

Forecasting Management and Strategic Adaptation: Case Evidence from Malaysia

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Abstract—The aim of this paper is to signify the value of forecasting in a strategic adaptation framework. Using a quantitative indexed-ranking framework and a case study approach based on the sales forecasting benchmarking model (SFBM), this study examines the link between strategic adaptation and forecasting management from the perspective of value creation. An automotive company with high strategic adaptation ability was identified for the study. Results provide clear evidence that in such a company, forecasting management may not be at the highest level for all dimensions of forecasting sophistication as depicted by the SFBM. This finding has important theoretical and managerial implications for the value of forecasting and planning in a rapidly changing business environment.

Keywords—strategic adaptation; forecasting; management accounting; organizational capabilities.

I. INTRODUCTION

The new world order of global competition dictates that business organizations must consistently improve their performance. The automotive industry, highly regarded as the ‘industry of industries’, is facing intense competition in a rapidly changing business environment. As such, industry players must advance not only their products and services, but also, more importantly, their processes and capabilities.

Improving processes and strengthening capabilities have been highlighted as important criteria for organizations’ survival [1] and to this end, forecasting has been recognized as a fundamental organizational capability for business planning and management [2-5]. However, there is also an ongoing debate about the importance of forecasting in a rapidly changing environment. Forecasting is proposed to be less important than adaptation as business organizations focus on production-to-order and waste reduction through continuous improvement of business processes [6-8].

In management accounting, forecasting has been highlighted as an important capability for planning and budgeting. On this note, the International Federation of Accountants (IFAC) [9], has emphasized on forward looking capabilities as part of the ongoing transformation of management accounting. As depicted in Fig. 1.1, the IFAC [9] describes the next stage of the evolution of management accounting as a transformation that focuses on forward-looking practices, such as risk management, enterprise governance and, specifically, forecasting.

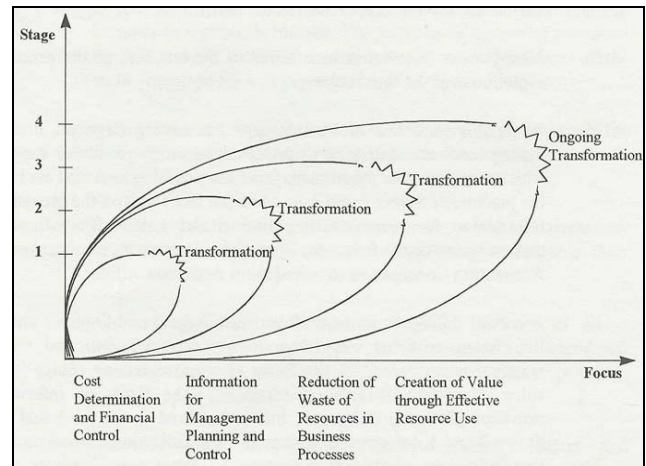


Figure 1.1: Evolution of management accounting [9]

In light of the above, this study attempts to signify the value of forecasting in a strategic adaptation framework by examining one specific organization. In particular, this study aims to contribute to an understanding of the link between strategic adaptation ability of a business organization and its forecasting management through the perspective of value creation [10-12].

II. RESEARCH METHODOLOGY

The study uses a case study approach [13] with a mixed method embedded design [14] and combines, two frameworks, namely the strategic adaptation framework [15] and the sales forecasting benchmarking model (SFBM) [16]. Specifically, the study explores two areas: (1) the link between strategic adaptation and forecasting management and (2) the value creation process of forecasting. The strategic adaptation framework uses six performance measures as proxies to adaptation ability: longevity, sales growth, market share growth, market share change, profitability ratio and productivity ratio. An indexed-ranking template was developed using a spreadsheet application with input from the Malaysian Automotive Association (MAA) and Companies Commission of Malaysia (CCM). Data collected for a ten-year period were analyzed using the indexed-ranking template to determine the position of the

selected companies in terms of their strategic adaptation ability.

The second framework, the SFBM, incorporates four stages of forecasting sophistication across four dimensions: functional integration, approach, systems and performance measurement. A high performance automotive company was identified and for confidentiality purposes, a fictitious name of the company is assigned as Auto Ltd. located in Malaysia.

III. THE ORGANIZATION: AN OVERVIEW

The study was undertaken in a joint-venture automotive company in Malaysia, with its principal shareholders from Japan and Malaysia. The company consists of an assembly plant and two component manufacturers with a total workforce of approximately 7,600 employees. It has 44 branches and 56 dealers throughout Malaysia with a strong network of 60 tier one suppliers. In terms of performance, the company has successfully maintained the leading market position in the non-national car category for 19 consecutive years. It has also achieved the number one position in Malaysia for the Sales Satisfaction Index (SSI) for 2003, 2006, 2007 and 2008, and number one position for the Customer Satisfaction Index (CSI) for 2008 and 2009.

For the past decade, the Malaysian automotive industry has experienced intense competition globally and regionally. The increased liberalization policies in the form of ASEAN Free Trade Area (AFTA) and National Automotive Policy (NAP), together with financial crises have contributed to heighten the volatility in the automotive market. Despite such turmoil, Auto Ltd. has remained competitive and has increased its market share and reputation in the Malaysian market. As the winner of numerous quality awards, its sterling performance provides insights into its capabilities and processes, specifically sales forecasting management.

The pilot inquiry indicated that Auto Ltd. did not have an advanced forecasting system or software despite showing such phenomenal organizational performance. The management did not emphasize quantitative forecasting, but rather depended more on a qualitative judgmental approach. An innovative practice incorporating both top-down and bottom-up forecasting was identified for further inquiry. For the case study, data were collected using semi-structured interviews based on the SFBM protocol, direct observation and document analysis. The data were then analyzed using NVivo 7 based on the four dimensions from the SFBM.

A. Conceptual Framework

A framework was conceptualized by examining the link between strategic adaptation ability and forecasting management and, subsequently, analyzing the value of forecasting as illustrated in Fig. 1.2.

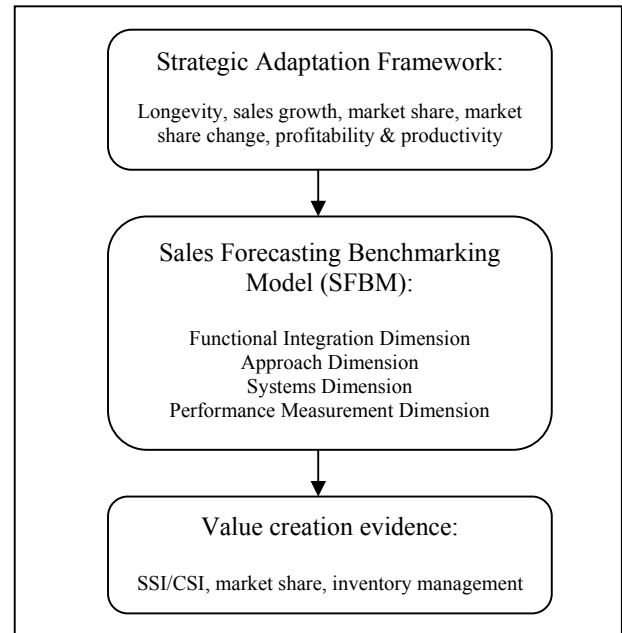


Figure 1.2: Conceptual framework

For the strategic adaptation framework, longevity was used to screen companies in the automotive industry that were in existence for the past ten years. Subsequently, the selected companies were evaluated based on growth, market share, market share change, profitability (Return on Capital Employed) and productivity (Operating Revenue on Employee Cost). Using an indexed-ranking template, the selected companies were ranked according to their strategic adaptation ability.

The SFBM incorporates four dimensions: functional integration, approach, systems and performance measurement. Functional integration refers to the three themes as the key concepts in this dimension: collaboration, communication, and coordination (internal and external). These are critical elements to effectively managing the forecasting process. The approach dimension encompasses what is forecast (e.g. units or dollars) and how it is forecast. The systems dimension includes computer and electronic communications hardware and software that support the forecasting process. Lastly, the performance measurement dimension addresses the measurement of forecasting effectiveness using performance metrics [16]. For each dimension there are four stages of forecasting sophistication that can be linked to forecasting effectiveness.

Value creation was conceptualized according to IFAC [9] that defines value creation based on the effective use of resources, such as information, from the perspective of stakeholders. Value creation evidence [17-19] was applied to link an innovative forecasting practice of Auto Ltd. to the value creation process, and thus, to the value of forecasting. In summary, this study conceptualized that strategic adaptation ability of a company influenced its sales forecasting management, which, in turn enhanced the value of forecasting.

B. Analysis and Discussion

The strategic adaptation ability of a business organization influenced its forecasting management practice which led to the value creation evidence. However, not all of the dimensions stipulated in the SFBM exhibited stage four characteristics (i.e. the highest level of forecasting sophistication). The indexed-ranking template indicated that Auto Ltd. is in the top quartile of the automotive industry and this has a positive link to the functional integration dimension that exhibited stage four characteristics. This dimension includes communication, coordination and collaboration internally as well as externally with suppliers and customers. Also, the way Auto Ltd. organized itself around the forecasting function was critical in providing cross-functional and consensus forecasting. In addition, multi-dimensional performance measures for the forecasting team play an important role in its forecasting effectiveness.

The company's adaptation ability also influenced the orientation of the forecast and the forecasting-planning relationship which exhibited stage four characteristics of the approach dimension. Using both top-down and bottom-up forecasting with reconciliations, Auto Ltd. was able to develop superior market-sensing ability. In addition, the iterative process of forecasting-planning and subsequent target setting instituted by Auto Ltd. not only enhanced its adaptation ability but also generated superior learning ability to its management. It was interesting to note that judgmental or qualitative forecasting made up 90% of Auto Ltd.'s forecasting technique. However, its adaptation ability has a moderate negative link, which is at stage two, with the systems dimension of the SFBM. It was observed that Auto Ltd. used a simple spreadsheet application for its forecasting system instead of sophisticated integrated forecasting software. Basic application of regression and time series analyses were used by the Forecasting unit in the Marketing division to produce the base line total industry volume forecast. None of the advanced systems listed on the SFBM was applied at Auto Ltd.

On the performance measurement dimension, it was observed that Auto Ltd. applied the measurement of 'forecasting impact' rather than the performance of forecasting per se. As a target-oriented business organization, it placed substantial emphasis on performance indicators that have direct links to its forecasting process such as SSI, CSI, market share and inventory management. The indicators became the formal key performance indicators (KPI) used to monitor the 'health' of its inventories nationwide through an innovative practice called the 'rundown' management.

The 'rundown' was originally developed by Auto Ltd. logistics division in response to the financial crisis in 1997-1998 where excessive inventory was a huge problem due to its weaknesses in forecasting and monitoring of inventory level. Since its inception, a more advanced format was adopted to provide for bottom-up forecasting from regional outlets with improved performance indicators based on forecasting impact. Considered as a critical process in its forecasting management, forecasts from the retail outlets country-wide were consolidated and reconciled with the top-

down approach at annual, quarterly as well as monthly intervals. The series of meetings generated by the rundown management provided effective platforms for members in the value chain to share market information and thus, derived a consensus total industry volume forecast, as well as automotive parts forecasts and firm orders monthly forecasts. It is interesting to note that once the total industry volume forecast was agreed, the volume figure was then broken down by the rundown management team into an automotive parts forecast with further refinements using a judgmental approach. In the process, the information was shared and agreed with suppliers, locally and internationally.

C. Overall Analysis of Value Creation Using [20] Value Creation Map

The overall analysis of value creation of forecasting at Auto Ltd. hinges on the innovative practice of its rundown management. Thus, an analysis of the value drivers influencing the rundown management provided interesting insights into the management factors that contribute towards the value of forecasting as illustrated in Fig. 1.3.

The value creation map based on the concept advanced by [20] in Fig. 1.3 illustrates the value drivers of the rundown management that are ultimately linked to the value creation evidence. While it is not possible to quantitatively link forecasting to organizational performance due to the multi-faceted nature of the latter, the value creation map provides the dynamic relationship of various influencing value drivers that affect forecasting management of a company in a strategic adaptation framework. The analysis revealed that principal's support, timely information, functional integration and approach play a critical role in the rundown management.

First, the principal's support influenced the harmonious relationship with the suppliers, efficient production and assembly operations and ensured cost-saving regional coordination. In this respect, this influence enabled the success of the company's production and manufacturing practices that contributed towards adaptation ability.

Second, timely information from forecasting and marketing intelligence was seen as more critical to the rundown management than forecasting accuracy per se. However, forecasting accuracy was considered as important within an acceptable margin. In addition, strong support from its information systems was paramount to the rundown management, and this did not necessarily include advanced forecasting software. The information systems that supported Auto Ltd. forecasting included, amongst others, web-based and integrated Vehicle Marketing System (VMS), Dealer Management System and SAP.

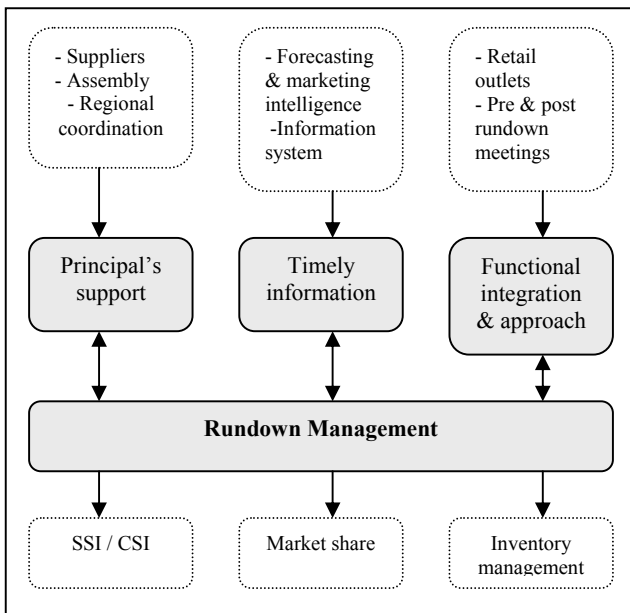


Figure 1.3: Value creation map

Third, the success of functional integration and approach of forecasting was supported by the retail outlets and the pre and post rundown meetings that encompassed the value chain members. By providing a platform whereby information is shared and interpreted based on consensus, the achievement of a single forecast throughout the value chain was enhanced.

IV. THEORETICAL AND MANAGERIAL IMPLICATIONS

This study has offered a perspective in addressing the gap warranted by [12] and [14] in signifying the value of forecasting. In the process, this study has also considered the concerns raised by [21] in refining and validating the SFBM. Issues concerning how a high performance company managed its forecasting were deliberated using a case study approach.

The value creation map illustrates various influencing value drivers that are critical in signifying the value of forecasting. This incorporates disciplines from strategic adaptation, forecasting and management accounting in achieving the objective of this study. In addition, this study also provides insights into solving the ongoing debate on whether there should be 'more forecasting' or 'less forecasting' in a rapidly changing environment. The findings from the case study suggest that the use of quantitative forecasting is limited only to total industry volume, whereas the automotive parts forecast is based on qualitative forecasting. This entails the interactions of various influencing drivers as illustrated in Fig. 1.3.

From the managerial perspective, there are several lessons that we can learn from this study. First, forecasts per se have little value unless they are applied in strategic business decisions. On this note, practitioners should understand that while focusing on forecast accuracy and forecasting techniques, it is equally important to appreciate

the value of forecasting from the users perspective, specifically the management team who make business decisions. To this end, it is recommended that the users should also be involved in the preparation of forecast information as this will enable the management team to make better decisions on the resource requirements to enhance forecasting effectiveness.

Second, this study also highlights the effectiveness of implementing performance measures based on forecasting impact rather than forecasting performance per se. Organization-wide KPI's that management should rely on that link directly to forecasting are, amongst others, delivery timing and inventory holding. In the case study, such indicators are formalized as important KPIs for the rundown management and represented in the SSI and CSI evaluation.

Third, this study also addresses the criticality of shared understanding between divisional functions internally, as well as suppliers and retail outlets. Shared interpretation of market information will contribute towards developing consensus forecasting and ultimately result in harmonious relationship between members of the supply chain. This has a huge impact on strategic adaptation of business organizations in a volatile environment.

V. CONCLUSION

From the above study we could conclude that, first, in a strategic adaptation framework the emphasis of forecasting is essential to the organizational value creation process. However, we need to understand that such environment may not entail stage four level of forecasting sophistication for all the dimensions as stipulated in the SFBM. The case also highlights the emphasis on functional integration and approach dimensions over forecasting systems. In addition, organizations need to understand that the balance between quantitative and qualitative or judgmental forecasting is important to justify further investment in forecasting infrastructure that contributes toward organizational performance. In this respect, the balance may be context specific and thus, requires further research in other industries.

Second, we could also conclude that the value of forecasting predominantly resides in the use of forecast information rather than undue emphasis on forecast accuracy using advanced algorithms. In addition, the management factors presented in Fig. 1.3 that contributed to the success of Auto Ltd. forecasting management play a crucial role in the rundown management. The case also offered illustrative insights into an innovative practice of the rundown management which effectively provides the platform for the generation, distribution and use of forecast information.

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