The balanced scorecard has been a widely used supply chain performance measurement tool because it can enable distinct competitive advantages. Businesses, industry, government and nonprofit organizations use it extensively to monitor organizational performance, improve internal and external communication and streamline the enterprise’s vision and mission.

Since its introduction in the late 20th century, researchers have investigated the advantages and disadvantages of this integrated approach. Evidence reveals that implementing balanced scorecards as a performance measurement tool has a number of benefits, particularly regarding overall productivity and profitability, despite some limitations.

Globalization and changing customer requirements are forcing industries to adapt new and efficient manufacturing practices, often changing their traditional ways of business to remain competitive. Unlike much of the Western world, which in the last few decades has adopted a “supply chain vs. supply chain” mentality, companies in subcontinent India have yet to leverage the supply chain for competitive advantages. This must change, as multinational companies are fully exploiting their supply chains and, in the digital age, even mov-

Applying balanced scorecards to supply chain performance

More enterprises in developing countries should adopt Kaplan and Norton innovation

By M. Balaji, S.N. Dinesh and V. Veera Parthiban
ing toward web-enabled supply chains. Globalization and a liberalized 21st century economy will leave Indian companies behind unless their management focus evolves toward a more effective supply chain management.

In fact, as Peter C. Brewer and Thomas W. Speh wrote in “Using the Balanced Scorecard to Measure Supply Chain Performance” in the *Journal of Business Logistics*, supply chain management is an important management practice for determining world-class performance. Economic globalization, e-business and new technologies pose challenges to all organizations. Effectively competing in the global market requires organizations to focus on improving operational functions with effective supply chain management, a claim supported by numerous studies.

For example, Ravinder Kumar, K.S. Rajesh and Ravi Shankar noted how successfully implementing supply chain management best practices can help an organization beat the competition. In “Critical Success Factors for Implementation of Supply Chain Management in Indian Small and Medium Enterprises and Their Impact on Performance” in *IMB Management Review*, the authors examined how an efficient supply chain reduced costs, increased market share, increased sales and sustained customer relationships.

However, the researchers noted, designing a supply chain alone is not enough to guarantee improvement, as managers must periodically evaluate a supply chain’s performance. In a continuously changing world, they wrote, a company can achieve competitive advantage by exploiting intangible assets and focusing less on financial results. The most adequate performance measurement method used to identify and illustrate the main drivers of business, and one that also offers an important view of the organization’s strategy, would align and focus every part of the organization toward implementing the agreed-upon strategy: In other words, the balanced scorecard model, as Cristian-Ionut Ivanov and Silvia Avascal wrote in “Measuring the Performance of Innovation Processes: A Balanced Scorecard Perspective,” from *Social and Behavioral Sciences*.

**The balanced scorecard’s genesis and evolution**

Robert S. Kaplan and David P. Norton developed the balanced scorecard a quarter century ago. In “The Balanced Scorecard – Measures That Drive Performance” in *Harvard Business Review*, they added strategic nonfinancial performance measures to the traditional financial metrics to give managers and executives a clear, holistic view of organizational performance. This performance measurement framework has evolved from a simple framework to a complete strategic planning and management system.

The balanced scorecard was devised because of the need to incorporate nonfinancial variables to measure organizational – particularly business – performance. The balanced scorecard gives managers a formalized mechanism to balance financial and nonfinancial results in the short and long term, evaluating performance through four different perspectives: Financial, customer, internal business process and learning and growth. To implement balanced scorecards effectively, organizations require sufficient management tools and procedures to provide accurate, timely information and communicate this data throughout an organization. Choosing proper channels enables an enterprise to increase the efficiency of communication and the transformation of information technologies, Nattarine Kopecka emphasized in “The Balanced Scorecard Implementation, Integrated Approach and the Quality of Its Measurement,” from *Procedia Economics and Finance*.

The balanced scorecard can be seen as a management system that bridges the gap between strategic objectives set at an organization’s senior level and their operational execution. The scorecard takes the company’s vision, translates each key statement into measurable steps and then presents information to compare and evaluate the critical success factors. Balanced scorecards have the potential to integrate environmental and social aspects into the general management system.

Researchers and managers have noted that the balanced scorecard does not formulate strategies. Instead, balanced scorecards describe an existing strategy consistently to enhance its successful execution. The balanced scorecard is one of the most highly rated management tools today and can help organizations achieve better results when compared to traditional performance measurement systems, researchers have found.

At the onset, a balanced scorecard relies on theoretical and practical tools to analyze strengths and weaknesses in line with opportunities and threats to measure organizational performance. Organizations that looked for years for a tool that would evaluate their business, give them credibility and gain confidence with investors and shareholders were gratified by the dawn of the balanced scorecard approach.

Let's take a look at the conceptual framework and related literature involving balanced scorecard implementation, the concept of the balanced scorecard, how SWOT (strengths-weaknesses-opportunities-threats) analysis fits in and real-time applications of Kaplan’s and Norton’s approach.

Kaplan and Norton devised their balanced scorecard in 1992 as a way to translate a company’s vision and strategy into specific performance measures to help businesses reach their strategic objectives. In the past, companies generally emphasized achieving short-term financial goals and thus failed to establish a link between long-term strategy and short-term actions. This often resulted in a gap between the planned strategic development and its implementation.

The balanced scorecard model was an attempt to resolve this problem. Its defining characteristic sets strategic targets more clearly while simultaneously allowing management to
monitor the results of strategy implementation more easily, explained Chi-Bing, Bao-Guang Chang and Chung-Jen Fu in “Evaluating the Effectiveness of a Balanced Scorecard System Implemented in a Functional Organization,” published in the *Journal of International Management Studies*.

They described how the balanced scorecard concept can be implemented in many ways, although the system must be adapted to fit each specific organization. A good scorecard reflects the strategic plan of the organization, provides a framework that helps shape work behavior, allows each person to measure individual performance and gives data to make changes immediately so that performance is enhanced. As mentioned earlier and shown in Figure 1, the balanced scorecard framework covers four different perspectives: financial, customer, internal business process and learning and growth.

**Show us the money**

The financial perspective seeks to answer what financial stakeholders expect or demand.

The driving factors in this perspective will be customized to the organization. According to Ayesha Farooq and Zareen Hussain, the most common performance measures are return on investment (ROI), cash flow, net operating income and revenue growth, as they wrote in “Balanced Scorecard Perspective on Change and Performance: A Study of Selected Indian Companies,” published in *Procedia Social and Behavioral Sciences*.

The financial perspective represents the long-term goal of organizations to provide superior returns based on the capital invested. Financial measures have been the traditional method of analyzing organizational success, involving elements such as profitability, sales growth and revenue per sales visit. It is important for organizations to know from where they get money and how they invest these funds, although financial indicators do differ from company to company.

However, companies often make the mistake of focusing too much on financial indicators, totally or partially ignoring other perspectives, as Ivanov and Avasilcai wrote in their 2014 paper. Still, timely and accurate funding data will always be a priority, and managers should do whatever necessary to provide it.

Various financial subfactors include market share, sales growth by year or quarter, net profit margin, reduction in manufacturing cost and, especially important from a supply chain management perspective, reductions in distribution, inventory and warehouse costs, according to “Performance Evaluation in Supply Chain Using Balanced Scorecards.” That 2014 research by P. Mathiyalagan, K. Tamil Mannan and P. Parthiban was published in the *International Journal of Advances in Mechanical & Automobile Engineering*.

Companies ultimately want to succeed against their competition, increasing the enterprises’ value for shareholders and employees. This can happen through one of two basic approaches: productivity improvement or revenue growth.

The essential components of productivity improvement include cost reduction by lowering direct and indirect expenses, along with the efficiency of financial and physical utilization.

Revenue growth includes generating more revenue and income from existing customers, from existing products sold in new markets and from creating new products for new markets, Kopecka’s piece reported.

According to R. Rajesh and the coauthors of “Generic Balanced Scorecard Framework for Third Party Logistics Service Providers” in the *International Journal of Production Economics*, financial performance strategies indicate whether implementing a company’s strategy effectively improves the bottom line. Financial goals are to survive, succeed and prosper. Survival is measured by cash flow, success by growth in sales and operating income and prosperity by increased market share and return on equity and capital employed.

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**FIGURE 1**

*Four eyes on the prize*

The balanced scorecard framework covers four different perspectives: Financial, customer, internal business process and learning and growth.
According to Kaplan and Norton, the three core financial themes are revenue growth, cost reduction and asset utilization. A critical appraisal of the financial perspective reveals, therefore, that the focus should be on how to increase the number of new products, minimize product/service costs and maximize revenue flow.

Customers speak

The customer perspective seeks to answer the following question: To achieve our vision, how should we appear to the customers? The answer relies on identifying your target customers, understanding their expectations and determining the value proposition in serving them.

According to Farooq and Hussain’s 2011 paper, choosing measures for the customer perspective of the balanced scorecard depends on the type of customers desired and the value that the organizations provide to them. In other words, the purpose of the customer perspective is to focus on the target customers. This will help organizations create strategies consistent with the type of customers they want.

Businesses commonly use customer perspective key performance indicators (KPIs) such as customer satisfaction ratings to assess their performance. For example, if customer satisfaction ratings are greater than average, the KPI will be positive. If customer satisfaction ratings are lower than average, management will want to devise improvement measures.

In the view of many researchers, effective supply chain management is concerned with managing the relationships with suppliers and customers to deliver customer value at low cost with high levels of customer satisfaction.

According to Mathiyalagan and his coauthors in their 2014 paper, information about customer satisfaction is a critical success factor. Recently, management philosophy has shifted to realize the importance of customer focus and customer satisfaction.

Under this perspective, industry should be concerned with various subfactors such as lead-time, number of defects per order, on-time delivery rate and the accuracy of a company’s delivery forecast. Mortez Shafiee, Farhad Hosseinzadeh Lotfi and Hilda Saleh concluded in “Supply Chain Performance Evaluation with Data Envelopment Analysis and Balanced Scorecard Approach” that in order to focus on customer market segmentation, organizations should use their intrinsic advantages and resources to show their differences in comparison with their competitors. After all, according to their paper in Applied Mathematical Modelling, the main measurements contain customer continuation, customer satisfaction, customer acquisition share ratio and customer profitability.

A review of this perspective clearly indicates that these days, the customer is a king who should be served and handled with care. Having your supply chain satisfy customers could lead to expanded market share.

Chinese e-commerce plan grows

Chinese e-commerce giant JD.com plans to build supply chain sites in 30 countries, reported technode.com, which covers China’s technology and startup sectors. The company, which competes with Alibaba, has a goal of being able to transfer goods from China to cross-border destinations in 48 hours. “JD set up the plan at the beginning of this year. Generally speaking, we’ll complete it in two to three years,” Huang Xing, JD’s vice president, said during an announcement at the Eastern Economic Forum held in Vladivostok, Russia.

An internal perspective

The internal process perspective seeks to answer the following question: To satisfy our shareholders and customers, what business processes must we excel at?

The internal perspective must reflect the organization’s core skills and the critical technology involved in adding value to the customer’s business. Heila Pienaar and Cecilia Penzhorn wrote in “Using the Balanced Scorecard to Facilitate Strategic Management at an Academic Information Service,” which was published in Libri, Kopecka’s 2015 paper reported that when a business clearly shapes the objectives of what it intends to deliver to its shareholders and customers, it will determine its precise strategy.

Since internal processes are core factors in any organization’s success, the four core processes of operations management, customer management, innovation and regulatory social processes must be excellent.

First, operations management processes must achieve superior supplier capability, improve the cost, quality and cycle times of operations, improve asset utilization and deliver goods and services to customers. Second, customer management processes must acquire new customers, satisfy and retain existing customers and generate growth. Third, the processes of innovation must develop innovative products and services from excellent research and development. And fourth, regulatory and social processes must project a firm image of social and regulatory responsibility that allows the company to earn money in the long run.

Ivanov and Avasilcai viewed this perspective as the one that focuses on all activities and processes that are critical for the organization in providing expected value for the customers. The main condition in obtaining the desired results from process improvements is to assess organizational performance and identify the possible problems that affect the quality of the products.

According to some researchers, the internal process per-
spective identifies key operational processes in which the organization must excel. It is interesting to note that Kaplan and Norton emphasized that the market must not be overlooked: “Internal measures to the BSC [balanced scorecard] should be derived from those business processes that have the largest impact on the customer.”

A. Malgwi and H. Dahiru shared the view of Kaplan and Norton and identified three process value chains that companies should apply in their internal process perspectives to. In their paper “Balanced Scorecard Financial Measurement of Organizational Performance: A Review,” which was published in the IOSR Journal of Economics and Finance, Malgwi and Dahiru identified those three value chains as the innovation, operations, and post-sales service processes.

In the innovation process, managers research the needs of customers and then create the products or services that best meet those needs. The operations process represents the short wave of value creation. It is concerned with producing and delivering existing products and services to customers. The post-sales service process represents the final item in the process value chain for the operations process perspective. It focuses on how responsive the organization is to the customer after the product or service has been delivered. After-sale services include warrantee and repair activities, treatment of defects and returns, administration of customer payments and resolution of customer problems and complaints.

A review of the internal process perspective surfaces the facts that enterprises should decide on what processes and competencies they must excel at and specify measures for each of them. Improving the quality of products, innovating new products, customer satisfaction, on-time delivery of goods and services to customers all play a dominant role in the internal process perspective.

**Learning and growth perspective**

The learning and growth perspective seeks to answer the question: To achieve our vision, how will we sustain our ability to change and improve? As Farooq and Hussain’s 2011 research in Procedia Social and Behavioral Sciences asserted, the learning and growth perspective deals with employee satisfaction, alignment of employee skills with jobs, the number of employee suggestions implemented and the hours taken for employee training.

Ivanov and Avasilcai’s 2014 research asserted that the need for employee knowledge, skills and abilities can be important, especially when new technologies and processes come to the market. A company’s ability to innovate, improve and learn corresponds directly to a company’s value. Continuous learning processes with innovation can bring about efficiency in an enterprise’s operating domain. The learning and growth perspective aligns employee incentives and rewards with the strategy.

In the process of communicating this perspective to employees, Kopecka’s 2015 paper maintained that company management should link three groups as follows: (1) Human resources, which focuses on development strategy competencies and works to attract and retain top talent; (2) information technology, which provides applications that support the strategy, along with developing customer data and information systems; and (3) organizational culture and alignment, which creates customer-centric culture, aligns employee goals with corporate success and shares knowledge about best practices and customers.

The learning and growth perspective consists of employee skills, training and administration of routine processes. In other words, according to Zeynep Tugce Kalender and Ozalp Vayvay in “The Fifth Pillar of the Balanced Scorecard: Sustainability,” which was published in Procedia – Social and Behavioral Sciences, this perspective focuses on internal skills and capabilities in order to align them to the strategic goals of the organization.

Kaplan and Norton identified two major enabling factors for this perspective to be actualized. The first is to increase employee capabilities by ensuring that every employee is able to deliver a service that puts the company in the best position. Strategic measures to achieve this include constant training, helping staffers adopt new ways and making them attend internal and external workshops and seminars on new trends.

Second, Kaplan and Norton emphasized, increase motivation, empowerment and alignment. The focus here is to consider individual goals when formulating organizational goals. Strategic measures to align these goals include training existing staff to acquire new knowledge and welcoming individual suggestions on ways to improve products and processes or develop newer and better ones.

A review of this perspective clearly concludes that employee participation plays a major role in effective organizations. In fact, this perspective is the backbone to a successful scorecard because it involves employee skills and information systems. Employees and their skills are important not only for their specific tasks, but also for their creativity and ability to develop new ideas.

**An (almost) wide world adoption**

The balanced scorecard has evolved from its early use as a simple performance measurement framework to a full strategic planning and management system. It plays a wide role as a performance improvement tool in industries, business, healthcare organizations, educational institutions, government and nonprofit organizations.

The Gartner group suggested that more than 50 percent of U.S. firms have adopted the balanced scorecard, and more than half of the major companies in Europe and Asia are using balanced scorecard approaches, with an upsurge of ap-
applications in the Middle East and Africa. A recent global study by Bain and Co. listed the balanced scorecard as No. 5 on its top 10 most widely used management tools. And the editors of *Harvard Business Review* selected the balanced scorecard as one of the most influential business ideas of the past 75 years.

The scorecard’s systematic approach helps integrate physical and intangible assets into a comprehensive model and builds a meaningful relationship among different criteria, and our exploration of the research shows its effectiveness in various applications.

According to a recent survey of more than 1,000 organizations, 80 percent of organizations that regularly use the balanced scorecard reported improvements in operating performance, and 66 percent reported an increase in profits, according to Arefeh Rabbani, Mahmoud Zamani, Abdolreza Yazdani-Chamzini and Edmundas Kazimieras Zavadskas in “Proposing A New Integrated Model Based on Sustainability Balanced Scorecard and MCDM Approaches by Using Linguistic Variables for the Performance Evaluation of Oil Producing Companies,” which was published in *Expert Systems with Applications*.

The balanced scorecard’s versatility means it can be implemented in many ways as long as it is adapted to fit your organization. And the SWOT (strengths, weaknesses, opportunities and threats) analysis is a simple but useful framework for analyzing how to fit the scorecard into your enterprise’s situation. A SWOT analysis can be carried out for a company, product, place, industry or person. It involves specifying the objective of the business venture or project and identifying the internal and external factors that are favorable and unfavorable to achieve that objective.

A SWOT analysis can be a source of information for strategic planning by:

- Building on the organization’s strengths
- Reversing its weaknesses
- Maximizing responses to opportunities
- Overcoming the organization’s threats
- Identifying your enterprise’s core competencies
- Setting objectives for strategic planning
- Knowing the past and present to help chalk out future plans

Figure 2 depicts a SWOT analysis conducted for a balanced scorecard approach.

Performance management has become a requirement for the private and public sectors. Unfortunately, many management systems fall short, especially with regard to environmental and social issues. But the balanced scorecard is a framework that can measure different aspects of an organization, helping managers evaluate themselves accurately and, as a result, place themselves in a better position to compete. Despite its overall attractiveness, the balanced scorecard is still alien to many companies.

It is time for these companies, mostly positioned in developing and yet-to-develop countries, to take strides toward optimal supply chains through apt tools like the balanced scorecard. It is certain that widespread, successful implementation of the balanced scorecard approach across industry sectors will help organizations achieve the supply chain profitability seen by U.S. and European enterprises.

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