Lin (2010) [115]	25 Wang (2011) [113]	26 Tsai et al. (2012) [148]	27 Ram et al. (2013) [127]	28 Ram et al. (2013) [149]	29 Panorama Consulting Group (2011) [150]	Subtotal	Rank
A1	Business Organization Strategies	Top management support	▲	▲	▲	▲	▲	▲	▲	▲		▲	▲	▲				▲	▲	▲		▲	▲	▲	▲	▲	▲					20	1
A2	Business Organization Strategies	Business process reengineering		▲		▲	▲	▲	▲	▲			▲	▲	▲			▲	▲	▲	▲							▲	▲			15	2
A3	Business Organization Strategies	Education on new business processes												▲																		1	10
A4	Business Organization Strategies	Timing choice																					▲									1	10
A5	Business Organization Strategies	Change in management/ Management of effective organizational changes								▲		▲		▲				▲								▲						5	7
A6	Business Organization Strategies	Organizational transformation																		▲												1	10
A7	Business Organization Strategies	Cultural and structural changes/ Readiness/ Organizational culture									▲								▲					▲								3	8
A8	Business Organization Strategies	Standardization of business processes to the extent possible to fit the ERP system																								▲	▲		▲			3	8
A9	Business Organization Strategies	Adequate budget support																					▲				▲					2	9
A10	Business Organization Strategies	Implementation completed within budget																											▲			1	10
A11	Business Organization Strategies	Strict monitoring of implementation schedules and costs																											▲			1	10
A12	Business Organization Strategies	Regular project status meetings																											▲			1	10
A13	Business Organization Strategies	Project Team				▲	▲		▲	▲		▲		▲				▲		▲		▲		▲	▲	▲			▲			13	4
A14	Business Organization Strategies	Project champion/ sponsor												▲					▲	▲				▲								4	7

Table A1. *Cont.*

No.	Dimension	Factor	1 Vasilash (1997) [18]	2 Bancroft et al. (1998) [130]	3 Ptak & Schragenheim (1999) [131]	4 Bingi et al. (1999) [132]	5 Holland & Light (1999) [133]	6 Laughlin (1999) [134]	7 Sumner (2000) [135]	8 Esteves & PastorCollado (2000) [117]	9 Motwani et al. (2002) [136]	10 Umble (2003) [128]	11 AlMashari (2003) [137]	12 Somers & Nelson (2004) [19]	13 Motwani et al. (2005) [138]	14 Wang et al. (2005) [139]	15 Baki and Cakar (2005) [140]	16 Nah & Delgado (2006) [141]	17 Olson & Zhao (2007) [142]	18 Finney & Corbett (2007) [143]	19 Vathanophas (2007) [144]	20 Plant & Willcocks (2007) [145]	21 Tai (2007) [114]	22 Dezdar & Sulaiman (2009) [146]	23 Snider et al. (2009) [147]	24 Lin (2010) [115]	25 Wang (2011) [113]	26 Tsai et al. (2012) [148]	27 Ram et al. (2013) [127]	28 Ram et al. (2013) [149]	29 Panorama Consulting Group (2011) [150]	Subtotal	Rank
A15	Business Organization Strategies	Dedicated resources												▲												▲						2	9
A16	Business Organization Strategies	Project management and evaluation/ Project management capabilities	▲	▲	▲	▲	▲	▲		▲	▲	▲	▲	▲				▲	▲	▲									▲			15	2
A17	Business Organization Strategies	Time frame/ schedule				▲														▲			▲			▲			▲			5	6
A18	Business Organization Strategies	Implementation completed on time																											▲			1	10
A19	Business Organization Strategies	Implementation completed as expected																											▲			1	10
A20	Business Organization Strategies	Implementation strategy	▲	▲	▲		▲	▲	▲	▲		▲	▲	▲						▲						▲	▲		▲			14	3
A21	Business Organization Strategies	Implementation approach																			▲											1	10
A22	Business Organization Strategies	Software migration																		▲								▲	▲			3	8
A23	Business Organization Strategies	Integration of other management information/ legacy systems within the organization				▲				▲		▲	▲	▲			▲		▲	▲				▲					▲			10	5
A24	Business Organization Strategies	Integration of information systems of partner organizations																											▲			1	10
A25	Business Organization Strategies	Defining the architecture choices								▲				▲												▲						3	8
A26	Business Organization Strategies	Build a business case																		▲												1	10
A27	Business Organization Strategies	Charismatic leadership														▲																1	10
A28	Business Organization Strategies	Authorized decision makers								▲																						1	10
A29	Business Organization Strategies	Fit between ERP and organization															▲															1	10

Table A1. *Cont.*

No.	Dimension	Factor	1 Vasilash (1997) [18]	2 Bancroft et al. (1998) [130]	3 Ptak & Schragenheim et al. (1999) [131]	4 Bingi et al. (1999) [132]	5 Holland & Light (1999) [133]	6 Laughlin (1999) [134]	7 Sumner (2000) [135]	8 Esteves & PastorCollado (2000) [117]	9 Motwani et al. (2002) [136]	10 Umble (2003) [128]	11 AlMashari (2003) [137]	12 Somers & Nelson (2004) [19]	13 Motwani et al. (2005) [138]	14 Wang et al. (2005) [139]	15 Baki and Cakar (2005) [140]	16 Nah & Delgado (2006) [141]	17 Olson & Zhao (2007) [142]	18 Finney & Corbett (2007) [143]	19 Vathanophas (2007) [144]	20 Plant & Willcocks (2007) [145]	21 Tai (2007) [114]	22 Dezdar & Sulaiman (2009) [146]	23 Snider et al. (2009) [147]	24 Lin (2010) [115]	25 Wang (2011) [113]	26 Tsai et al. (2012) [148]	27 Ram et al. (2013) [127]	28 Ram et al. (2013) [149]	29 Panorama Consulting Group (2011) [150]	Subtotal	Rank
A30	Business Organization Strategies	Business plan and vision/Management of expectations											▲	▲			▲	▲	▲					▲		▲						7	6
A31	Business Organization Strategies	Steering committee												▲																		1	10
B1	System Users	Interdepartmental communication	▲	▲	▲	▲	▲	▲	▲			▲	▲	▲				▲	▲			▲	▲	▲			▲					16	2
B2	System Users	Enterprise-wide communication/Strong communication inward and outward/Communication plan								▲									▲					▲								3	4
B3	System Users	Interdepartmental cooperation												▲																		1	6
B4	System Users	Reliability among partners								▲																						1	6
B5	System Users	Training and education/Training employees/User training and education/Job redesign		▲	▲	▲	▲	▲	▲	▲		▲	▲	▲				▲	▲	▲		▲		▲	▲		▲					17	1
B6	System Users	Familiarity with professional competence and processes in the field of work																								▲	▲					2	5
B7	System Users	User involvement								▲									▲					▲		▲	▲					5	3
B8	System Users	Users are satisfied with the implemented system																											▲			1	6
B9	System Users	Users have basic information literacy																									▲					1	6
B10	System Users	The role of seed personnel/The role of the project sponsor								▲																	▲					2	5
B11	System Users	User personnel stability																									▲					1	6

Table A1. *Cont.*

			Authors																															Subtotal	Rank
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
No.	Dimension	Factor	Vasilash (1997)	Bancroft et al. (1998)	Ptak & Schragenheim et al. (1999)	Bingi et al. (1999)	Holland & Light (1999)	Laughlin (1999)	Sumner (2000)	Esteves & PastorCollado (2000)	Motwani et al. (2002)	Umble (2003)	AlMashari (2003)	Somers & Nelson (2004)	Motwani et al. (2005)	Wang et al. (2005)	Baki and C akar (2005)	Nah & Delgado (2006)	Olson & Zhao (2007)	Finney & Corbett (2007)	Vathanophas (2007)	Plant & Willcocks (2007)	Tai (2007)	Dezdar & Sulaiman (2009)	Snider et al. (2009)	Lin (2010)	Wang (2011)	Tsai et al. (2012)	Ram et al. (2013)	Ram et al. (2013)	Panorama Consulting Group (2011)		
			[18]	[130]	[131]	[132]	[133]	[134]	[135]	[117]	[136]	[128]	[137]	[19]	[138]	[139]	[140]	[141]	[142]	[143]	[144]	[145]	[114]	[146]	[147]	[115]	[113]	[148]	[127]	[149]	[150]		
B12	System Users	Professional and coordination skills of information staff																									▲					1	6
B13	System Users	Substantially improved the level of users' understanding																											▲			1	6
B14	System Users	Was of adequate length and detail																											▲			1	6
B15	System Users	Gave users confidence in the new system																											▲			1	6
B16	System Users	Dedication of the work group								▲																						1	6
B17	System Users	Entering accurate information/ Data accuracy	▲		▲							▲																				3	4
B18	System Users	Data analysis and conversion/ System analysis													▲			▲		▲												3	4
B19	System Users	Preventive troubleshooting								▲																						1	6
C1	Counseling Team	Appropriate use of consultants								▲				▲																		2	2
C2	Counseling Team	Professional competence of the consultant team																				▲				▲	▲		▲			4	1
C3	Counseling Team	The consultant team must have strong coordination and communication skills.																											▲			1	3
C4	Counseling Team	Consultant team understands business needs and goals																											▲			1	3
C5	Counseling Team	Advisory team personnel's stability																											▲			1	3

Table A1. *Cont.*

No.	Dimension	Factor	1 Vasilash (1997) [18]	2 Bancroft et al. (1998) [130]	3 Ptak & Schragenheim (1999) [131]	4 Bingi et al. (1999) [132]	5 Holland & Light (1999) [133]	6 Laughlin (1999) [134]	7 Sumner (2000) [135]	8 Esteves & PastorCollado (2000) [117]	9 Motwani et al. (2002) [136]	10 Umble (2003) [128]	11 AlMashari (2003) [137]	12 Somers & Nelson (2004) [19]	13 Motwani et al. (2005) [138]	14 Wang et al. (2005) [139]	15 Baki and Cakar (2005) [140]	16 Nah & Delgado (2006) [141]	17 Olson & Zhao (2007) [142]	18 Finney & Corbett (2007) [143]	19 Vathanophas (2007) [144]	20 Plant & Willcocks (2007) [145]	21 Tai (2007) [114]	22 Dezdar & Sulaiman (2009) [146]	23 Snider et al. (2009) [147]	24 Lin (2010) [115]	25 Wang (2011) [113]	26 Tsai et al. (2012) [148]	27 Ram et al. (2013) [127]	28 Ram et al. (2013) [149]	29 Panorama Consulting Group (2011) [150]	Subtotal	Rank
C6	Counseling Team	Consultant team's project time control ability																									▲					1	3
C7	Counseling Team	The service quality provided by the consultant																										▲				1	3
C8	Counseling Team	Dedication of the consultants								▲																						1	3
C9	Counseling Team	The consultant team has had a successful introduction experience in similar industries																									▲					1	3
D1	Software Vendor	Vendor–customer partnership												▲																		1	6
D2	Software Vendor	Vendor tools												▲																		1	6
D3	Software Vendor	Vendor system quality																						▲				▲		▲		3	4
D4	Software Vendor	Vendor service quality																										▲				1	6
D5	Software Vendor	Support of vendor				▲								▲										▲		▲	▲					5	3
D6	Software Vendor	System software vendor's professional competence																								▲	▲					2	5
D7	Software Vendor	Similar industries have chosen the same system software vendor																										▲				1	6
D8	Software Vendor	System software vendors have mature system products																										▲				1	6
D9	Software Vendor	Differences in ERP versions/Appropriate system version								▲												▲										2	5
D10	Software Vendor	Vanilla ERP																	▲													1	6

Table A1. *Cont.*

No.	Dimension	Factor	Vasilash (1997) [18]	Bancroft et al. (1998) [130]	Ptak & Schragenheim (1999) [131]	Bingi et al. (1999) [132]	Holland & Light (1999) [133]	Laughlin (1999) [134]	Sumner (2000) [135]	Esteves & PastorCollado (2000) [117]	Motwani et al. (2002) [136]	Umble (2003) [128]	AlMashari (2003) [137]	Somers & Nelson (2004) [19]	Motwani et al. (2005) [138]	Wang et al. (2005) [139]	Baki and Cakar (2005) [140]	Nah & Delgado (2006) [141]	Olson & Zhao (2007) [142]	Finney & Corbett (2007) [143]	Vathanophas (2007) [144]	Plant & Willcocks (2007) [145]	Tai (2007) [114]	Dezdar & Sulaiman (2009) [146]	Snider et al. (2009) [147]	Lin (2010) [115]	Wang (2011) [113]	Tsai et al. (2012) [148]	Ram et al. (2013) [127]	Ram et al. (2013) [149]	Panorama Consulting Group (2011) [150]	Subtotal	Rank
D11	Software Vendor	Vendor's programming R&D capability																								▲						1	6
D12	Software Vendor	Appropriate configuration of the software/ Careful selection of appropriate package				▲				▲			▲	▲	▲			▲		▲	▲			▲		▲		▲				11	1
D13	Software Vendor	Degree of customization/ Minimum customization/ Avoiding customizations				▲				▲			▲	▲	▲			▲		▲	▲			▲								9	2
E1	Enter prise Performance	Building performance evaluation criteria	▲		▲	▲	▲					▲	▲																			6	1
E2	Enter prise Performance	Improved product delivery cycle time																											▲			1	2
E3	Enter prise Performance	Improved timeliness of aftersales service																											▲			1	2
E4	Enter prise Performance	Improved productivity (e.g., assets, operating costs, and labor costs)																											▲			1	2
E5	Enter prise Performance	Increased sales of existing products																											▲			1	2
E6	Enter prise Performance	Finding new revenue streams (e.g., new products and markets)																											▲			1	2
E7	Enter prise Performance	Establishing strong and continuous relationships with customers																											▲			1	2
E8	Enter prise Performance	Acquiring precise knowledge of customer purchasing patterns																											▲			1	2

Table A1. *Cont.*

			Authors																														Subtotal	Rank
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
No.	Dimension	Factor	Vasilash (1997)	Bancroft et al. (1998)	Ptak & Schragenheim (1999)	Bingi et al. (1999)	Holland & Light (1999)	Laughlin (1999)	Sumner (2000)	Esteves & PastorCollado (2000)	Motwani et al. (2002)	Umble (2003)	AlMashari (2003)	Somers & Nelson (2004)	Motwani et al. (2005)	Wang et al. (2005)	Baki and Cakar (2005)	Nah & Delgado (2006)	Olson & Zhao (2007)	Finney & Corbett (2007)	Vathanophas (2007)	Plant & Willcocks (2007)	Tai (2007)	Dezdar & Sulaiman (2009)	Snider et al. (2009)	Lin (2010)	Wang (2011)	Tsai et al. (2012)	Ram et al. (2013)	Ram et al. (2013)	Panorama Consulting Group (2011)		
			[18]	[130]	[131]	[132]	[133]	[134]	[135]	[117]	[136]	[128]	[137]	[19]	[138]	[139]	[140]	[141]	[142]	[143]	[144]	[145]	[114]	[146]	[147]	[115]	[113]	[148]	[127]	[149]	[150]		
E9	Enter prise Performance	Being able to influence CSR management decision performance and product quality control data																												▲		1	2
E10	Enterprise Performance	Increasing the reliability of internal control, enhancing the positive brand image and sustainable operation of enterprises																															

Appendix B

Table A2. CSFs of B Corporation implementing ERP systems and MDM expert questionnaire results.

Dimension		CSF	1st Round Expert Questionnaire Results					2nd Round Expert Questionnaire Results			
			CVR	Quartile Deviation	Standard Deviation	Mean	Revised CSF	CVR	Quartile Deviation	Standard Deviation	Mean
Business Organization Strategies (14 items)	A1	Top management support	1.00	0.00	0.31	4.89					
	A2	Business process reengineering	0.56	0.50	0.47	3.67	(to be eliminated)				
	A5	Change in management/Management of effective organizational changes	1.00	0.50	0.47	3.67					
	A7	Cultural and structural changes/Readiness/Organizational culture	0.56	0.00	0.82	4.00	(to be eliminated)				
	A8	Standardization of business processes to the extent possible to fit the ERP system	1.00	0.50	0.50	4.56					
	A13	Project team	0.56	1.00	0.87	4.11	(to be eliminated)				
	A14	Project champion/sponsor	0.78	0.50	0.96	3.56					
	A16	Project management and evaluation/Project management capabilities	1.00	0.50	0.50	4.56					
	A17	Time frame/Schedule	1.00	0.50	0.47	4.67					
	A20	Implementation strategy	1.00	0.00	0.42	4.78					
	A22	Software migration	0.56	1.00	0.99	3.89	(to be eliminated)				
	A23	Integration of other management information/legacy systems within the organization	0.78	0.50	0.94	3.67					

Table A2. *Cont.*

Dimension		CSF	1st Round Expert Questionnaire Results					2nd Round Expert Questionnaire Results			
			CVR	Quartile Deviation	Standard Deviation	Mean	Revised CSF	CVR	Quartile Deviation	Standard Deviation	Mean
	A25	Defining the architecture choices	0.56	1.00	1.13	3.78	(to be eliminated) Clearly defining the main operating process for a framework selection system.	1.00	0.00	0.42	4.22
	A30	Business plan and vision/Management of expectations	0.78	0.00	0.57	3.89					
System Users (8 items)	B1	Interdepartmental communication	1.00	0.00	0.31	4.89					
	B2	Enterprise-wide communication/Strong communication inward and outward/Communication plan	0.78	0.50	0.96	4.44					
	B5	Training and education/Training employees/User training and education/Job redesign	1.00	0.00	0.67	4.67					
	B6	Familiarity with professional competence and processes in the field of work	1.00	0.50	0.68	4.44					
	B7	User involvement	1.00	0.50	0.47	4.67					
	B10	The role of seed personnel/The role of the project sponsor	1.00	0.00	0.42	4.78					
	B17	Entering accurate information/Data accuracy	1.00	0.00	0.67	4.67					

Table A2. *Cont.*

Dimension	CSF		1st Round Expert Questionnaire Results					2nd Round Expert Questionnaire Results			
			CVR	Quartile Deviation	Standard Deviation	Mean	Revised CSF	CVR	Quartile Deviation	Standard Deviation	Mean
	B18	Data analysis and conversion/System analysis	0.78	0.00	1.07	4.44	Data migration and analysis are the outcomes of corporate computerization. Users should learn to maintain the system.	0.78	0.00	0.67	4.00
Counseling Team (9 items)	C1	Appropriate use of consultants	0.78	0.50	0.68	4.56					
	C2	Professional competence of the consultant team	1.00	0.00	0.31	4.89					
	C3	The consultant team must have strong coordination and communication skills	1.00	0.50	0.4	4.67					
	C4	Consultant team understands business needs and goals	1.00	0.00	0.31	4.89					
	C5	Advisory team personnel's stability	1.00	0.50	0.68	4.56					
	C6	Consultant team's project time control ability	1.00	0.50	0.47	4.67					
	C7	Service quality provided by the consultant	1.00	0.50	0.47	4.67					
	C8	Dedication of the consultants	0.56	0.50	1.07	3.44	(to be eliminated) Consultants' service quality	1.00	0.00	0.31	4.89
	C9	The consultant team has a successful introduction experience in similar industries	1.00	0.50	0.68	4.44					

Table A2. *Cont.*

Dimension	CSF		1st Round Expert Questionnaire Results					2nd Round Expert Questionnaire Results			
			CVR	Quartile Deviation	Standard Deviation	Mean	Revised CSF	CVR	Quartile Deviation	Standard Deviation	Mean
Software Vendor (6 items)	D3	Vendor system quality	1.00	0.00	0.42	4.78					
	D5	Support of vendor	0.78	0.50	0.67	4.33					
	D6	System software vendor's professional competence	1.00	0.00	0.67	4.67					
	D9	Differences in ERP versions/Appropriate system version	1.00	0.00	0.42	4.78					
	D12	Appropriate configuration of the software/Careful selection of appropriate package	1.00	0.50	0.47	4.67					
	D13	Degree of customization/Minimum customization/Avoiding customizations	0.33	1.00	0.92	4.22	(to be eliminated)				
Enterprise Performance (10 items)	E1	Building performance evaluation criteria	1.00	0.50	0.74	3.89					
	E2	Improved product delivery cycle time	0.78	0.50	0.67	4.33					
	E3	Improved timeliness of after-sales service	0.78	0.50	0.63	4.22					
	E4	Improved productivity (e.g., assets, operating costs, and labor costs)	0.78	1.00	0.87	3.89					
	E5	Increased sales of existing products	-0.11	0.50	0.74	2.89	(to be eliminated)	-0.78	0.50	0.00	0.00

Table A2. *Cont.*

Dimension	CSF	1st Round Expert Questionnaire Results					2nd Round Expert Questionnaire Results			
		CVR	Quartile Deviation	Standard Deviation	Mean	Revised CSF	CVR	Quartile Deviation	Standard Deviation	Mean
E6	Finding new revenue streams (e.g., new products and markets)	0.11	1.00	1.13	3.22	(to be eliminated) Increasing internal operating efficiency and product promotion.	1.00	0.50	0.63	4.22
E7	Establishing strong and continuous relationships with customers	0.78	0.50	1.15	3.67	Establishing a customer relationship management module to track progress in the collection of customer needs data.	0.78	0.50	0.63	4.22
E8	Acquiring precise knowledge of customer purchasing patterns	1.00	0.00	0.57	4.11					
E9	Being able to influence CSR management decision performance and product quality control data	0.78	1.00	0.82	4.00					
E10	Increasing the reliability of internal control, enhancing the positive brand image and sustainable operation of enterprises	1.00	0.50	0.68	4.44	Increasing the reliability of internal control to enhance the positive brand image and sustainable operation of enterprises.	1.00	1.00	0.87	4.11

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