

Conference Paper

A Concept Paper of Balanced Scorecard for New Product Development

Aminaimu Zhengxiaoming and Yudi Fernando

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

Abstract

This study aims to review the concept of Balanced Scorecard (BSC) technique to develop a new product. BSC, as a strategic performance tool, has received closed attention from many organizations worldwide. However, the implementation has been limited. The globalization and economic upheaval have increased the challenges to the executive's face and therefore need to find the right tools to overcome the challenges. The current paper focuses on the review of literature on the importance of BSC towards new product development and business performance. This paper suggests that the 4th generation balance scorecard leads the combination of the management system and performance measurement that brings up one big strategy maps, and possibly will use widely to satisfy the customer demands. This paper discusses the current issues and the emerging importance of BSC literature and suggests fruitful areas for further study.

Keywords: balanced scorecard, new product development, business performance, manufacturing.

Corresponding Author:
Aminaimu Zhengxiaoming
1271210987@qq.com

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1. Introduction

Balanced Scorecard has attracted many scholars and practitioners' attention for over 20 years. According to Kaplan et al. (2001), BSC is a practitioner-oriented tool that possesses some potential performance-enhancing effects. Other scholars have been more curious and are trying to prove the more clear-cut relationship between BSC and organizational performance. The long use of BSC is strong evidence that it is somehow or somewhat increasing the firm's performance directly or indirectly and its concepts are truly beneficial (Madsen & Stenheim, 2014; Sainaghi, Phillips, & d'Angella, 2019). Over the past two decades, BSC has undergone too many developments regarding its design and practice methods. BSC has evolved into a strong management tool that guides global organizations strategically. Earlier the scorecards failed due to the initial drawbacks due its poor design and understanding. After effectively transforming it into a

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strong performance-enhancing tool, it is helping all organizations to improve themselves strategically (Assaf & Tsionas, 2019; Coe & Letza, 2014).

It has been strongly proved that BSC has become popular in solving issues related to financial and strategic problems through strategic goal setting and performance reporting through four important perspectives: financial, customer, internal business process, and learning and growth (Hamamura, 2019; Sainaghi, Phillips, & d'Angella, 2019). Different companies have different performance measurement systems, and BSC is considered as the backbone for many other strategy-building tools (Sanchez-Marquez et al., 2018; Soderberg et al., 2011).

In the operation of the organization, the new product development is the activity with important strategic significance. The enterprise to find out the existing problems in the new product development management performance, to optimize the new product development strategy management system, and to increase the new product development efficiency and raise the market competitiveness.

2. The Balanced Scorecard Concept

According to Kaplan and Norton (2007), BSC is a strategic management system that converts a strategy into a brief set of performance measures that creates a methodology or way to measure strategic management. It can link efforts of individuals and business unit objectives and (Kutsch et al., 2015; Malagueño, Lopez-Valeiras, & Gomez-Conde, 2018) supports this fact that BSC can convert a firm's strategies into measurable business performance and strong operational objectives. BSC establishes the right balance between all the performance-focused perspectives. It provides a strong framework that guides an organization to achieve a strategic measurement and management system that provides a tracking system that can track financial progress. It is now evident that the balanced scorecard is one of the important measurement techniques because due to its ability to include all sets of variables in measuring organizational performance through the four different perspectives (Dincer & Yuksel, 2019; Malgwi & Dahiru, 2014).

3. BSC Perspectives Link with New Product Development

3.1. Financial perspective and NPD

The successful new product can be measured by its performance in the market under the combination of diverse perspectives (Sainaghi, Phillips, & d'Angella, 2019). Firms

study the financial impact after new product development to design sustainable and dynamically oriented benefits through innovation (Al-Hosaini & Sofian, 2015; Dangelico, Pujari, & Pontrandolfo, 2017). The continuous development and introduction of new products is an important determinant for sustainable performance (Cheng & Yang, 2019). New products tend to fail in meeting the consumer requirements; it is an important managerial challenge in B2C markets to improve the interaction with consumers and reduce failure rates and improve financial status (Bendig et al., 2018; Chang, 2019). In other words, research that has left out new product development as an important mediator may have ignored a key mechanism for RM's ability to improve financial performance (Cheng & Yang, 2019; Ernst et al., 2011). In the new market context, traditional performance evaluation systems have the common weakness which overemphasizes the financial parameters that are responsible for the success (Kalender & Vayvay, 2016). Customer demand drives the development of new products (Liao et al., 2018). Financial perspective has a positive impact on the organization's new product development (Bals, 2019). The development of new products improves the business performance which of the food and beverage companies.

3.2. Internal process perspective and NPD

Stringent internal processes and resources with suitable dynamic capabilities can reap strong benefits when strategically resource-interplays incorporated during new-product development (Zhang & Wu, 2017). Internal knowledge and process strengthening can build a cradle-to-cradle value chain and other institutional partners to successfully certify a new product (Cheng & Yang, 2019; Chimhowu, Hulme, & Munro, 2019). A better behavioral perspective supported by the cognitively biased heuristic aspect of the internal process can show ten times radical improvement in new product development (Teleaba & Popescu, 2018). This perspective helps the company achieve Industry 4.0 through product development (Frank et al., 2019).

The core processes in internal business process category focus on makes customer satisfaction and achieve the financial objectives. To achieve the high result efficiency, especially in objectives needs to determine the stronger process in internal business process perspectives. It comprises the short-term and long-term goals related to integrating innovative process improvement in modification. The internal value-driving process of key elements goals of customers and shareholders should be structured efficiently by company, (Kalender & Vayvay, 2016).

Innovation and develop the improvement process to determine and satisfying customer demands, as well as to give the best customer service are the ultimate goals of the internal business process in the BSC. The efficient use of business resources will show the value brought to the customer in Internal business processes (Lee, Park, & Lim, 2013; Morgan et al., 2019). Internal process perspective is one of the frameworks to measure organizational business performance (Lombardi, 2019). The food and beverage company business performance improvement, meanwhile also help to develop the organization's new product development.

3.3. Customer's perspective and NPD

Customer's perspective scores high novelty, among other perspectives in implementing new product development procedures (Zahay, Hajli, & Sihi, 2018). The exemplifying nature of new product development procedures broadens only if the customer's point of view is given utmost importance (Yrjölä et al., 2019). Improving product attributes and processes should be the main focus by firm nowadays to enter markets and meet customer requirements for increasing the profits and market share. (Chang, 2018; Wang, Jin, & Zhou, 2019). Most companies face failure in considering the time value of money, and some company ignores the influence of customer behavior. To help firms more sensible and reliable in making decisions on new product development, the new, and comprehensive decision support system needed to prevent shortcomings.

The key to sustaining in strong competitions in the business world is to maximizing customer value in modern management perspectives. Thus, most firm eagerly engages in developing new products. Firm able to satisfy the customer and generate profits by delivering the value of new products. It was proven that customer loyalty could develop through customer satisfaction. (Chang, 2019). Customer satisfaction is driven by new products, and it reflects on achieving business sustainability. The new product development and relationship marketing was interrelationship, which the core relationship marketing tool is customer relationship management. The firms should focus on several areas to improve their new product development, like identifying customer needs for continuous new product development to survive and succeed in this business environment. (Morgan, Obal, & Anokhin, 2018).

The NPD process comprises five stages which are first is identify customer needs, Second is to establish specific targets, Third is generate products concept, while the fourth is select and evaluate the most promising concepts and lastly is design and testing prototypes of new products to launch new products in the market. (Morgan, Obal, &

Anokhin, 2018). The new product based on customer requirements for a new product will be collected using case-based reasoning approach, and customer response about the existing products and some attributes about a new product will lead the changes trends in the market. (Relich & Pawlewski, 2018). Customer keeps demanding new product, which has enabled catering food and beverage companies to continuously develop new products (Morgan, Obal, & Anokhin, 2018). This positive impact on organization performance. Also, supportively improve the food and beverage company new product development (Hou et al., 2019; La Rocca et al., 2016).

3.4. Learning and Growth perspective and NPD

The learning and growth category functionally take care of building the necessary long-term growth and improved infrastructure. It concerns the alignment of strategic goals of the organization and routine process of employee skills, training, and administration. (Kalender & Vayvay, 2016). Learning and growth perspective was proven to be one of the crucial intangible components of the BSC model. It also interrelated with internal operations, stakeholders, and sustainability of new product development. (Inayat et al., 2013; Zhu et al., 2019). Learning and growth can guide and assist in alignment of employees, information systems, and organizations in SD. (Bendig et al., 2018; Nejati & Nejati, 2013). These three factors relate to what Kaplan and Norton (2007) argue that the infrastructure that is needed to enable ambitious objectives and improve the customer experience and realize customer objectives. All the employees must be engaged and have good relations so that their minds and creative capabilities can capture the customer and organizational objectives. Most organizations have contributed little effort to measure the outcomes or drivers regarding employee skills, strategic information availability, and organizational alignment. In developing strategic objectives, firms often overlooked to cultivate re-train or re-skill culture in employees. Exposing strategic information can be considered as not well-planned due to it can potentially impact employee job performance. Using the organization's strategy as a guideline to align with individuals, teams, departments, or groups to drive long term objectives will bring inconsistently. (Ringen, Welo, & Østerbø, 2016). It is a must for us to sustain food and beverage company ability to change and improve and include employee training for organizational improvement (Brunoe et al., 2019). Therefore, the food and beverage company's new products successfully go on the market and which can improve the organization's performance.

4. A Proposed Theoretical Framework



Figure 1: The Theoretical Framework of Balanced Scorecard in New Product Development (**Source:** Authors).

Figure 1 shows the theoretical framework developed based on the review of the literature on the perspectives of BSC and NPD together with the help of theoretical aspects like TRIZ theory and RBV theory. It was expected that this framework could be utilized to predict the BSC to leverage the NPD and business performance in the food and beverage industry.

5. Conclusion

The current literature review discusses the strategy aligned to build a good relationship between our shareholders, our customers, and us as well as to improve and create value-added. Therefore, BSC is applied to measure against the target with a small number of strategic objectives, which is the performance measure only a few, easy understanding, and acted upon quickly. “The pulse determines the overall health,” which means measuring after the event will not help. Thus, leading measure only measures that can be influenced and then make a difference. It is better to focus more by decentralizing the task if it has smaller goals, and the process will succeed like a simple case of the law of diminishing returns. The present study shall help us in finding out the relationship or the effect that is experienced between all four perspectives of BSC that can be mediated through new product development for better organization business performance.

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References

- [1] Al-Hosaini, F. F., & Sofian, S. (2015). A review of balanced scorecard framework in higher education institution (HEIs). *International Review of Management and Marketing*, 5, 26-35.
- [2] Assaf, A. G., & Tsionas, M. G. (2019). A review of research into performance modeling in tourism research-Launching the Annals of Tourism Research curated collection on performance modeling in tourism research. *Annals of Tourism Research*, 76, 266-277.
- [3] Bals, C. (2019). Toward a supply chain finance (SCF) ecosystem-Proposing a framework and agenda for future research. *Journal of Purchasing and Supply Management*, 25(2), 105-117.
- [4] Bendig, D., Enke, S., Thieme, N., & Brettel, M. (2018). Performance implications of cross-functional cooperation in new product development: the mediating role of organizational learning. *Industrial Marketing Management*, 73, 137-153.
- [5] Brunoe, T. D., Mortensen, S. T., Andersen, A.-L., & Nielsen, K. (2019). Learning Factory with Product Configurator for Teaching Product Family Modelling and Systems Integration. *Procedia Manufacturing*, 28, 70-75.
- [6] Chang, W. (2018). The joint effects of customer participation in various new product development stages. *European Management Journal*.
- [7] Chang, W. (2019). The joint effects of customer participation in various new product development stages. *European Management Journal*, 37(3), 259-268. doi:<https://doi.org/10.1016/j.emj.2018.11.002>
- [8] Cheng, C., & Yang, M. (2019). Creative process engagement and new product performance: The role of new product development speed and leadership encouragement of creativity. *Journal of business research*, 99, 215-225. doi:<https://doi.org/10.1016/j.jbusres.2019.02.067>
- [9] Chimhowu, A. O., Hulme, D., & Munro, L. T. (2019). The 'New' national development planning and global development goals: Processes and partnerships. *World Development*, 120, 76-89. doi:<https://doi.org/10.1016/j.worlddev.2019.03.013>

- [10] Coe, N., & Letza, S. (2014). Two decades of the balanced scorecard: A review of developments. *The Poznan University of Economics Review*, 14, 63.
- [11] Dangelico, R. M., Pujari, D., & Pontrandolfo, P. (2017). Green product innovation in manufacturing firms: A sustainability-oriented dynamic capability perspective. *Business strategy and the Environment*, 26, 490-506.
- [12] Dincer, H., & Yuksel, S. (2019). Balanced scorecard-based analysis of investment decisions for the renewable energy alternatives: A comparative analysis based on the hybrid fuzzy decision-making approach. *Energy*.
- [13] Ernst, H., Hoyer, W. D., Krafft, M., & Krieger, K. (2011). Customer relationship management and company performance—the mediating role of new product performance. *Journal of the academy of marketing science*, 39(2), 290-306.
- [14] Frank, A. G., Mendes, G. H., Ayala, N. F., & Ghezzi, A. (2019). Servitization and Industry 4.0 convergence in the digital transformation of product firms: A business model innovation perspective. *Technological Forecasting and Social Change*, 141, 341-351.
- [15] Hamamura, J. (2019). Unobservable transfer price exceeds marginal cost when the manager is evaluated using a balanced scorecard. *Advances in accounting*, 44, 22-28.
- [16] Hou, T., Yannou, B., Leroy, Y., & Poirson, E. (2019). Mining customer product reviews for product development: A summarization process. *Expert Systems with Applications*, 132, 141-150.
- [17] Inayat, I., ul Amin, R., Inayat, Z., & Salim, S. S. (2013). Effects of collaborative web based vocational education and training (VET) on learning outcomes. *Computers & education*, 68, 153-166.
- [18] Kalender, Z. T., & Vayvay, Ö. (2016). The fifth pillar of the balanced scorecard: sustainability. *Procedia-Social and Behavioral Sciences*, 235, 76-83.
- [19] Kaplan, R. S., & Norton, D. P. (2007). Balanced scorecard. In *Das Summa Summarum des Management* (pp. 137-148): Springer.
- [20] Kaplan, R. S., Robert, N. P. D. K. S., Davenport, T. H., Kaplan, R. S., & Norton, D. P. (2001). *The strategy-focused organization: How balanced scorecard companies thrive in the new business environment*: Harvard Business Press.
- [21] Kutsch, E., Ward, J., Hall, M., & Algar, J. (2015). The contribution of the project management office: A balanced scorecard perspective. *Information Systems Management*, 32, 105-118.
- [22] La Rocca, A., Moscatelli, P., Perna, A., & Snehota, I. (2016). Customer involvement in new product development in B2B: The role of sales. *Industrial Marketing Management*, 58, 45-57.

- [23] Lee, S., Park, S. B., & Lim, G. G. (2013). Using balanced scorecards for the evaluation of "Software-as-a-service". *Information & Management*, 50(7), 553-561.
- [24] Liao, Z., Xu, C.-k., Cheng, H., & Dong, J. (2018). What drives environmental innovation? A content analysis of listed companies in China. *Journal of Cleaner production*, 198, 1567-1573.
- [25] Lombardi, R. (2019). Knowledge transfer and organizational performance and business process: past, present and future researches. *Business Process Management Journal*, 25(1), 2-9.
- [26] Madsen, D. Ø., & Stenheim, T. (2014). Perceived benefits of balanced scorecard implementation: some preliminary evidence. *Problems and Perspectives in management*, 12, 81-90.
- [27] Malagueño, R., Lopez-Valeiras, E., & Gomez-Conde, J. (2018). Balanced scorecard in SMEs: effects on innovation and financial performance. *Small Business Economics*, 1-24.
- [28] Malgwi, A. A., & Dahiru, H. (2014). Balanced Scorecard financial measurement of organizational performance: A review. *IOSR Journal of Economics and Finance*, 4, 1-10.
- [29] Morgan, T., Anokhin, S. A., Song, C., & Chistyakova, N. (2019). The role of customer participation in building new product development speed capabilities in turbulent environments. *International Entrepreneurship and Management Journal*, 15(1), 119-133.
- [30] Morgan, T., Obal, M., & Anokhin, S. (2018). Customer participation and new product performance: Towards the understanding of the mechanisms and key contingencies. *Research Policy*, 47(2), 498-510.
- [31] Nejati, M., & Nejati, M. (2013). Assessment of sustainable university factors from the perspective of university students. *Journal of Cleaner production*, 48, 101-107.
- [32] Relich, M., & Pawlewski, P. (2018). A case-based reasoning approach to cost estimation of new product development. *Neurocomputing*, 272, 40-45.
- [33] Ringen, G., Welø, T., & Østerbø, E. (2016). Learning and knowledge systems in product development environments. *Procedia Cirp*, 57, 49-54.
- [34] Sainaghi, R., Phillips, P., & d'Angella, F. (2019). The balanced scorecard of a new destination product: Implications for lodging and skiing firms. *International Journal of Hospitality Management*, 76, 216-230.
- [35] Sanchez-Marquez, R., Guillem, J. A., Vicens-Salort, E., & Vivas, J. J. (2018). A statistical system management method to tackle data uncertainty when using key performance indicators of the balanced scorecard. *Journal of Manufacturing Systems*, 48, 166-179.

- [36] Soderberg, M., Kalagnanam, S., Sheehan, N. T., & Vaidyanathan, G. (2011). When is a balanced scorecard a balanced scorecard? *International Journal of Productivity and Performance Management*, 60, 688-708.
- [37] Wang, L., Jin, J. L., & Zhou, K. Z. (2019). Institutional forces and customer participation in new product development: A Yin-Yang perspective. *Industrial Marketing Management*.
- [38] Yrjölä, M., Kuusela, H., Närvänen, E., Rintamäki, T., & Saarijärvi, H. (2019). Leading Change: A Customer Value Framework. *Leading Change in a Complex World: Transdisciplinary Perspectives*.
- [39] Zahay, D., Hajli, N., & Sihi, D. (2018). Managerial perspectives on crowdsourcing in the new product development process. *Industrial Marketing Management*, 71, 41-53.
- [40] Zhang, J., & Wu, W.-p. (2017). Leveraging internal resources and external business networks for new product success: A dynamic capabilities perspective. *Industrial Marketing Management*, 61, 170-181.
- [41] Zhu, X., Xiao, Z., Dong, M. C., & Gu, J. (2019). The fit between firms' open innovation and business model for new product development speed: A contingent perspective. *Technovation*.