Proceedings of the 2nd International Conference on Management Research and Economic Development
DOI: 10.54254/2754-1169/85/20240905

Classical Strategic Planning May not Be Adequate for a Fast-changing IT Environment

Yue Zhao[1,a,*]

[1]*Department of Online Operation, Industrial Bank of China, YinCheng Rd, Shanghai, China*
a. yzha4885@outlook.com
**corresponding author*

Abstract: There are many technical tools and models to assist management in strategic planning process to better realise a business's strategy. Some classical strategic planning tools are widely used in practice. They bring many benefits, but their limitations should not be overlooked. This essay discusses the five classical strategic planning models - PEST analysis, SWOT analysis, Scenario analysis, Porter's Five Forces Model, and Growth-share Matrix. To apply these classical strategic planning methods in a fast-changing IT environment, some of the limitations, may it be due to narrow application it initially was designed for, or the changes in macro business environments, or the increased paces in those changes, suggest that the traditional usage of those classical strategic planning methods may not be adequate to achieve the ideal outcomes.

Keywords: Strategy, Strategic Planning, IT Environment

1. Introduction

With a strategy, a business is more likely to achieve success, while strategic planning is the process that assists management to plan an ideal strategy and to achieve the business's goal. There have been many strategy theories and strategic planning models developed during the last half of the twentieth century and the twenty-first century and many applications of these models in practice. With the changing pace has been constantly increasing and the disruptive changes that Information Technology has brought, the usefulness of these strategic planning methods has been put into question. This essay will discuss five widely used strategic planning tools - PEST analysis, SWOT analysis, Scenario analysis, Porter's Five Forces Model, and Growth-share Matrix. In each section, it will first briefly introduce the method of each model, its initial invention, and subsequent developments, and then the popular application or usage of this model. The essay will then examine these models from both sides and present their benefits and limitations in practical examples. Following traditional limitations, this essay will bring these five classical strategic planning into the context of the current fast-changing IT environment and examine their limitations mainly their inabilities in dealing with rapidly increased changes. This essay will also include recent proposed improvements of the classical models for them to achieve better outcomes and assist management better in the changing environment.

DOI: 10.54254/2754-1169/85/20240905

2. Definition

Strategy is long-term goal-oriented unique and valuable position that involves a collection of activities and it sets out directions and scopes of a business, taking into account resources, demands, and stakeholders both internally and externally [1]. A good strategy may assist a company in presenting its business position, winning in a market, and building its business capabilities [2]. In today's changing environment, strategic planning enables a company to take proactive actions, respond well to the changes, and it creates opportunities for innovation.

3. Classical strategic planning models

A variety of strategic planning models and approaches were developed, such as PEST analysis, SWOT analysis, Scenario analysis, Porter's Five Forces Model. Many evaluation tools such as Growth-share Matrix, Balanced Scorecards, and Strategy Maps are also widely used in enterprises. Each model is applicable under different circumstances and brings various benefits. Along with the development of Information Technology and with the increases in the contributions that the IT can make to a business, those traditional strategic planning models have been utilised to analyse IT strategy. However, there are limitations in those traditional strategic planning models. In strategic planning and management, growing importance has been placed on forecasting and estimating changes in the market and monitoring technological developments [3]. In a rapidly-changing IT environment, classical strategic planning models may become less adequate.

3.1. PEST analysis

PEST analysis is a widely used tool in strategic planning and management. It assists a business to analyse macro-environmental changes and to explore occurring opportunities by examining external factors from political, economic, socio-cultural, and technological perspectives [4]. Many factors contribute to a business's external environment. Therefore, considering other factors, including constantly emerging factors that have been becoming more and more critical to an organisation's success, some variations of the PEST model have been developed over the years.

This framework not only assists a business to analyse its external environment but also provides an overall view of the business environment. It allows a company to know where it is in a large environment and helps the company to further define its goals and plan its strategies. However, due to its macro-environmental nature, it cannot provide sufficient information. Further detailed analysis is required, such as SWOT analysis and Porter Five Forces Model before proceeding to the next step of the strategic planning. Another limitation is that many data is not easy to find and can be subjective.

Due to the changing environment, factors in PEST analysis can change very quickly. Take the technological factor as an example, techniques and applications are invented and developed in this rapidly-changing IT environment, bringing new technologies while making old ones obsolete. After many time and efforts have been invested in PEST analysis, results may become inaccurate because of a newly emerged technology or application. Not only that time has been wasted, it may also slow down the business's response to the change once the analysis result executed.

3.2. SWOT analysis

SWOT analysis is another commonly used strategic planning tool. Learned et al. [5] developed this tool initially for a business case study purpose. SWOT analysis analyses a business's internal factors as well as its external environment by using four metrics – strengths, weaknesses, opportunities, and threats [6]. This tool has very broad applications. Traditionally, it was used for brainstorming and decision-making processes to analyse future possibilities, explore new opportunities, and develop

DOI: 10.54254/2754-1169/85/20240905

new approaches [7]. With the increases in environmental changes, the SWOT analysis has been adapted to be applicable in change management. It can be used to determine changes and explore new solutions [8]. Apart from applying to changing environments, this technique is also useful in keeping a business stable [9].

With the above various applications, SWOT analysis can bring many benefits. It can assist a business to identify competitions, forecast industrial trends, and save costs [10]. Because of its focus on objective data, it enhances objectivity in decision-making processes [11]. It applies to not only the strategic level but also functional business unit levels, and hence it enables an organisation to analyse in more detail [12]. On the other hand, there are also limitations. Namugenyi, Nimmagadda, and Reiners [13] criticised the difficulties in locating the impact of each element in SWOT analysis as well as the challenges in managing a large number of alternatives. Kharchenko and et. al [14] highlighted its disadvantages such as no reflection of priorities, ambiguous terms that may lead to inaccurate data, and no logical connection in implementation.

Classic SWOT analysis was initially developed based on a steady and predictable environment, although recently, it has been further utilised in dealing with changes. However, for the SWOT analysis to perform well, it requires some degree of certainties and predictabilities. The traditional SWOT analysis approach has not considered quantitative analysis in evaluating strategies for uncertainties [15]. In application in such an increasingly changing environment, traditional SWOT analysis presents many issues, including imprecisions in internal and external factors and the lowered level of compatibility with uncertainties [16].

Different approaches should be used in today's fast-changing environment. One possible solution is a fuzzy SWOT analysis model that has been developed for strategic planning to solve these issues. It incorporates subject experts' opinions and develop parameter estimates by a membership function to handle uncertainties and ambiguities in the changing environment [17]. Taghavifard et. al [18] encompassed strategies extracting and optimised prioritisations into Zimmermann's fuzzy SWOT analysis model to improve the model's capabilities in the IT industry. In contrast to the classical SWOT analysis model, the fuzzy SWOT analysis is more applicable and useful in a fast-changing environment.

3.3. Scenario analysis

Huss [19] developed a scenario analysis technique to process a large amount of historical data and produce extrapolations for forecasting. It analyses future events and make projections by considering a probabilistic set of future business conditions [19]. Scenario analysis has a wide range of applications in business regarding forecasting and strategic planning. It contributes to sustainability analysis and helps to test a business's resilience under changes [20]. It is also a useful tool in future scanning and can integrate a variety of observations on future directions [21]. Adverse scenarios can also be used for stress testing, which assists to determine a system's stability [22].

Apart from its broad range of applications, scenario analysis also brings many other benefits regarding management and strategic planning. The scenario process converts information into new perceptions and enables managers to re-perceive reality by making them consider from different perspectives [23]. Over the years, scenario analysis has seen some limitations and challenges. One challenge is the inaccuracy and subjectiveness in its assessment of event probabilities [24], which will pose even more diversions in fast-changing ICT environment. Another challenge is that because analysts are part of the business's environment, they may influence the context in the process of analysing and making the predictions less accurate [25]. In an IT environment, for example, a company may see cybersecurity risk as a great threat and constantly improve its security, and hence the probability of a scenario related to security breach should be valued down.

DOI: 10.54254/2754-1169/85/20240905

Scenario analysis faces many issues when the environment changes fast and the extent of uncertainties is high. Dynamic environments lead to increases in complexity and non-quantifiable factors and hence decrease the accuracy of data and predictions [26]. Moreover, due to the rapid changes, more factors need to be considered and more scenarios need to be analysed, which not only increases the amount of data, complicates the analysis process, but also makes the outcomes less desirable and useful.

3.4. Porter's Five Forces Model

Porter's Five Forces Model was first introduced by Michael Porter in 1979. It was designed to analyse a business's micro-environments and an industry's competition from a five-forces perspective including industry rivalry, threat of substitutes, threat of new entrants, bargaining power of buyers, and bargaining power of suppliers [27]. This model is a contrast with macro-environmental analysis tools such as SWOT analysis. This is because, according to Michael Porter, SWOT analysis lacks vigour and ad hoc [28]. Porter's Five Forces Model, according to Porter, provides a framework that is closer to a company compared to other more general methods, and it aims at the line-of-business industry level rather than the industry sector level [28].

With the assistance of this Five Forces Model, a business is able to 'stake out a position in its industry that is less vulnerable to attack' [29]. However, this model also has some limitations especially in the fast-pacing contemporary ICT environment. Rothaermel [30] criticised the Five Forces Model's inability of a warrant for an infringed advantage. Tomar [31] further suggested a collaboration with the innovation of ICT for the model to keep its pace with the fast-changing ICT environment.

According to Grundy [32], Porter's Five Forces Model is a very static model and hence its usefulness has been diminished in changing environments. He explored a dynamic perspective at both macro and micro levels by introducing the change analysis and usage of the framework on a daily basis to track the impacts of changes [32].

One factor that Porter's Five Forces Model did not consider is that the pace of changing has been increasing. Moreover, changes in technology occur more and more frequently and can exert significant influences on a market. For example, with the implementation of an ERP system, a company's productivity can be increased significantly. On the other hand, technological changes could also reduce a product's life cycle. In a fast-changing IT environment, analysis from Porter's Five Forces Model can become obsolete very quickly because it was designed to analyse particular industries. More importantly, it's becoming more difficult for a business to identify its industry, which makes the usage of this framework less practical.

3.5. Growth-share Matrix

The growth-share matrix was developed by Henderson [33] for Boston Consulting Group as a consulting tool for strategic planning and management, portfolio analysis, and brand marketing by using a chart, ranking products or services on market shares and growth rates, and then categorising them into four classes including cash cows, dogs, question marks and stars. This tool is used to analyse each business's status quo and its potential to guide strategic directions [34]. With respect to ICT, the growth-share matrix is useful for application portfolio management.

One challenging area of the application of the growth-share matrix is the definition of the market. Different ways of defining a business's actual market lead to different portfolios being plotted in different quadrants and hence a variety of outcomes. Because of many newly emerged technologies, the boundaries of each product of service have been blurred, and mixtures of products or services have appeared. Another challenge is due to the shortened life cycle of a product by the fast-changing

DOI: 10.54254/2754-1169/85/20240905

environment. Because the growth-share matrix combines the life cycle of a product into its analysis [35], with the shortened life cycle, it not only requires more frequent analysis but also leads to the analysis outcome less useful in the way that it becomes obsolete more quickly. Moreover, this tool puts significant weights on a product's historical performance and does not consider macro-environmental factors, their potential influences and the possible changes that may affect a product's future performance. With the changes in the external environment exerting more and more profound influences on a business's performance, the usefulness of the growth-share matrix in dealing with changes is compromised.

4. Conclusion

Every business needs a strategy to rearrange their resources in order to achieve the business's objective, and sometimes redirect its direction for a better performance. Strategic planning is a process of facilitating businesses to define their goals and realise them. There are many technical tools and models to assist management in this process from macro-environment oriented to businesses and each product targeted. Some classical strategic planning tools have grown their popularity over the years and have been widely used in practice and also been taught extensively. On one hand, they may have been developed to resolve certain problems and they certainly bring many benefits. On the other hand, their limitations should not be overlooked.

This essay discussed the five most commonly used strategic planning models - PEST analysis, SWOT analysis, Scenario analysis, Porter's Five Forces Model, and Growth-share Matrix, their applications, benefits, and limitations. PEST analysis analyses a business's macro-environment to explore opportunities and threats. It takes changes into consideration but factors it considers are limited which, in today's increasingly complex environment, oversimplifies the influencing factors to a business. Some other factors have been proposed to be added into this strategic planning tool such as legal, historical and organisational. SWOT analysis is perhaps the most well-known strategic analysis tool. It applies to both macro-environmental level and enterprise level. However, this model was initially designed for a steady and predictable environment and fast-changing factors were not considered, and hence is used in changing environment may cause imprecisions. There have been proposed variants of this model. Fuzzy SWOT analysis was developed to deal with rapid changes. Scenario analysis is to process historical data and produce forecasting. Its usefulness depends on the extent of certainties. With the changes increasing and certainties decreasing, its precision also is questioned. Porter's Five Forces Model was developed to analyse a business's micro-environments as well as its industry competition. This is a static model because of its lack of change analysis and its usefulness diminished in changing environments. Growth-share Matrix is a simple analysis tool for a business's products or services, but its success depends on the definition of the market. With emerging technologies making boundaries of markets blurred, its application has become more difficult and results inaccurate, which, demonstrated in a variety of cases studies, have tended to lead to less profitable decisions.

To apply these classical strategic planning methods in a fast-changing IT environment, some of the limitations, may it be due to narrow application it initially was designed for, or the changes in macro business environments, or the increased paces in those changes, suggest that the traditional usage of those classical strategic planning methods may not be adequate to achieve the ideal outcomes.

References

[1] Porter, M.E. (1996) What is Strategy, Harvard Business Review, 37-55.
[2] PricewaterhouseCoopers (2019). PricewaterhouseCoopers LLP, Retrieved from https://www.strategyand.pwc.com
[3] Raluca, P. (2013) Analytical Methods of Strategic Management, Economic Sciences Series, 8, 471-474.

DOI: 10.54254/2754-1169/85/20240905

[4] Raszkowski, A. (2016) PEST analysis of Piechowice municipality – power and future impact direction of environmental factors, Research Papers of the Wroclaw University of Economics, 431, 18-26.

[5] Learned, A., Christensen, C., Andrews, R.S., and Guth, D. (1965) Business policy: text and cases, Homewood, Irwin, Illinois.

[6] Dyson R.G. (2004) Strategic development and SWOT analysis at the University of Warwick, European Journal of Operational Research, 152, 631-640.

[7] Balamuralikrishna, R. and Dugger, J.C. (1995) SWOT analysis - a management tool for initiating new programs in vocational schools, Journal of Vocational and Technical Education, 12, 36-41.

[8] Schooley, S. (2019). SWOT analysis: what it is and when to use it, Business News Daily, Retrieved from https://www.businessnewsdaily.com/4245-swot-analysis.html

[9] Osita, C., Onyebuchi, I.R. and Justina, N. (2014) Organization's stability and productivity: the role of SWOT analysis an acronym for strength, weakness, opportunities and threat, International Journal of Innovative and Applied Research, 2, 23-32.

[10] Daniel, H. (2011). Benefits of SWOT aalysis, Benefits Of. Retrieved from http://benefitof.net/benefits-of-swot-analysis

[11] Nordmeyer, B. (2019). Advantages & disadvantages of SWOT analysis, Chron, Retrieved from https://smallbusiness.chron.com/advantages-amp-disadvantages-swot-analysis-41398.html

[12] Raluca, P. (2013) Analytical Methods of Strategic Management, Economic Sciences Series, 8, 471-474.

[13] Namugenyi, C., Nimmagadda, S.L. and Reiners, T. (2019) Design of a SWOT Analysis Model and its Evaluation in Diverse Digital Business Ecosystem Contexts, Procedia Computer Science, 159, 1145–1154.

[14] Kharchenko, N.L., Izmailov, A.Z., Varfolomeeva, N.S., Bagdasarova, I.Y., Lutsenko, N.S. and Pozhidaeva, E.I. (2022) SWOT Analysis Method Application in Assessing the Effectiveness of Moodle Platform, Proceedings of the 2022 13th International Conference on E-Education, E-Business, E-Management, and E-LearningJanuary 1, 253–257.

[15] Gürel, E. and Merba, T. (2017) SWOT analysis: a theoretical review, Journal of International Social Research, 10, 994-1006.

[16] Taghavifard, M.T., Mahdiraji, H.A., Alibakhshi, A.M., Zavadskas, E.K. and Bausys, R. (2018) An extension of fuzzy SWOT analysis: an application to Information Technology, Information, 9, 46-64.

[17] Zimmermann, H.J. (1996), Fuzzy Set Theory and Its Applications, 3rd edn, Kluwer Academic Publishers, Boston.

[18] Taghavifard, M.T., Mahdiraji, H.A., Alibakhshi, A.M., Zavadskas, E.K. and Bausys, R. (2018) An extension of fuzzy SWOT analysis: an application to Information Technology, Information, 9, 46-64.

[19] Huss, W.R. (1988) A move toward scenario analysis, International Journal of Forecasting, 4, 377-388.

[20] Moriarty, J.P. (2012) Theorising scenario analysis to improve future perspective planning in tourism, Journal of Sustainable Tourism, 20, 779-800.

[21] Swart, R.J., Raskin, P. and Robinson, J. (2004) The problem of the future: sustainability science and scenario analysis, Global Environmental Change, 14, 137-146.

[22] Hassani, B.K. (2016) Scenario Analysis in Risk Management, Springer, Heidelberg, Berlin.

[23] Wack, P. (1985) Scenarios: shooting the rapids, Harvard Business Review, 63, 139-150.

[24] Treiblmaier, H. (2021) Exploring the Next Wave of Blockchain and Distributed Ledger Technology: The Overlooked Potential of Scenario Analysis, Future Internet, 13, 183-196.

[25] Overland, I. (2019) The geopolitics of renewable energy: debunking four emerging myths, Energy Research & Social Science, 49, 36-40.

[26] Swart, R.J., Raskin, P. and Robinson, J. (2004) The problem of the future: sustainability science and scenario analysis, Global Environmental Change, 14, 137-146.

[27] Porter, M.E. (1979) How Competitive Forces Shape Strategy, Harvard Business Review, 57, 137-145.

[28] Porter, M.E., Argyres, N. and McGahan, A.M. (2002) An interview with Michael Porter, The Academy of Management Executive, 16, 43-52.

[29] Porter, M.E. (1979) How Competitive Forces Shape Strategy, Harvard Business Review, 57, 137-145.

[30] Rothaermel, F.T. (2016) Competitive Advantage in Technology-Intensive Industries, Technological Innovation: Generating Economic Results (Advances in the Study of Entrepreneurship, Innovation & Economic Growth, 26, 233 – 256.

[31] Tomar, D. (2020) Porter's Competitive Forces Model and SWOT Analysis to Payments, International Journal of Information Science, 10, 45-49.

[32] Grundy, T. (2006), Rethinking and reinventing Michael Porter's five forces model, Strategic Change, 15, 213-229.

[33] Henderson, B. (1970). The product portfolio, BCG, Retrieved from https://www.bcg.com/publications/1970/strategy-the-product-portfolio.aspx

[34] Hax, A.C. and Majluf, N.S. (1983) The use of the growth-share matrix in strategic planning, Interfaces, 13, 46-60.

[35] Haimovich, I.N. and Frolov, M.A. (2016) Improvement of technological process of multiproduct production on the bases of simulation modeling of production unit, Key Engineering Materials, 684, 487-496.