In a competitive world, the companies that rediscover their vision and mission and innovate continuously achieve sustainability. Long-term sustenance has to be built and fuelled constantly by innovation and well-designed strategic intent. Many companies like General Electric, General Motors, Ford Motor, Bharat Heavy Electricals Ltd., and Tata Motors have devised ways to stay ahead of the competition and build a case for their continued relevance to customers and other stakeholders. All of them have one thing in common – they have used the Balanced Score Card (BSC) methodology as well as continuous improvement to constantly learn from their past efforts and move ahead to greater heights of performance.

Tata Steel is a company which is now over 105 years old and continues to be a force to reckon with in the world steel industry. This continued profitable presence in a highly technology- and manpower-driven, capital-intensive industry is not a mere chance event; it has been an outcome of continued innovation in the way the company’s leaders have rediscovered and restated the purpose for its existence – which derives from the Tata Group philosophy of “leadership with trust”.

During the years 1990-2010, the company went through a large scale transformation when the leaders reinvented the way in which the daily management as well as strategic management activities were carried out. The successful turnaround of the company from a manpower-intensive, low-technology player to the world’s lowest cost steel plant and more was made possible due to the several initiatives taken up in these years.

This paper describes the crucial role played by the BSC methodology implementation which led to the acquisition of Corus, an unparalleled action which has catapulted Tata Steel and the Tata Group into the league of companies that straddle the world business scenario and influence customer comforts.

**ORIGIN OF THE BSC**

The search for an integrated management method for large companies has been on since Drucker (1993) proposed the MBO – Management by Objectives. One of the authors was a witness and a participant in a live effort in Mukand Iron and Steel Company, India to introduce MBO for managing the company in 1975. MBO was followed by the methodology of managing by annual themes practised by Japanese
companies to bring about a unifying factor to drive TQM events (sometimes referred to as ‘policy or strategy management’), followed by *Hoshin Kanri* (e.g., Lee & Dale, 1998) and the X-matrix.

The first BSC was prepared by Analog Devices Inc. (ADI), in the US in 1987 by Arthur Schneiderman (see, e.g. Stata, 1989; Schneiderman, 1999). Schneiderman was the VP of TQM in ADI when he hit upon the idea of BSC in order to bring about connectivity between the non-financial and financial measures. ADI developed BSC to drive performance improvements while applying TQM methodologies. The ADI scorecards did not use the four perspectives developed later by Kaplan and Norton (1992) but nevertheless demonstrated the need for an integrated system – or a systems approach, as described by Ray Stata, the then Chairman of ADI – to tie in several efforts within a company to move on different fronts leading finally to superior bottom line results. Ray Stata had envisioned and propagated the idea of a learning organization, in part motivated and influenced by the theories developed by Arie DeGeus in Royal Dutch/Shell Oil (DeGeus, 1997).

**MULTIPLE USES OF BSC**

Although the idea of a BSC was not entirely new in the 1980s – GE had done similar work in the 1950s – the evolution of TQM as a serious threat to American business expedited progress in the formalization of BSC. Kaplan and Norton were the pioneers in the preparation and use of BSC in many US companies and elsewhere (Kaplan & Norton 1992; 1993; 2001a; 2001b; 2001c; 2004a; 2004b; 2006; Kaplan & Lamotte, 2001; Kaplan, Norton, & Rugelsjoen, 2010). They demonstrated that BSC can be used as a change agent, an instrument of strategy design and deployment, as a system for communicating strategy across the organization, a methodology for integrating TQM efforts, a mechanism for unifying organizational work by setting up targets and goals and so on. They postulated that the four perspectives – innovation and learning, internal processes, customer, and financial – were interrelated through a cause-effect relationship. Although some researchers have questioned this assumption (e.g., Norrekilt, 1999; Kaskey, 2013), others have shown that the BSC system works successfully in many situations. For example, Giannopoulos et al. (2013) conducted a study of BSC practices in small companies in the UK and Cyprus. They reported that small companies do not typically use BSC but they do make use of performance measures and indicators similar to those included in BSC models. Prabhu and Hegde (2012) described the issues that one faced when trying to introduce a BSC system in a small company. They concluded that conflict management and change management were the most important aspects of trying to introduce the BSC systems in a small company not used to systematic performance management. The leader plays a crucial role in the success or otherwise of the introduction.

Parmenter (2002), Pandey (2005), Sushil (2008), Gumbus (2005), Jerez et al. (2006), Mukherjee and Pandit (2009) described the methods to be used to build BSCs in different types of organizations. They also mentioned and analysed the many actions to be taken to design and run a BSC system in organizations. Pandey wrote about the importance of identifying the ‘Critical Success Factors’ which cascaded across the organization in terms of initiatives and related metrics. There is consensus that specific initiatives must be identified for action which will enable deployment of strategy in day-to-day management. The key to success in BSC deployment is the way metrics are connected to tactical actions, how tactics are aligned to drive the organization towards the strategic goals, and how synergy can be realized through concerted actions. More difficult is the idea of linking performance pay to the BSC parameters (Steele et al., 2012). While it is possible to link the overall quantum of performance bonuses payable to top management personnel to company performance (many Tata companies follow this policy), the decisions on how to reward personnel down the line is still a moot issue. Too much of emphasis on the Key Result Areas (KRAs) of individuals without a formal linkage to teamwork metrics can result in a ‘tunnel vision’ or ‘blinker vision’ of individuals who prefer to concentrate on their own performance without any reference to the team results. This often leads to conflicts within the organization, and even between individuals in the same department. Hence a balanced approach is called for. More importantly, there is loss of “teamwork” which can be detrimental to the organization in the long run. Tata Steel is a good example where teamwork mechanisms like the Joint Departmental Councils (JDCs), a world-class industrial relations building and maintaining activity, have been fine-tuned to a nicety, and where individual KRAs are embedded in a teamwork culture.

BSC has been used for deploying strategies (Ridwan et al., 2013; Werner et al., 2012; Kaplan & Norton, 2001a;
Kaplan and Norton have written extensively about how to transform organizations, converting the BSC from a performance measurement tool to a strategy implementation system. This is possible in all cases where the BSC system is embedded as a part of an overall continuous improvement system supported by an innovation culture which looks beyond continuous improvement. Apart from the general purpose of managing the strategy of an organization, BSC has some specific uses too; for example, alliances can be managed using BSC (Kaplan & Norton, 2010) as well as product diversification efforts (Jarrar & Smith, 2011). In the case of alliances where the interests of both the co-owners are involved, Kaplan and Norton contend that very often each party tries to maximize its own gains from the alliance. However, in a BSC approach, the two involved parties define and agree upon a common strategy for common benefits – both long- and short-term. In such a case, the actions are captured in a BSC system consisting of metrics, initiatives, and time-bound action plans which help drive the agreed upon strategy. Jarrar and Smith (2011) proposed that innovation and product diversification could go hand in hand with performance when using a BSC methodology. Many companies which are averse to taking risks in innovating may like to use BSC to tie-in the risks to the benefits that are inherent in innovations but are not apparent. Use of BSC has been accepted even in the field of education (Karpagam & Suganthi, 2012; Weng, 2011; Gumbus, 2005). BSC with quality improvement systems such as Malcolm Baldrige, EFQM, TQM, etc. provides the best benefits to companies (Dror, 2008; Jarrar & Smith, 2011; Kaplan & Lamotte, 2001; Schneiderman, 1999). The experiences in the Tata Group companies (e.g. see Johnson, 2004) and specifically, in Tata Steel, illustrate this point.

**BSC IN TATA STEEL**

Jamshed J Irani, the Managing Director (MD) of the company who provided the much needed leadership for Tata Steel to transform into a TBEM winner, began the practice of adopting BSC in the year 1999-2000. In the year 2000-2001, the system was formalized and a set of BSCs were prepared across the organization. Strengthening of the BSC system was done as a part of continuing improvements in the company to win the coveted JRD Tata Quality Value Award – the highest award for Business Excellence (BE) in the Tata Group. This award-winning model was designed on the Malcolm Baldrige model and was used as an internal system within the Tata Group, administered by the Tata Quality Management Services (TQMS), to promote and spread the culture of BE across group companies.

Till the year 1999, Tata Steel’s strategic goal-setting process was governed by the annual, five-year, and long-term plans processes, along with a budgetary system. The various plans prepared regularly by the company were: Annual Business Plan, Annual Operations Plan, Annual Marketing Plan, and the Annual Budget. These were aggregated from all the plans prepared in all the profit centres within the company.

Over the years Tata Steel’s Industrial Engineering and Statistics Group had developed a mathematical model of the entire integrated steel plant and company operations including the coal mines, iron ore mines, all the liquid producing shops, and the finishing facilities. Using a theoretical framework and plugging in data collected from daily operations, the company had put in place a mechanism which could calculate the various production and services requirements for any particular level of production and product mix. These were available with the departments as well, for their individual operations. This facility with numbers and the knowledge about the intricacies of the overall operations gave Tata Steel a strength which very few companies possessed. Thus, preparation of the plans in great detail provided a sound basis for the preparation of BSC. In conjunction with the Joint Departmental Council system – a world class system of joint decision-making, action planning, communication, and feedback mechanism involving both management and workmen – the company achieved considerable progress on all fronts to become the leader of BE in the Tata Group by 1999 (see Figures 1 and 2). By the year 2002, a newly designed Quality Management Structure (QMS) was also firmly in place (Figures 3, 4, and 5).

Hence, by the time Tata Steel decided to implement BSC across the organization, the foundation had already been laid out. For successful implementation of BSC, it is critical to ensure that the company culture is in a receptive state. Otherwise, the possibility of BSC failing in its purpose and delivery would be quite high. The logic is that, in the ultimate analysis, BSC is not a measurement system; it is a strategy design, implementation, and communication system. Hence, the enablers must be in place.
The TQM/BE movements address many of these requirements. Table 1 shows that the machinery was already in place in Tata Steel.

Amongst the most successful applications of BSC are companies which have used this system in conjunction with TQM/BE. Full-fledged implementation of the BSC system required training of multiple hands. In-company training was arranged in locations outside of Jamshedpur in India and abroad. One of the authors was sent to meet with Dr David Norton in Lincoln, Massachusetts to discuss and arrange for a senior management session between him and the MD (the principal author of this paper had just then been appointed as the next MD of the company). With these preparations and the newly designed QMS (Figure 4), which was one of the first continuous improvement actions carried out to address the ‘areas for improvement’ based on the previous year’s TBEM assessment, Tata Steel embarked upon the BSC journey.

**Phase I: 1999-2001**

The steps that defined the BSC system design were as follows:

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**Figure 1: Continuous Improvement Activities in Tata Steel**

![Figure 1](image1.png)

Source: Company data

**Figure 2: Savings due to Continuous Improvement Actions (in ₹ crore)**

![Figure 2](image2.png)

• The strategy of the company was declared based on its vision, mission, and values. For this purpose, the inputs were provided by the Strategy Group attached to the MD, which were then discussed at different levels before finalization. One of the innovations was to prepare the Strategy Horizons diagram (Figure 6).

• If needed, the vision, mission, and values were revisited and changes made (the company drew up a new vision in 1999 and then in 2003).

• All internal stakeholders prepared the BE Improvement Plan (annual) or AQUIP based on the TBEM feedback and by incorporating improvement actions from

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**Figure 3: Organization Structure of Tata Steel**

![Organization Structure of Tata Steel](image)

Source: Company documents

**Figure 4: Tata Steel – Basis for QMS**

![Tata Steel – Basis for QMS](image)

Source: Company documents
**Figure 5: Tata Steel QMS (1999)**

![Diagram of Tata Steel QMS (1999)](image)

**Source:** Company documents

**Figure 6: Strategy Horizons Diagram**

![Strategy Horizons Diagram](image)

**PILLARS**
- Steel
  - Retail
  - Opportunistic acquisition in steel

**MINI PILLARS**
- Titanium
- Ferro alloys

**Other**
- Remote business service
- Logistics
- Advanced material
- E-commerce*
- Thermal coal*
- Iron ore*
- Gas pipeline & distribution

* Under incubation

**Source:** Muthuraman (2003)
other feedbacks like CII-EXIM assessment, IIM assessment, Best Steel Plant assessment, and JN Tata assessments (Figure 7).

- The action plans were then incorporated in the BSC for the department and division. While AQUIP documents were prepared for each department, documents for BSC were prepared at the Departmental and Divisional (BE Councils), Business Unit level (BE Councils), Corporate group level (BE Excellence Corporate Groups), and finally, at the Corporate (or Managing Director) level. This four-level BSC system (Figure 5) was envisaged for implementation in a year or two, but it began only in 2000-2001.
- The BE Group of Tata Steel facilitated the process of preparation of BSC. In the year 2000-2001, the four-perspective format proposed by Kaplan and Norton (1992) was used for all the BSCs.
- The revised and improved upon BSC system was implemented by the middle of the year 2001 and assessed by the TBEM assessors.

- The overall TBEM score jumped from 616 to 643 – an increase of 27 points or close to 5 percent, a rare feat for a company already at a high level of score. Quite obviously, the increase was not only because of the implementation of BSC but also because the company could marshal its efforts in an integrated manner at an already high level of excellence and inched closer to the next scoring band which would make the company an ‘industry leader’ in the TBEM parlance.

The innovations that helped the company excel were:

- Design and implementation of a new QMS
- Design of a new methodology for cascading the BSC (Figure 8)
- Design of a new review system for BSC
- Strengthening of the AQUIP documentation preparation

Table 2 shows a sample BSC of the MD for the year 1999-2000.

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2 CII EXIM is an external assessment by assessors sent by the CII for assessing against the EFQM model; IIM assessment is done by the Indian Institute of Metals that had devised their own model for assessment of excellence; Best Steel Plant assessment was done by the central government of India for all integrated steel plants in the country; and the JN Tata is an internal assessment process administered by the BE Group of Tata Steel for all divisions in the company using the TBEM framework.
PHASE II: 2001-2002
Series of Actions for Design and Deployment of the BSC System

Buoyed by the success of the BSC implementation in 2000-2001, the company’s leaders took the next steps to make the communication of the BSC better. MD Online was one such initiative which helped the MD communicate better with the team leaders and officers at all levels. The most important initiative introduced to strengthen the system was ASPIRE which in fact was an overall company effort. However, the benefits to the BSC were that the targets were aspirational, a new vision was in the offing and all employees were being goaded to think aspirationally. The system for cascading BSC metrics was formalized (Figure 8).

Phase II: 2001-2003
Jamshed J Irani passed on the baton to B Muthuraman, who succeeded him as the MD of the company in 2001. The next phase of development of the BSC system began with the announcement by the new MD of a new movement called “ASPIRE” the objective of which was to create a new motivation and momentum in all employees to excel and aspire for superior performance never before achieved to make Tata Steel EVA-positive. It was also the intention to revisit the Vision statement in the year 2003 and hence the ASPIRE movement was kicked off to inspire employees to think out-of-the-box and create a new organization, to be built on the firm foundations already laid. This unique strength of the company’s top management leaders is a key to the successful design and implementation of the BSC system. The courage to see oneself in the mirror and design correction and preventive actions (CAPA) to improve continuously calls for “humility” which is a unique trait in Tata Steel senior leaders. (This same trait amongst CEOs of great companies was detected by Jim Collins (2001), in his book, Good to Great –
Chapter 2, level 5 leaders). Under the ASPIRE umbrella, several changes were made in the BSC system. The cascading of the BSC was improved upon by asking leaders at various levels in the organization to take greater responsibility in devising Vision and Aspiration statements for their SBUs, Divisions, and Departments. Functions were also asked to envision their own future roles, as to how they will support the company to reach refined heights of technology and operations. The new BSC cascading diagram was redrawn as shown in Figure 9.

Another major improvement was the inclusion of different types of measures in the BSCs – lead/lag and measures for running/changing the business. The selection process of metrics was also improved by adopting a new methodology. These are illustrated in Figures 10 and 11.

All BSCs across the organization were modified to fall in line with the above changes. The new MD’s BSC was adopted (Table 3).

The basic thrust of the new strategy of the company was to become EVA-positive. This was driven through many initiatives which were captured in the BSCs. The list of key initiatives included:

1. Declaration of a new vision – Vision 2007 – by the new MD
2. Designing of product portfolio matrix to drive the product-mix towards higher profitability and competitiveness
3. Introduction of customer value management by Khalid Hafiz of Nortel
4. Introduction of theory of constraints by Eliyahu Goldratt*
5. Introduction of daily management and continuous improvement by Consultant Yoshikazu Tsuda and Professor Yoshida

**Figure 9: The New BSC System – Tata Steel Strategy Deployment Diagram**

Source: Company documents

* As Israeli physicist who became a business management guru.
6. Definition of a new leadership system given by the new MD (2003) (Figure 12).

There were also several other new initiatives taken up by each SBU/Division/Department based on the new methodology of ‘aspirational thinking’ under the new ASPIRE umbrella initiative.

During the year 2001-02, as a part of Evaluation & Improvement (E & I), strategic initiatives were introduced in the scorecards with the objective of cascading them as the strategic objectives of the next level of scorecards. The purpose was to cascade the strategy of the company to various levels for proper deployment. At the end of the year, a study was undertaken to find out the effectiveness of the BSC system in the company. This study was conducted by the BE Group. The primary objective of the analysis was to ascertain how the measures on the scorecard were balanced and how the strategy had been deployed through systematic cascading of these balanced metrics.

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3 The company documents refer to the reports submitted by John Vinyard, the Malcolm Balridge Assessor, to the top management of Tata Steel based on his observations on the progress achieved by the company in the TBEM movement.
The key findings of the study were as follows (Table 4):

**Alignment of Scorecards**

Overall, about 85 percent of the measures were aligned to the next higher level scorecard which showed that the measures were fairly well aligned through different levels.

**Cascading of Strategic Initiatives**

- Approximately 85 percent of the strategic initiatives identified in the DMD (Steel)'s Balanced Score Card were cascaded to various scorecards within the council.
- Approximately 66 percent of the strategic initiatives identified in the EIC (FP) Balanced Score Card were cascaded to various scorecards within the sub-council.
 Approximately 67 percent of the strategic initiatives identified in the EIC (LP)* Balanced Score Card were cascaded to various scorecards within the sub-council.

• The extent of cascading of strategic initiatives from the next higher level scorecard, overall, was around 32 percent.

<table>
<thead>
<tr>
<th>Lead Indicators:</th>
<th>overall 27 percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lag Indicators:</td>
<td>overall 73 percent</td>
</tr>
<tr>
<td>Benchmarks on Scorecard:</td>
<td>29 percent</td>
</tr>
</tbody>
</table>

**Perspective Balance:**

- **Customer Perspective:** 11 percent
- **Financial Perspective:** 7 percent
- **Internal Perspective:** 66 percent
- **Learning & Growth Perspective:** 16 percent

The study showed that cascading needed to be improved; the BSCs were more ‘internal’ oriented in nature although the learning and growth perspective was well addressed. The financial perspective was underplayed as the prime objective of the company was to become EVA+ in the short term. The new MD’s BSC was a great improvement over the earlier ones and the monitoring and CAPA system rigour was also increased. As a result of all these actions, the TBEM score at the end of 2002 went up from 643 to 666, an increase of 23 marks or about 4 percent. This was also a very difficult achievement considering that one is already in the higher echelons of the TBEM score. The aim of the company to emerge as an “industry leader”, in the parlance of TBEM, was achieved. The deployment of the BSC system with renewed vigour and improvements was a key effort in the company moving up in its degree of excellence.

**Phase III: 2003-2004**

Building on the success of the BSC system through its embedment into the ASPIRE umbrella, the company went on to make further improvements in the same. One of the significant changes made was the declaration of a strategy map, strategy architecture, and a new BSC for the MD. While the BSC cascading system remained the same, the strategy map helped in clarifying some of the strategy elements as well as communicating them. The BE councils down the line were also asked to develop strategy maps. This helped the SBUs and divisions to think strategically about their operations, thus enabling nurturing of future leaders who can think strategically. At one point of time, several CEOs in the Tata Group were from Tata Steel. One of the reasons for this trend was that Tata Steel was one company which had gone into the depth of the continuous improvement movement using tools like TQM, TBEM, and BSC which provided the deep and broad bandwidth needed to create leaders.

The newly designed BSCs were rolled out across the organization. The company had by then developed one of the most extensive BSC deployment exercise in terms of scorecards - there were more than a 100 in the company at various levels and over a few thousand initiatives in the BSCs which were designed and deployed by the departments/divisions/ SBUs through the AQUIP documents. At the end of 2002-2003, the company achieved a TBEM score of 675 which was an improvement over that of 2001-2002. It may be noted that the company continued to improve its overall position in spite of being at a very high level of excellence which speaks well of the BSC system as well as the other initiatives.

**Some Thoughts on the Deployment of a BSC System and its Connection to TQM/BE Movements**

As described above, the Tata Steel BSC system deployment was taken up as a part of the Business Excellence commitment of the company. All Tata companies are expected to follow the TBEM methodology for managing their companies. TBEM is based almost entirely on the Malcolm Baldrige framework with some tweaking from time to time for better fitment with the Tata Group ethos and culture. TBEM was introduced to the Tata Group by Chairman Ratan N Tata in the year 1994 as an instrument of unifying and taking the group to new heights of performance excellence unheard of before. Many Tata companies got committed to the framework and Tata Steel was an early entrant and a pioneer in understanding and deploying the TBEM. In doing so, the company identified many initiatives to drive excellence, a partial list of which is shown in Exhibit 1 (Appendix).

* EIC – Executive In Charge; FP – Flat Products; LP – Long Products
Figure 13: Tata Steel Strategy Architecture, 2003

Tata Steel Corporate Strategy Architecture

**FINANCIAL PERSPECTIVE:**
Our financial stakeholders expect us to return a positive EVA on all of our investments

Execution through TBEM

<table>
<thead>
<tr>
<th><strong>KEY CUSTOMERS:</strong></th>
<th><strong>MASS CUSTOMERS:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>We will create value-added relationships that focus on trust, service, and delivery.</td>
<td>We will strive to serve our other customers through dealer relationships.</td>
</tr>
</tbody>
</table>

**Internal Perspective**

<table>
<thead>
<tr>
<th><strong>INNOVATION:</strong></th>
<th><strong>CUSTOMER MANAGEMENT:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>We will focus our R&amp;D on customers’ needs. We will continuously innovate in products, services, and businesses to support and broaden our customer base.</td>
<td>We will identify and partner with our key customers. Our focus will be to develop and promote our branded offerings to drive profitability.</td>
</tr>
</tbody>
</table>

**LEARNING AND GROWTH:**
We will focus on knowledge management, leadership and skills development, employee strategic alignment, and the quality of life in the communities we serve.

Source: Company documents

Figure 14: Tata Steel Strategy Map 2003

Tata Steel Corporate Strategy Map

**Financial Perspective**

Revenue from new businesses
- Non-street Revenue
- Product mix

**Customer Perspective**

Bank
- Price
- Quality

Differentiators
- Trusted relationship
- Service
- Delivery

“Delight the Customer”

- “Win-Win Dealer Relations”
- “Innovation”
- “Increase Customer Value”
- “Operational Excellence”
- “Good Citizen”

Internal Perspective

- Encourage innovation
- New product revenue vs. Total
- Customer driven R&D
- Product quality index

“Learning & Growth Perspective”

<table>
<thead>
<tr>
<th><strong>Innovative Climate with a Freedom to Fail</strong></th>
<th><strong>Competencies</strong></th>
<th><strong>Citizenship</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage Knowledge</td>
<td>Competency Map</td>
<td>Improve the quality of life of employees and the communities we serve</td>
</tr>
</tbody>
</table>
- KPI Index
- Knowledge usage
- Engaged Employees
- Performance orientation
- Leadership skills
- Change and continuous improvement
- Corporate Citizenship Index

Source: Company documents
Literature describes BSC efforts as a part of the overall Business Excellence movements (Malcolm Baldrige or EFQM or other equivalent) (see Kaplan & Norton, 2001; Kaplan & Lamotte, 2001; Dror, 2008; Irani, 2003; Stata, 1989; Schneiderman, 1999; Muthuraman, 2003).

We are also of the view that BSCs work best when they are run concurrently with PDCA/SDCA efforts. However, care must be taken to ensure that the company’s efforts in continuous improvement do not make the organization totally inwardly focused. This has been one of the criticisms that have been levied against organizations which use TQM as a tool for continuous improvement. The inward focus leads to short-term improvement; however, in view of the changing external conditions, especially the strategic environment leading to innovative products and services, TQM companies often trail their competitors. This leads to long-term loss of sustainability. In Tata Steel, a company committed deeply to TQM/BE, the external focus was retained through a focus on strategy formulation which was done independent of the TQM/BE movement. Tools like the Strategy Architecture, Strategy Map, Scenario Planning (as introduced by Arie DeGues and disseminated by Arthur D Little and other consultants), Strategic Horizon Planning, use of ABP/AOP/AMP, and the mathematical model of the total steel company operations enable the company to keep the external focus in place, to balance the TQM/BE driven ‘internal focus’.

Additionally, the Tata Group initiatives like innovations, learning from failures, and capital funds for incubating new businesses from new ideas emphasize the need to keep an external focus so that the TQM/BE efforts are directed in ensuring improvements in the right direction. The adage “a company should do not only things right but also the right things” is applicable very much to companies practising TQM/BE. In Tata Steel, the BSC system was driven as a specific initiative, but it used and embedded all the tools and techniques of the TQM/BE methods, and was itself embedded in the TBEM so that the design and implementation of appropriate strategy and strategic initiatives was a balance between the short- and the long-term needs of the company. This ensures building sustainability into the organization. This is the case in many other organizations in the Tata Group like Tata Motors, Tata Chemicals, TCS, and Tata Communications as well as in other global companies.

CONCLUSIONS AND FURTHER WORK

Designing and implementing BSC systems is now an established practice in all world-class companies. The tools and techniques used to prepare BSCs cascade the strategic intent and initiatives across the organization, monitor progress and undertake corrective and preventive actions (CAPA), may vary from company to company. However, successful companies use a blend of TQM/BE and the BSC system to obtain long-term sustainability as well as excellence, as many examples show. Tata Steel is one such example where a BSC system was introduced as a stand-alone measure, but the systemic foundation laid by TQM/BE was used to not only design but also drill down, review progress, do periodic corrections, and use excellence in practice as a basis to achieve stretch targets, superior results, build a leadership pipeline, and obtain sustainability. There are also other companies in the Tata Group and outside which have followed similar practices. However, the question whether a company can use only TQM/BE without recourse to a BSC system needs to be conclusively answered. If one were to look at the Japanese experience, the answer is surely ‘no’; one must have a strategy designing and implementing mechanism outside the TQM/BE systems. More work is needed to support this conclusion.

Norreklit (2000) questioned the causal connection between the four perspectives – customer, financial, internal, and learning and growth – and suggested instead a logical connection between them. Although his arguments appear to be more in the nature of theoretical rhetoric, it may still be worthwhile to respond to his claim after a careful study. In doing so, one may come out with some additional links in the cause-effect chain. This is already, to an extent, answered by Kaplan and Norton (2001c) who have suggested that the number of perspectives may be more than four, and additional perspectives may be included in the BSC preparation. However, there appears to be scope for further work in this area.
Creating an Industry Leader – Strategy Development and Deployment Initiatives

- Tata Steel has evolved a strategy development and deployment process which can be benchmarked with the best in the world.
- A new strategy team was created. The ABP process has been re-engineered, with greater degree of transparency, coordinated planning, newly defined structure for aggregation of plans and fixing of a timeframe for the processes. A tentative strategy roadmap has been drawn.

Creating an Industry Leader – Customer Focus

- Regular measurement of CSI – once a year by ORG-MARG, twice a year by internal agencies, once in two years by MODE, to listen and learn from customers. This year a new methodology for gathering CSI and customer delight data on a continuous basis is being launched. Moreover, the in-house surveys are being replaced by external surveys, to bring greater clarity in the process.
- Top box analysis has been started.
- PPM – Product Portfolio Matrix – used to identify high value products for revenue/earnings growth and move up the value chain- growth with profitability. The use of PPM has also evolved over the years.

Creating an Industry Leader – Information Management

- Tata Steel has developed a mainframe based, PC supported distributed data processing system. Two IBM mainframes provide a central hub with spokes in the various operations centres in Jamshedpur and out locations to gather, process, analyse and disseminate data on-line, real time and on-demand.
- The IT strategy is aligned with the company strategy. Gartner has been recently appointed to develop a strategy for the next five years.
- Intranet, website, Lotus Notes supported e-mail, SAP enabled accounting and supply chain transactions, reverse auctions through metaljunction.com are designed and supported by the IT division.

Creating an Industry Leader – The HR Perspective

- Tata Steel is, first and foremost, a people organization. It has right-sized its employee force by over 30,000 persons in the last eight years, a record for such activity in India. It has achieved this under-friendly and pleasant circumstances. Its VRS has been talked about as the best in the industry.
- A whole new set of initiatives are being implemented in the IR area to bring the training and development standards of supervisors and workmen on a new footing. Already e CIP system has been thrown open to workmen. A new system of competition for Quality Circles (QC) has been implemented. This system will provide a wider base and greater motivation to improve the participation of workmen in QCs.

Creating an Industry Leader – The Process Management Perspective

- Tata Steel has introduced new technologies under four phases of modernization – between 1980 and 1996 – and now has a new steel plant, comparable to the best in the world. It has recently set up a new five stand, tandem cold mill in a world class time and cost, producing high quality strips for stringent applications.
- In the last three years the company has introduced many new products into the market, in a controlled and systematic way. New processes were put into place to introduce CR products to new customers, especially OEMs, in a trouble free manner. Creation of an applications engineering group to launch products smoothly has made the process of gaining new customers successful and effective. The company has gained market share in this crucial segment, one of the highest value added business in the steel industry product like galvanized/galvanized CR sheets for exposed auto parts in the near future.

Table 1: Favourable Conditions for Introduction of BSC System in Tata Steel

<table>
<thead>
<tr>
<th>Agency / Enabler</th>
<th>Favourable Conditions</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Co-ordinators</td>
<td>Foot soldiers of quality promotion and facilitation (108 in number, available in each department of the company), fully trained and experienced in TQM/BE activities</td>
<td>Each department in the company would prepare an AQUIP every year which would become the base document containing process metrics, initiatives, BSCs and BSC metrics. Also see Figure 8 for BSC cascading.</td>
</tr>
<tr>
<td>AQUIP (Annual Quality Improvement Plan)</td>
<td>A world-class system for identifying process metrics, action plans, BSC metrics, through various continuous improvement activities</td>
<td>The company had more than 100 BSCs in place in the year 2000.</td>
</tr>
<tr>
<td>BE Councils aligned with the organization structure - QMS</td>
<td>BSC preparation, implementation, monitoring and CAPA</td>
<td>These plans, although titled ‘Annual’ were actually long-term plans, typically containing data for five years.</td>
</tr>
<tr>
<td>A strong annual planning process</td>
<td>ABP, AOP, and AMP were in place along with an annual budget. These were broken down to monthly and daily plans.</td>
<td></td>
</tr>
<tr>
<td>Tata Business Excellence Model (TBEM)</td>
<td>The culture of continuous improvement was initiated in the company in 1988 and was pursued rigorously thereafter, enabling the company to reach a score of 5821 by 1999.</td>
<td></td>
</tr>
<tr>
<td>Mathematical Models of all the facilities in the company</td>
<td>The interrelationships between the facilities were well detailed and known. The requirements of raw materials, services, and gases were well known.</td>
<td>These models helped in studying the varying requirements of upstream and downstream facilities across the organization at various levels of corporate activity.</td>
</tr>
</tbody>
</table>

Table 2: BSC of MD (Corporate Scorecard) 1999-2000

<table>
<thead>
<tr>
<th>Strategic Goal</th>
<th>Measure</th>
<th>UOM</th>
<th>Actual (98-99)</th>
<th>(99-00)</th>
<th>(00-01)</th>
<th>(01-02)</th>
<th>(02-03)</th>
<th>Benchmark</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a culture of continuous learning and change</td>
<td>JRDQV score</td>
<td>Point</td>
<td>582</td>
<td>&gt;650</td>
<td>&gt;675</td>
<td>&gt;700</td>
<td>&gt;750</td>
<td>800+, IBM</td>
<td>75-1</td>
</tr>
<tr>
<td></td>
<td>Employee satisfaction index</td>
<td>Index</td>
<td>3.3/5</td>
<td>-</td>
<td>3.5/5</td>
<td>3.75/5</td>
<td>3.6/5, HP</td>
<td>73-28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manpower quality (blend of professionals as % of total officers)</td>
<td>% of Professionals/ Total officers</td>
<td>57</td>
<td>60</td>
<td>67</td>
<td>72</td>
<td>77</td>
<td>Unique and specific</td>
<td></td>
</tr>
<tr>
<td>Achieve world-class status in services and products</td>
<td>Sales from segments where Tata Steel is ranked No. 1 or 2</td>
<td>% sales</td>
<td>34</td>
<td>40</td>
<td>38</td>
<td>52</td>
<td>55</td>
<td>72-28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Customer satisfaction index</td>
<td>Index</td>
<td>70</td>
<td>75</td>
<td>75</td>
<td>80</td>
<td>&gt;80</td>
<td>89 Timken</td>
<td>71-4</td>
</tr>
<tr>
<td>Reach the position of the most cost-competitive steel producer</td>
<td>Cost of the hot rolled coil</td>
<td>US $/T</td>
<td>186</td>
<td>170</td>
<td>160</td>
<td>167</td>
<td>&lt;160, Poco</td>
<td>75-30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rightsizing</td>
<td>MOR</td>
<td>59235</td>
<td>&lt;50000</td>
<td>&lt;50000</td>
<td>To be firmed up each year</td>
<td>73-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Working capital efficiency</td>
<td>Working capital/ Annualized Turnover %</td>
<td>22.72</td>
<td>22</td>
<td>21</td>
<td>20</td>
<td>19</td>
<td>12 Hoogovens (93-94)</td>
<td>72-5</td>
</tr>
<tr>
<td></td>
<td>Procurement cost</td>
<td>Cost of procurement (₽)/ton of saleable steel</td>
<td>2611</td>
<td>2449</td>
<td>2380</td>
<td>2270</td>
<td>2140</td>
<td>74-1b</td>
<td></td>
</tr>
<tr>
<td>Establish industry leadership</td>
<td>Corporate citizenship index (10 point)</td>
<td>Index</td>
<td>8.53</td>
<td>9.16</td>
<td>10*</td>
<td>10</td>
<td>10</td>
<td>Unique</td>
<td>75-38</td>
</tr>
<tr>
<td></td>
<td>Economic value addition</td>
<td>ROIC-VACC</td>
<td>-7.7</td>
<td>-5.5**</td>
<td>-4.9</td>
<td>-2.9</td>
<td>-0.9</td>
<td>7, Posco</td>
<td>72-16</td>
</tr>
<tr>
<td></td>
<td>EBDIT to turnover</td>
<td>EBDIT/Turnover %</td>
<td>17.76</td>
<td>20.06</td>
<td>22.50</td>
<td>25</td>
<td>275</td>
<td>27.4, Posco</td>
<td>72-3</td>
</tr>
</tbody>
</table>

Source: Company documents

1 This score is from the TBEM assessments and is the same as the Malcolm Bridge score, which ranges from 1 to 1,000. A company crossing a score of 6,000 was given the JRD Quality Value Award in the Tata Group and the MB award in the US.
Table 3: New MD’s Balanced Score Card (2002-2003)

<table>
<thead>
<tr>
<th>Strategic Goals</th>
<th>Strategic Objectives</th>
<th>Type of Measure</th>
<th>Strategic Measures</th>
<th>Unit of Measures</th>
<th>Actual 02-03</th>
<th>Targets 02-03</th>
<th>Targets 03-04</th>
<th>Targets 04-05</th>
<th>Benchmark/Comparatives</th>
<th>Strategic Initiatives</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create wealth</td>
<td>Improve EVA</td>
<td>La, R</td>
<td>EVA - Steel business EVA - New business Market capitalization</td>
<td>ROIC-WACC ROIC-WACC ₹ Crores</td>
<td>3206</td>
<td>4000</td>
<td>4500</td>
<td>6000</td>
<td>7, Posco</td>
<td>▪ Reduce WACC ▪ Retire costly debts ▪ Improve reserves ▪ Find superior investment opportunities</td>
<td>New</td>
</tr>
<tr>
<td>Improve returns to shareholders</td>
<td>Le, R</td>
<td>C</td>
<td>Retain credit rating at AA+</td>
<td>Rating</td>
<td>New AA+ AA+ AA+</td>
<td>Best in Class</td>
<td>▪ Set up overseas Fe-Cr facility (74-39) ▪ Enter a non-steel business ▪ Obtain mining lease for Ti ▪ One acquisition to be completed</td>
<td>New</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achieve world class status in services &amp; products</td>
<td>Improve customer satisfaction</td>
<td>La, R</td>
<td>Profit from new businesses</td>
<td>ROIC-WACC ₹ Crores</td>
<td>100</td>
<td>500</td>
<td>600</td>
<td></td>
<td>89, Tubes SBU 36%, Baldrige winners</td>
<td>▪ Implement TOP Box ▪ Implement CVM</td>
<td>71-1, 2</td>
</tr>
<tr>
<td>Grow top line</td>
<td>Improve returns to Le, C</td>
<td>Investment in new businesses</td>
<td>ROIC-WACC ₹ Crores</td>
<td>NA</td>
<td>3206</td>
<td>4000</td>
<td>4500</td>
<td>6000</td>
<td>7, Posco</td>
<td>▪ Reduce WACC ▪ Retire costly debts ▪ Improve reserves ▪ Find superior investment opportunities</td>
<td>New</td>
</tr>
<tr>
<td>Enhance customer relationship</td>
<td>Improve customer satisfaction</td>
<td>La, R</td>
<td>CSI - steel Avg. Top Box Score Index</td>
<td>%</td>
<td>72</td>
<td>22%</td>
<td>&gt;80</td>
<td>&gt;80</td>
<td>&gt;85</td>
<td></td>
<td>89, Tubes SBU 36%, Baldrige winners</td>
</tr>
<tr>
<td>Enhance customer relationship</td>
<td>Improve shareholder satisfaction</td>
<td>La, R</td>
<td>Shareholder Satisfaction Index</td>
<td>Index (4 point scale)</td>
<td>3.5</td>
<td>3.6</td>
<td>3.7</td>
<td></td>
<td></td>
<td></td>
<td>▪ Set up help desk for suppliers and SAP</td>
</tr>
<tr>
<td>Enhance customer relationship</td>
<td>Improve shareholder satisfaction</td>
<td>La, R</td>
<td>Shareholder Satisfaction Index</td>
<td>Index (5 point scale)</td>
<td>New</td>
<td>3.5</td>
<td>3.6</td>
<td>3.7</td>
<td>Unique</td>
<td>▪ Head Office to introduce the measure</td>
<td>New</td>
</tr>
<tr>
<td>Reach the position of most cost competitive steel plant</td>
<td>Employee cost</td>
<td>Le, R</td>
<td>Employee cost /T of crude steel</td>
<td>₹ crores</td>
<td>3155</td>
<td>3100</td>
<td>To be firmed up every year</td>
<td>2,750 (NSC)</td>
<td></td>
<td>▪ Optimize wage bill ▪ Improve HR skill</td>
<td>New</td>
</tr>
<tr>
<td>Reduce family size</td>
<td>Cost reduction</td>
<td>Le, C</td>
<td>Cost reduction through new initiatives</td>
<td>₹ crores</td>
<td>3155</td>
<td>3100</td>
<td>To be firmed up every year</td>
<td>2,750 (NSC)</td>
<td></td>
<td>▪ Optimize wage bill ▪ Improve HR skill</td>
<td>New</td>
</tr>
<tr>
<td>Reduce family size</td>
<td>Rightsizing</td>
<td>Le, R</td>
<td>Rightsizing</td>
<td>MOR</td>
<td>46234</td>
<td>45000</td>
<td>To be firmed up every year</td>
<td>25,100 (NSC)</td>
<td></td>
<td>▪ Set targets through the new ABP process ▪ Outsource non-core activities</td>
<td>New</td>
</tr>
<tr>
<td>Create a culture of continuous learning and change</td>
<td>Enhance culture of Excellence</td>
<td>La, C</td>
<td>TBEM score</td>
<td>Points</td>
<td>643</td>
<td>&gt;700</td>
<td>&gt;750</td>
<td>&gt;780</td>
<td>800+, IBM</td>
<td>▪ Implement OFI’s given by JRD QV and Baldrige assessors</td>
<td>New</td>
</tr>
<tr>
<td>Create a culture of continuous learning and change</td>
<td>Knowledge management</td>
<td>La, C</td>
<td>KM Index</td>
<td>Index</td>
<td>102</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>Unique</td>
<td>▪ Share knowledge throughout the organization ▪ Set up KM communities</td>
<td>New-45, 46</td>
</tr>
<tr>
<td>Become a happy organization</td>
<td>Become a happy organization</td>
<td>La, C</td>
<td>ESI</td>
<td>Index (5 point scale)</td>
<td>3.64</td>
<td>3.75</td>
<td>3.8</td>
<td>3.8</td>
<td>3.6 (HP)</td>
<td>▪ Do Top Box analysis and identify strategy for improving ESI</td>
<td>New</td>
</tr>
<tr>
<td>Establish industry leadership in public responsibility and corporate citizenship</td>
<td>Improve quality of life in Jamshedpur</td>
<td>La, R</td>
<td>Corporate Citizenship Index</td>
<td>Index (10 point scale)</td>
<td>9.01</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>Tata Steel is a benchmark</td>
<td>▪ Serve society ▪ Improve water, electricity &amp; other services ▪ Install one fly-over ▪ Introduce the measure at outlocations on the same basis as Jamshedpur</td>
<td>74-57</td>
</tr>
<tr>
<td>Establish industry leadership in public responsibility and corporate citizenship</td>
<td>Improve quality of life in outlocations</td>
<td>La, C</td>
<td>Composite CCI at Naomundi, Joda, WB and Jharia</td>
<td>Index (10 point scale)</td>
<td>New</td>
<td>8</td>
<td>10</td>
<td>10</td>
<td>Tata Steel is a benchmark</td>
<td>New</td>
<td></td>
</tr>
</tbody>
</table>

Note: Le: Lead Indicator; La: Lag Indicator; R: Run the business; C: Change the business

Source: Company documents
Table 4: Summarized, Partial Results of the Study on Effectiveness of BSC System in Tata Steel for 2001-2002

<table>
<thead>
<tr>
<th>Area (BSC)</th>
<th>No. of Measures</th>
<th>Customer</th>
<th>Financial</th>
<th>Internal</th>
<th>Learning &amp; Growth</th>
<th>Lead (No.)</th>
<th>Lag (No.)</th>
<th>Alignment with next higher level scorecard</th>
<th>Cascading of Strategic Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMD (Steel)</td>
<td>15</td>
<td>08 (53%)</td>
<td>02 (14%)</td>
<td>03 (21%)</td>
<td>05 (43%)</td>
<td>05 (21%)</td>
<td>02 (14%)</td>
<td>12 (86%)</td>
<td>71%</td>
</tr>
<tr>
<td>EIC (FP)</td>
<td>19</td>
<td>05 (26%)</td>
<td>02 (11%)</td>
<td>03 (16%)</td>
<td>10 (53%)</td>
<td>04 (21%)</td>
<td>02 (11%)</td>
<td>17 (89%)</td>
<td>95% 32%</td>
</tr>
<tr>
<td>Chief LD#2 &amp; SC</td>
<td>29</td>
<td>06 (21%)</td>
<td>03 (10%)</td>
<td>–</td>
<td>23 (79%)</td>
<td>03 (10%)</td>
<td>13 (45%)</td>
<td>16 (55%)</td>
<td>66% 45%</td>
</tr>
<tr>
<td>Chief HSM</td>
<td>34</td>
<td>05 (15%)</td>
<td>03 (9%)</td>
<td>–</td>
<td>27 (79%)</td>
<td>04 (12%)</td>
<td>15 (44%)</td>
<td>19 (56%)</td>
<td>38% 50%</td>
</tr>
<tr>
<td>Chief CRM</td>
<td>27</td>
<td>03 (11%)</td>
<td>01 (4%)</td>
<td>20 (74%)</td>
<td>03 (11%)</td>
<td>10 (37%)</td>
<td>17 (63%)</td>
<td>78% 45%</td>
<td></td>
</tr>
<tr>
<td>Chief Mkt.</td>
<td>17</td>
<td>02 (12%)</td>
<td>02 (12%)</td>
<td>03 (18%)</td>
<td>10 (59%)</td>
<td>02 (12%)</td>
<td>12 (88%)</td>
<td>82% 30%</td>
<td></td>
</tr>
<tr>
<td>EIC LP</td>
<td>18</td>
<td>10 (56%)</td>
<td>02 (11%)</td>
<td>05 (28%)</td>
<td>07 (39%)</td>
<td>04 (22%)</td>
<td>04 (22%)</td>
<td>14 (78%)</td>
<td>83% 34%</td>
</tr>
</tbody>
</table>

Source: Company documents

REFERENCES


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**B Muthuraman** was the Managing Director of Tata Steel during 2001-2009 and is currently the Company’s Vice Chairman. He has a B.Tech in Metallurgical Engineering from IIT Madras, an MBA from XLRI Jamshedpur, and an Advanced Management Programme from CEDEP/INSEAD, France. Joining Tata Steel in 1966 as a Graduate Trainee, he worked in the areas of Iron-making and Engineering Development for ten years and then moved to the Marketing & Sales Division. He was appointed Executive Director (Special Projects) in August 2000 and served as the main change agent for the major diversification projects of Tata Steel. He was conferred the Honorary Fellowship of All India Management Association (2007), a distinguished Alumnus Award from IIT Madras (1997), the Tata Gold Medal from the Indian Institute of Metals (2002), CEO of the Year Award from IIMM (2002), National HRD Network Pathfinders Award (2004) in the CEO Category, Business Standard Award, CEO of the year 2005 and CEO with HR Orientation Award in 2005, at the World HRD Congress at Mumbai. Further, he was conferred ´Management Man of the Year 2006-2007 Award´ by Bombay Management Association in 2007.

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**R Jayaraman** studied in UBC, Canada, Indian Institute of Management Ahmedabad and Indian Institute of Technology, Bombay. He joined Tata Steel in 1983 and rose to be its Chief of Business Excellence in 2001 after traversing through many positions of importance. He was the EA to the Vice Chairman and the then MD of Tata Steel and worked closely with senior leaders. He worked as the chief of planning, monitoring and cost control of the cold rolling mill project of Tata Steel, headed by Mr. Muthuraman, which set several world records in project management. He also served as VP of Quality in Tata Communications and Sr VP (Technology) and Chief Safety Officer of Tata Teleservices. Currently, he is serving as Professor, Operations Management in the SP Jain Institute of Management, Mumbai, which he joined in 2011 after retirement from the Tata Group. He has published more than 40 papers and two books (one as a joint author with B Muthuraman).

E-mail: jayaraman@spjimr.org
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