Electronics: A case study of economic value added in target costing

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A B S T R A C T

Whilst target costing and strategic management accounting (SMA) continue to be of considerable interest to academic accountants, both suffer from a relative dearth of empirically based research. Simultaneously, the subject of economic value added (EVA) has also been the subject of little research at the level of the individual firm.

The aim of this paper is to contribute to both the management accounting and value based management literatures by analysing how one major European based MNC introduced EVA into its target costing system. The case raises important questions about both the feasibility of cascading EVA down to product level and the compatibility of customer facing versus shareholder focused systems of performance management. We provide preliminary evidence that target costing can be used to align both of these perspectives, and when combined with other SMA techniques it can serve as “the bridge connecting strategy formulation with strategy execution and profit generation” (Ansari et al., 2007, p. 512).

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1. Introduction

Strategic management accounting (SMA) has received considerable attention in recent years (see for example, Langfield-Smith, 2008; Cadez and Guiding, 2008; Anderson, 2007; Gosselin, 2007; Shank, 2007), yet there remains a relative dearth of empirically based research (Cadez and Guiding, 2008) and limited evidence on the use of SMA techniques (Langfield-Smith, 2008), particularly target costing (Ansari et al., 2007). Simultaneously, Otley (2001) highlights economic value added1 as a performance measure worthy of further research in the context of a wider organisational control system, and Gleadle and Cornelius (2008) note that EVA has been little researched at the level of the individual firm. These calls for empirical research provide the broad motivation for this paper, which uses a case study to illustrate how EVA can be integrated into a target costing system.

The case study analyses how a European multinational pilots a refinement of its target costing system from one framed around profit (NOPAT) targets to one based upon product level EVA targets within one of its strategic business units (SBUs). The new target costing system applies solely to modifications to an existing, highly profitable and strategically significant product line.

The paper is a direct response to Ansari et al.’s (2007) observation that there is little research addressing the determination of the target rate of return in target costing and their question as to whether the use of ROA or a variant of EVA might be a preferable metric to the commonly used return on sales. Hartman (2000) and Shriives and Wachowicz (2001) provide a theoretical justification for pushing EVA from corporate down to product level, by demonstrating that a product’s value added, when based primarily on its accounting income rather than cash flows,
can be used to measure its NPV. Our case evidence indicates, however, that whilst using EVA at product level is theoretically attractive, it remains highly problematic in practice. Zimmerman (1997) highlights both the financial costs and the problems of dealing with shared costs and benefits when using EVA for divisional performance measurement, and his criticisms are reiterated by Francis and Minchington (2002) in their study of the introduction of EVA into a UK water company. Our paper extends their comments on joint costs and synergies from divisional down to product level, and also details the additional complexities introduced by calculating multi-period EVA over a product’s life cycle.

We find that where a company reports EVA externally to the market and also uses it as the primary performance metric for internal control and decision making, then it is useful in providing a common language to translate corporate strategy into operational practice. This finding indicates that Otley’s (2001, p. 245) suggestion that “EVA® pays no explicit attention to strategy” does not always hold true.

The case study demonstrates how the introduction of value added measures at product level changes the way that cost reduction strategies are evaluated in target costing by drawing attention to capital costs. We show that EVA based target costs encourage more careful evaluation of make versus buy decisions, and direct management attention to working capital control at product level, especially via the introduction of vendor management systems. This evidence complements Kee and Lane’s (2005) observation that when capital costs are excluded from product cost, there is a risk of suboptimal allocation of capital.

The study also builds on the broader SMA literature by exploring the interface between cost management and performance management. Ansari et al. (2007) noted that target costing and performance management systems such as the balanced scorecard are very similar as they both start with the voice of the customer and the shareholder and refine organisational processes to meet the needs of both parties. In practice, however, Dodd and Johns (1999) found that the adoption of EVA can cause companies to move away from customer related performance measures. Our case provides initial evidence of how target costing can be used to align customer and shareholder interests in practice. We conclude that customer value and shareholder value are not necessarily conflicting and that Schonberger (1996) is consequently incorrect in his contention that management accounting is irrelevant for controlling the processes underlying enhanced customer value.

The rest of the paper is structured as follows. Section 2 reviews the interface between target costing and performance management and presents the theoretical case for using economic based profit measures instead of return on sales in the target costing process. Section 3 details the methodology and Section 4 describes the case study in detail. The concluding discussion addresses the lessons to be gleaned from the case, and the ongoing challenges for management accounting research and practice.

2. Target costing and performance management

2.1. Target costing literature

Target costing has been used in Japan since the 1960s, although it was not mentioned in the literature until the late 1970s (Feil et al., 2004). The literature has since evolved to include descriptions of target costing principles and process (Ansari et al., 2005; Cooper and Slagmulder, 1999), descriptions and case studies of target costing use and best practice within companies (Hiromoto, 1988; Sakurai, 1990; Monden and Hamada, 1991; Kato, 1993; Yoshikawa et al., 1995; Cooper and Chew, 1996; Ansari and Bell, 1997; Mouritsen et al., 2001; Swenson et al., 2003; Ellram, 2006; Ibusuki and Kaminski, 2007), and surveys of the technique’s adoption in various countries (Tani et al., 1994; Chenhall and Langfield-Smith, 1998; Dekker and Smidt, 2003; Rattray et al., 2007).

The above studies address a range of issues including the use of market information in price setting, methods used to identify and meet customer requirements and examples of the initiatives used to reduce costs. There is very little discussion in the literature, however, of the way in which target costing links into corporate level decisions on performance management.

In this section we debate these issues by addressing two distinct questions. Firstly, which stakeholder interest groups are served by target costing and to what extent can shareholder and customer interests be seen as complementary? Secondly, what are the pros and cons of alternative performance measures for the target rate of return (return on sales, RI or EVA) that can be used in target costing?

2.2. Stakeholder interests

Ansari et al. (2007) describe target costing as a market oriented tool used for profit planning and cost management. Product target cost, calculated as the expected sale price less target profit, using expected sales price as the starting point, reflects the market orientation of the costing process (Hiromoto, 1988). The target profit for a product is typically based on the strategic plan for the business which forms the foundation for a corporate profit plan (Kato, 1993). The profit plans incorporate a return on capital measure because capital investment is viewed as integral to product development.

Target costing therefore appears to explicitly take account of both shareholder (profit) and customer (price and functionality) needs. This raises questions about how these potentially conflicting demands can be simultaneously met, even within a broad based performance management system such as the balanced scorecard (BSC). Bourguignon (2005) notes that Kaplan and Norton’s thinking about the BSC has shifted from a position which emphasised customer value (Kaplan and Norton, 1992), to one which proclaims the need to also integrate shareholder value management (Kaplan and Norton, 2001). She quotes Kaplan and Norton as stating that “organisations will get the greatest benefit” (Kaplan and Norton, 2001, p. 156) from combining the BSC with activity based costing and shareholder value management. It could be argued that further
benefit would come from combining target costing with the BSC. Indeed the overlap between target costing and the BSC is recognised by Ansari et al. (2007). This view is not, however, universally supported. McNair et al. (2001) argue that target costing does not prioritise customer value at all and merely exists to control and reduce costs. Similarly, whilst Schonberger (1996) recommends the use of target costing for product development, he argues that management accounting is irrelevant for controlling the processes underlying enhanced customer value.

Bourguignon (2005) critically reviews the potential for convergence of customer and shareholder values within the BSC. She argues that the BSC assumes that customer and shareholder values are linked by cause and effect but uses the critique of Nørreklit (2000) and the work of Ittner and Larcker (1998) and Pascali (2000), to suggest that this link does not necessarily hold true. For instance, whilst customers may be satisfied, they are not always profitable (Nørreklit, 2000). Additionally, companies are rarely able to prove that better non-financial performance has any impact on financial results (Ittner and Larcker, 2001). Based on survey evidence, they found that management relied heavily on preconceptions of what they believed was important to stakeholders but did not prove causal links between non-financial and financial performance. Bourguignon (2005) concludes that there is little empirical evidence to prove the view that customer value and shareholder value are mutually reinforcing and complementary performance objectives.

The case study in this paper challenges this perspective and provides initial evidence that target costing directly supports the integration of customer and shareholder interests. A related issue is the question of how to measure the financial returns from a new product/product modification.

2.3. Target rate of return

A key element in the target costing formula is the profit metric that determines the allowable cost of the product. Kato (1993) suggests that in Japanese companies the target profit is driven by medium term corporate profit plans, which reflect the returns demanded by the financial markets. Evidence linking product profitability margins to medium/long term corporate profit targets is provided by Gagne and Discenza (1995) and Kato et al. (1995). Similarly, Cooper and Slagmulder (1997) found that the typical starting point for determining the target profit margin is the historic margin earned by similar products, adjusted to reflect the relative strength of competitive offerings and the company’s long term profit plan.

The macro level target corporate profit is disaggregated down to product level to give a target return on sales (ROS) which is an important determinant of the financial return generated by investing in a product. The financial return may be measured as return on assets, return on equity, residual income or economic value added. The capital invested, and the associated cost of that capital are accounted for in different ways by these individual measures. Additionally, the choice of measure can be shown to affect management behaviour.

The use of accounting measures such as ROS and return on assets is not ideal because they do not include any charge for the cost of the capital being used to make a product. The concept of residual income (Solomons, 1965) was developed to overcome this problem. In target costing, residual income (RI) would equal the surplus earned by a product after deducting all expenses including the cost of equity capital. This is calculated by reducing operating profits (excluding interest payable) via a capital charge calculated as (invested capital x WACC). RI is particularly appealing as a performance measure because it is also a valuation tool. The present value of long term cash flows from an investment (or product) equals the initial capital investment plus the present value of all future residual income streams (O’Hanlon and Peasnell, 1998).

There are two potential challenges to the use of RI as the target profit measure in target costing. The first arises from the need to identify the capital invested in a product and the creation of product level balance sheets. This is potentially problematic, particularly where there are multiple products and shared production lines. At the same time, whilst it has the advantage of imputing a cost of capital, the RI calculation uses traditional accounting profit, which may be distorted by accounting policies. Partly in response to such concerns over accounting distortions, Stern Stewart developed a refined version of RI, marketed under the name of EVA® (Stewart, 1991).

Stern Stewart argue that RI is a distorted measure of financial return because it is based on non-cash accrual accounting figures, and ignores the impact of policies which underestimate the “true” capital of a business. To overcome these problems, EVA® adjusts both the net operating profit and capital figures in published GAAP accounts. The Stern Stewart model requires 164 adjustments to be made in order to compute EVA®, but they suggest that most companies require only about ten adjustments (Stern et al., 1995). There are wide variations in the precise interpretation of economic value added in practice, with individual firms making their own decisions about the extent and nature of accounting adjustments.

Whilst EVA may be theoretically superior to either RI or ROS, it is seen as difficult to implement in practice (CIMA, 2004) and the problems can be expected to be compounded when it is applied at product level. There is a need to maintain a separate set of GAAP adjusted accounts solely for EVA use (Zimmerman, 1997; Francis and Minchington, 2002), so for EVA based target costing this includes product level balance sheets and income statements. Zimmerman (1997) discusses the problem of capturing the impact of synergies in an EVA calculation at divisional level. The design of systems to allocate joint costs, shared assets and shared benefits down to product level is even more daunting. There is also a risk of using overly simple or arbitrary allocation tools.

A further problem arises because different cost of capital may be used to reflect the variations in the risks of...
different divisions/products. In computing divisional EVA figures, Mills et al. (1996) found that 71% of companies adopted a simple approach and used a single company wide rate. This may seem simplistic, but whilst differential risk weights may be appealing in principle, they are open to the risk of bias and subjective judgement in practice.

The last technical issue raised by the use of EVA applies only to large entities where transfer pricing is widely used, and divisions or strategic business units may not have full control over the factors driving product prices or costs. Transfer pricing systems make it difficult to assess economic profit at lower level in an organisation, and eliminating inter-company transactions at product level is likely to be resource intensive, tedious and subjective.

The case study which follows looks at both why and how one company addressed the challenge of refining its target costing system to one based on EVA. The evidence reveals that for this company at least, pragmatism serves to temper theoretical purity.

3. Research methodology

3.1. Explanatory case study

Electronics (real name disguised) is one of the world’s largest electronics and electrical engineering companies and has an international presence in six core business areas. Each business has its own CEO and is supported by regional subgroups designed to ensure global market coverage. The business CEOs are responsible for performance within multiple strategic business units (SBUs) straddling several geographic regions.

The case looks at the processes used and challenges faced by the multidisciplinary team responsible for the introduction of product level EVA for one product group Test. The analysis focuses on the internal structures and product costing arrangements within Electronics, and the case approach used is explanatory (Scapens, 2004). We use the data to both examine changing accounting practice and also link theories relating to value based management and strategic management accounting. More specifically, we demonstrate the way that SMA techniques such as life cycle costing, Kaizen costing, attribute (functional) costing and ABC can be combined to form an integrated cost management system (Cooper and Slagmulder, 2004) that also serves the interests of shareholders through value based management.

The research was interventionist in form (Jönsson and Lukka, 2005). One of the research team served as a permanent employee of the SBU, working as a management accountant directly involved in the implementation of the new, EVA product costing system. Action research, in which a researcher is totally immersed in the organisation, is useful for case study work as it provides a richness of insight that would be difficult to obtain as a complete observer (Whyte, 1991). Additionally, it is well suited to settings which link theory and practice (Eden and Huxham, 1996).

The employee researcher, as an active participant in the research topic, was able to adopt an emic perspective (Pike, 1967) on the accounting changes being introduced. The risk that an internal perspective might introduce biases into the research was balanced by the remaining research team members. These were external to Electronics and played a critical role in defining the theoretical framework for the research and also providing a balancing etic perspective (Pike, 1967).

The precise role played by researchers can be represented as a spectrum ranging from the researcher as a complete observer, through to a position of complete participation, where the researcher is an employee. This spectrum is illustrated in Fig. 1.

Applying Fig. 1, the research was conducted by a team made up of one complete participant plus two complete observers. Most importantly, the research team’s composition enabled us to move between the logic of academia and the logic of accounting practice, enriching our understanding of strategic management accounting practice.

Jönsson and Lukka (2005) identify criteria for action research, all of which are fulfilled in this case. The embedded researcher was an insider directly involved in the EVA target costing process throughout the period of study and did not seek to avoid having an impact within Electronics; participant observation dominated the data collection process and the study of what participants did and how they behaved under different circumstances; the research was longitudinal and detailed field diaries were used to log research events over an initial 18 month time frame. Further data on the outcomes of the target costing process extended the overall research period to four years.

3.2. Data sources

The study adopted standard methodologies for case research as outlined in Otley and Berry (2004). Research evidence was collected using multiple sources. Participant observation in meetings, training sessions, and brainstorming sessions were the primary sources of data, supplemented by internal documentary evidence on the costing system design, minutes of costing team meetings plus publicly available evidence from both historic and concurrent annual reports, broker presentations and web based information. Semi-structured interviews were conducted with nine project staff employed at all levels of the organisational hierarchy, as well as structured interviews with relevant departmental managers and shop floor staff. A full list of senior interviewees can be found in Appendix A. The interviewees straddled a wide range of functions and included the managing director, finance director, staff from research and development, and the factory costing manager.
3.3. Data analysis and interpretative validity

The distinct roles played by the embedded employee and other research team members, each with differing backgrounds and levels of practical accounting and academic experience serve to strengthen the validity of the data interpretation. The range of practical experience in the team ranged from zero to twenty years, and the range of academic experience was similar. The resulting differences in perspectives generated what we would describe as “productive tension” which took the form of sometimes heated debates about both theory and practice. These mixed viewpoints are directly reflected in this paper.

4. Case study

4.1. Background

Electronics is a German based multinational with a strong global presence and a long tradition of pursuing a strategy of developing superior products through investment in precision engineering.

The case looks at the target costing process used for the Test product group, which is an upgraded version of an existing product made by Tweeter, one of the twelve SBU’s within the highly profitable business area Speaker, renowned for its innovative products. Tweeter, based in South East Asia, aims to become the number one global provider of a product range positioned at the mid end of a standardised market. Test’s mid-market segment is seen as having huge potential. The aim is to gain 30% of the forecast annual business, but the market is intensively competitive and dominated by a small number of major global players. Many of Tweeter’s products have long development and long life cycles, combined with rapid initial sales growth and tough global competition, making cost optimisation critical to business success.

In describing target costing for a product refinement rather than a new product, the case demonstrates that Electronics places a strong, ongoing emphasis on continuous product development and highlights the life cycle orientation of the cost management system. Using target costing for continuous improvement is described by Ansari and Bell (1997) as akin to Kaizen costing and the case shows that the boundaries between target costing, Kaizen costing and lifecycle costing are somewhat blurred in practice.

The case study covers four years, which includes both the pre and post production costing processes for Test’s product modification. Long product lives mean that the development time may represent just 10% of the overall life cycle. Long term management and redesign efforts throughout the product lifecycle are therefore essential to retaining strong customer orientation and ongoing cost reductions after a product’s release. Continuous supply chain management is also important to the product life cycle management system, and all businesses within Electronics work with their suppliers in a form of “extended enterprise” aimed at reducing life cycle costs whilst retaining customer value.

4.1.1. Historical context

As a German based multinational, Electronics is exposed to pressure from both its German cultural heritage and the broader global economy. Its management accounting practices can be analysed in the context of the ongoing debate about the extent to which management accounting practices have become globalised or remain subject to national and institutional cultural influences (Jones and Luther, 2006; Becker and Saxi, 2007). This debate is complicated by the possibility that even if a specific technique is shown to be international in scope, it may still be subject to local adaptation(s). As Jones and Dugdale (2001) suggest, accounting techniques both shape and are shaped by local contexts.

In their seminal text on the varieties of capitalism, Hall and Soskice (2001) categorise the political economies of developed nations under the headings of Liberal Market Economy (LME) or Co-ordinated Market Economy (CME). Within both types of economy, companies are a central influence on technological change, international competitiveness and overall economic performance. Company behaviour in LMEs is driven largely by competitive market forces, and the market dominates and co-ordinates economic relations. In contrast, within CMEs companies make greater use of networks of relationships outside the formal market place as a way of developing expertise and economic success. Germany, Electronics’ home base, is classed by Hall and Soskice (2001) as a CME.

Companies within CMEs are characterised by their access to what is sometimes termed “patient capital”, as they are less dependent upon current profits and the Anglo American emphasis on shareholder value is less prevalent. Consequently, one might expect some differences in the performance measurement and management control systems used in CME versus LME based companies. The development of a product level EVA within a CME based company, is therefore of particular interest.

The description of Germany as a CME has been challenged by some who consider that there has been a sea change in both corporate governance and management control structures there in recent years (Jones and Luther, 2006). With its economy weakened in the 1990s by unification, Germany faced increasing international competition and a period of weak growth. In their interviews with German managers, Jones and Luther (2006) found a consistent view that the turn of the century marked a pivotal point of change in management accounting practice, as traditional techniques were discarded in favour of more “modern” ones. A key shift that was observed was a move in favour of Anglo American thinking and greater emphasis on the use of financial information for decision making. Ahrens (1999) noted that German management accountants (controllers) remained distant from decision making but the twenty first century reality suggested by Jones and Luther (2006), appears different. Our case evidence indicates a similar shift in thinking within Electronics as evidenced by its adoption (in 1997) of market focused, number based controls based around shareholder value and EVA. Similarly, the case details the growing involvement of management accountants in the operational activity of the business.
4.1.2. Organisational structure

Fig. 2 contains a summary organisation chart for Speaker, indicating the areas of responsibility at different levels of the business.

Speaker’s CEO is accountable to corporate HQ and held responsible for performance within multiple SBUs located in several geographic regions. For each business area, Electronics operates regional headquarters in Asia Pacific, Europe and America which provide support and oversight for the relevant SBUs. Regional headquarters supports the businesses through research and development, procurement, process design, co-ordination of quality control and production, and management of wholesale distribution. Additionally, it provides central HQ with oversight of the SBUs via its management accounting and internal control function and monitoring of local manufacturing.

The SBUs, supported by the regional headquarters, hold responsibility for all new product introduction, product innovation/modification and associated research, development and marketing. The complementary roles of the regional HQ and the SBU mean that performance management and control requires close co-operation between them.

The structural arrangements within Electronics encourage the lateral flow of information, whilst vertical structures provide a framework through which the SBUs report to the business CEOs, who in turn report to the group CEO. The lateral structures focus attention on customer value, but satisfying customers whilst simultaneously improving manufacturing efficiency and effectiveness requires close interaction between staff at the SBU and regional HQ. Product development and innovation processes are customer-centric (Galbraith, 2005) and in Electronics they are based around multi-functional teams. The interlinking of business based vertical reporting structures and multi-functional lateral teams in Electronics mirrors the organisational structures identified in best practice companies in the CAM-1 target costing research (Swenson et al., 2003).

4.1.3. A historical perspective on management accounting and costing in Electronics

In the early 1990s the company harmonised its financial and cost accounting systems, and introduced target costing across the group. The motivations for introducing target costing are not fully documented but include references to rising costs resulting from growing product complexity and the challenges presented by increasing international competition. Such influences mirror those suggested by both small sample studies (e.g. Swenson et al., 2003) and surveys (e.g. Dekker and Smidt, 2003) which identify cost reduction as the primary reason for the adoption of target costing. Other motives include cost disclosure and understanding, continuous improvement and competitiveness, improving supplier communications and improving design and accountability (Ellram, 2006). Given the growing need to retain competitiveness and emphasise customer value, these other motives may also apply within Electronics, even if they are not formally recorded.

The use of target costing in Electronics from the early 1990s onwards is confirmed by both internal documentation and external evidence (including academic papers). These show that the group regard it not just as a cost control technique but a cross-disciplinary, customer focused management process. From the very beginning, the design/re-design process, pushes the challenge of the marketplace back through the chain of production to product designers (Cooper and Chew, 1996). Target costing is widely used across the whole group to reduce costs over the entire product life cycle, whilst retaining focus on customers’ perception of product worth.

In the 1990s, in line with its group wide use of earnings (NOPAT) as the principal performance measure, the target costs were set using the formula:

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target \text{ cost (allowable cost)} = \text{expected sales price} - \text{target NOPAT}
\]

Target profit figures were cascaded down from the group Board of Directors to business areas, SBUs (with oversight from regional headquarters) and ultimately decomposed down to product level, by referencing historic margins and the relative strength of competitor products. This approach is in line with that observed by Gagne and Discenza (1995), Kato et al. (1995) and Cooper and Slagmulder (1997).

As competition began to erode profits, the challenge for the group was to find a way of balancing customer requirements, market allowable prices and required profit margins over the long term and across a wide array of different businesses. In late 1997 Electronics recorded what was described as “unsatisfactory earnings quality and an increase in business assets, primarily in working capital” (Annual report, 1998, p. 49). Cash flows were weak due to substantial capital spending and a build up of working capital. Earnings were weakened by the fact that certain businesses (most notably Speaker) were highly profitable but their profits cross-subsidised loss making areas of the group. Electronics acknowledged a group wide need for better asset management, and a strategic review of the business portfolio, led to plans to improve long term group wide financial performance. In late 1998 EVA became the binding control and performance metric across the entire organisation. A positive group level EVA by the end of the fiscal year 2001 was formally declared as the target.

Electronics were keen to externally report the group’s financial results in terms of both EVA and EBITDA (Earnings before Interest, Taxation, Depreciation and Amortisation) whilst focusing the internal control system on EVA. The aim was for the internal emphasis on making more efficient use of business assets to be used to leverage higher post tax operating profits. Combined with capital restructuring and a reduced cost of capital the result would be higher levels of value added.

The EVA methodology chosen by Electronics was, and remains, an individualised variant of the EVA® version

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3 As per footnote 1 it is for this reason that the EVA® notation is not used with reference to Electronics. The precise definition and method of calculation has changed over time and the accounting adjustments do not exactly match those proposed by Stern Stewart. The in-house handbook
widely popularised by Stern Stewart in the 1990s. *Electronics* measured EVA as the net operating profit after taxes (before financing cost) minus an ‘appropriate’ capital charge for the opportunity cost of all business assets employed to produce that profit. At group level, the capital charge reflects the minimum return required to compensate equity and debt investors for bearing risk, i.e. the weighted average cost of capital. For operational units, the capital figures are based on internally adjusted balance sheet valuations and risk adjusted cost of capital rates intended to reflect the differing business profiles. Section 4.2 includes discussion of the problems encountered in drafting product balance sheets and determining a risk adjusted cost of capital.

The decision to choose EVA as the core performance metric can be explained by EVA’s popularity at the time, its widespread promotion by consultants, and the concurrent product and capital market pressures being faced by Electronics. Gleadle and Cornelius (2008) similarly found that market pressures act as powerful catalysts for the introduction of EVA. Convergence theorists argue that competitive pressures were encouraging reform of the German corporate governance system in the 1990s, and a switch towards Anglo-Saxon governance models. The push for change was particularly strong for *Electronics*, as its poor earnings record had led to a return on equity of less than half that of its major competitors. With its widely dispersed share ownership the result was that *Electronic’s* stock market valuation was subject to a hefty conglomerate discount. Shifting to EVA was viewed as a useful way of improving the group’s market value, as its proponents argue that stock market performance is more closely related to EVA than accounting measures of income (Stewart, 1991; Tully, 1994). Value growth was particularly important in the light of a planned NYSE listing which was central to the group’s financial improvement programme.

The company’s top executives expended significant effort on promoting EVA as the internal financial performance metric. In the words of Speaker’s Finance Director “it’s actually a natural development to use target EVA instead of target profit in defining the allowable cost of a product, so that cost of capital can be considered in cost avoidance and cost saving programmes. … our holding company is assessed by EVA so we then need concrete action to deploy it in all group companies.”

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Fig. 2. Organisation chart.

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justifies the use of a simpler EVA for management accounting purposes on the basis that “we have deliberately limited these (theoretically conceivable) adjustments to those relating to certain financing transactions, both to make the calculation of EVA less complex and to ensure as close a relationship to external reporting as possible.”
Seeking to align group and product level performance metrics suggests that the decision-making and control systems in *Electronics* reflect what Chua (2007, p. 492) describes as "strategy-accounting talk". That is, one in which corporate level strategies – in this case shareholder value added – are dispersed to local sites by specifying the financial templates that are to be used.

Product level EVA was piloted for the *Test* product range, selected because it was seen as a key driver for business value creation in the group’s five year strategic plan. The EVA target for *Test* products was set higher than the overall group average, reflecting their strategic importance, and the annual EVA target increased steadily over the five year planning cycle. Central HQ sets the annual EVA targets, and management accounting staff in regional HQ are responsible for monitoring both the actual EVA against budget and the sensitivity of *Test’s* EVA to changes in price, volume, development cost and other cost changes. Actual EVA and forecasts for the remaining life cycle are reported annually to central HQ.

The remainder of the case describes the incorporation of EVA into the target costing system for *Test* products.

### 4.2. The target costing process

#### 4.2.1. Overview

An effective target costing system must be a highly disciplined process (Cooper and Slagmulder, 1997). In *Electronics* target costing aims to shape a product’s value in development and reduce total costs over the life cycle through continual redesign. The company subdivided the system into two core phases: pre and post production. Phase 1, split into four stages, deals with the achievement of target cost during the product development (or modification) stage, i.e. prior to the start of mass production. Phase 2, termed improvement costing, is similar to Kaizen costing and aimed at cost reductions via redesign after the start of production. A breakdown of the stages in the product life cycle cost management process is given in Fig. 3. The approach used in *Electronics* fits with the definition suggested by Kato (1993, p. 36) in which there is no distinction made between target costing and life-cycle costing.4

The key change resulting from the use of EVA targets for *Test* was the incorporation of the cost of capital into product costs and subsequent analysis of cost reduction opportunities as shown in Fig. 4.

The traditional use of NOPAT as the measure of target profit means that the cost of capital, including any capitalised research and development costs, is ignored in the setting of the target cost figure. Consequently, traditional target costing focuses on seeking cost reductions through changes in the type/source of materials, and management of labour and factory overheads via product or component redesign, or the reconfiguration of processes. Fig. 4 highlights the scope for additional cost reductions through rethinking the capital that is being used in the manufacture of a product. For example, simple changes that increase the extent of standardisation of either components or processes may lower capital costs and raise the unit value added.

This inclusion of capital costs into the target costing formula effectively increases the target cost above that identified in traditional target costing by the amount of the unit capital costs. Nonetheless, the expected sales price remains the same under both approaches.

For *Test* products, the EVA target cost is based on "retail price minus", and setting the expected retail price is the first stage in the process, as detailed in Section 4.2.3. This suggests that there is not necessarily any reason to expect a change in the emphasis or attention being given to customer value under an EVA based system as opposed to a

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4 Guilding et al. (2000), Cadez and Guilding (2008), and Langfield-Smith (2008) are amongst those who differentiate between the two techniques.
traditional system. If the expected sales price under both methods is determined by customer value, the customer focus may, in principle, be retained. The key question is whether or not this focus is sacrificed at a later stage in the costing process, when the search to reduce costs is intensified.

### 4.2.2. The target costing team

*Speaker* (the SBU) is accountable for its overall EVA performance, but overall responsibility for achieving the lifelong EVA targets for *Test* rests with a cross-functional team led by the Managing Director of *Speaker*.

Team members are drawn from SBU and regional HQ staff and cover a range of functions including sales and marketing, R&D, procurement, quality control, design engineers, manufacturing, logistic management corporate controlling (management accounting) and finance. Table 1 shows that the team is not just cross-functional but also structured to facilitate good vertical communication between R&D and production units within *Speaker* and the staff at the regional HQ. Team leaders and members changed over time, but a cross-functional target costing team has now been in place for more than four years.

Team responsibilities include both product earnings management and capital asset management. Changes in capital assets on the product balance sheet directly affect the capital charge that is included in product cost. Consequently, if design modifications require asset purchases above a threshold level then the team recalculates the resulting manufacturing costs and their impact on product EVA (see Section 4.2.3.3 for details).

**Fig. 5** details the areas of individual responsibility in the target costing team.

**Table 1**

<table>
<thead>
<tr>
<th>Job title/functional area</th>
<th>SBU based</th>
<th>Regional HQ based</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing Director and Team leader</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Product Manager</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Research &amp; Development</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Procurement</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Quality Control</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Logistics</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Sales &amp; Marketing</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Management Accounting &amp; Finance</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
accounting and finance staff are assessed by additional key performance indicators such as working capital turnover. This arrangement fits with the view from the literature that managerial performance should be assessed against the areas over which they have direct control.

4.2.3. Phase 1: target costing during product modification

4.2.3.1. Market and functional analysis. Fig. 3 shows the stages of product life cycle cost management within Electronics. The first phase involves a conjoint analysis of the product specific market and customer requirements, conducted by the sales and marketing team together with design engineers. For Test products, the emphasis at this stage is on the scope to modify existing designs. This includes evaluation of current market conditions, competitors' strategies, projected demand and market share for a range of potential prices over the full product life cycle.

The resulting findings become inputs into the development process, aimed at understanding the functionality and quality requirements of customers and the price they are willing to pay for these features (Kee and Matherly, 2006). The marketing team and design engineers solicit input from customers and use value analysis to analyse how much customers are willing to pay for design innovation(s) and other product features. Functional analysis and value engineering are used to decompose the product into engineering sub-functions that are linked to customer requirements, as illustrated in Table 2. In this way, the engineers' view of the product is linked directly back to the customer's view, which is primarily functional in its orientation.

Table 2 shows three core customer requirements sound clarity, ease of use and aesthetic design. Each of these requirements and the associated sub-functions are ranked to reflect the feedback from potential customers and measure their contribution to the product price. The analysis is similar to the "pricing by functions" used in some Japanese companies (Tanouchi, 1991) and its use by Electronics in product modification reflects Ansari et al's observation (2007) that value engineering in Japanese companies embraces several stages in a product's life cycle, namely concept, initial design and design development. Table 2 thus serves to open up the so-called "black box" of customer value determination as described by Ansari et al. (2007).
Table 2 also shows how customer requirements are linked back to specific engineering functions and tied to the product's bill of material, so that the cost of both engineering functions and sub components can be readily determined (Yoshikawa et al., 1994; Albright and Davis, 1998). The number of “x”s in the function boxes in Table 2 denote the engineers’ assessment of the importance of a given engineering function to a specific customer requirement. For example, the ease of sound adjustment that is sought by the customer is largely determined by the design of the volume control switch. Similarly, the attractiveness of the design will be influenced by both the colour and material used for housing the product. In contrast, the positioning and design of input/output points is of limited significance to any of the core functions.

Ansari et al. (2007) suggest that most of the research and literature on functional analysis emanates from the Japanese auto industry, where engineering expertise is used to translate customer valuations of product features into target cost indices. The case evidence illustrates that the practice has spread into the regional subsidiaries of a European multinational that is in a different business. The resulting information ensures that the target price is firmly based on customer evaluation of functions but also incorporates an estimated manufacturing cost that provides a basis for detailed target cost splitting at a later stage. This data forms the basis for a financial product plan as detailed below.

4.2.3.2. The financial product plan. The financial product plan (FPP) is drafted by the product manager in Speaker. The FPP outlines the lifecycle pricing with projected erosion percentage, volume forecasts, target profit margin, and total capital investment over a five year timeframe. The SBU's management accounting team prepare Return on Investment (ROI) figures based on the FPP, along with a multi-period EVA model that is then used for lifecycle management of Test products. This extended timeframe incorporates capital investment considerations and mirrors the Japanese approach to target costing described by Ansari et al. (1997). Target EVA is set at a fixed percentage of product turnover, rising annually over the 5 year planning cycle.

The average original net asset base that is used for the EVA calculation includes capitalised research and development costs plus intangibles, as well as five years of working capital projections, i.e. accounts receivables, inventories and accounts payable using estimates based on target working capital ratios. The challenges of establishing the value of product level assets and the relevant cost of capital are discussed more fully in the next sub-section.

The cost of capital rate used for Test products is the weighted average cost of capital (WACC) of the relevant business arm within Electronics. By implication, the business specific WACC suggests that the capital charges reflect the variation in risks across different business segments within Electronics. It is recognised, however, that the risk weightings applied to each business reflect corporate level perceptions that may be tarnished by subjectivity (Arnold, 2002). The forecast EVA in the product plan is then calculated by deducting the capital costs from NOPAT.

Both the ROI and EVA estimates are then subject to senior management approval at group level, by comparing forecasts against targets for the overall business area. The target EVA for the Test product modification required product cost to be reduced by 46% from the estimates in the product plan simulation. The target costing team therefore had just twelve months before start of production to close the cost gap and bring EVA to the required level.

4.2.3.3. Closing the cost gap. The elimination of the cost gap requires evaluation of the scope for and cost impact

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5 See Albright and Davis (1998) for a detailed illustration of functional analysis in target costing at Mercedes Benz.

6 For example, the cost of specialist software and estimated patent and trademark charges.
of reducing and substituting components whilst leaving product features and benefits in line with customer requirements. Central to this process is the information collected during the market and functional analysis, which can be used to confirm customer requirements, conduct target cost splitting and also construct target cost indices. The engineers can then try to (re)design the product and its components to fulfil the desired quality, cost and functionality mix.

Fig. 6 shows the potential savings in unit manufacturing costs that can be achieved for one of the Test products by changing the supplier, altering the components or changing the method of assembly. As already noted, the EVA target costing approach extends the potential range of cost reduction opportunities to include capital costs. For any suggested solutions requiring more capital resource, such as the option to make rather than buy, the capital cost (subject to an investment threshold) is assessed by finance and the management accounting and control section evaluate the expected EVA impact.

Standardisation of parts used in housing and other components served to generate substantive savings, reducing direct material costs and the tooling budget for Test products by around 20%. Tooling is capitalised and depreciated in the accounts, and so savings reduced the capital employed and raised the product EVA. This example illustrates how EVA based performance measurement changed behaviour and motivated product engineers to seek out ways of reducing the capital base. Further savings, realisable at later stages in the product life cycle were achieved by, for example, redesigning the on/off switch to enhance durability and facilitate easier maintenance.

The team also considered opportunities to reduce costs through production process improvement, but were hampered by the existing costing system. The team simulated the direct costs for the modified product based on existing platforms, but found that overhead savings from process enhancements, such as assembly rerouting, were ignored because the system allocated fixed overhead to products using a standard volume based budget rate. The limitations of the traditional costing system had long been recognised within Electronics but the depth of the problem, and resulting need for change, was highlighted by the need to collate product level net asset information in order to calculate the EVA for Test.

To resolve these issues, the Managing Director of Tweeter sent a memo to the target costing team firmly stating that “the cost calculation approach has not changed yet. ...We need to change.” Consequently, the costing system for Test was refined in three ways. Firstly, a zero based budgeting system was introduced, framed around the assumption of starting a new business from scratch to produce Test products. Secondly, this system was supported through the implementation of activity-based costing (ABC). Activities and cost drivers were identified for overhead related processes in quality assurance, logistics, warehousing, industrial engineering, and distribution centres under forecast output and operating conditions. A budget cost per activity was calculated, and overhead costs allocated to each product in the Test range. Using data warehousing, the IT department also designed a specific programme to run actual unit cost reports for all of the Test products using the activity-based overhead allocation method. It took about three months for the whole costing team (four staff including a costing manager) to work with different departments to gather the necessary information and modify the costing system.

In their case study of value based management in a UK water company, Francis and Minchinton (2002) found the company faced similar problems with existing costing systems. Like Electronics, their case study company chose to introduce an activity based system and the change was viewed as fundamental to the success of the EVA initiative.

The last accounting change required identification of the relevant capital at product level. The problem could theoretically be resolved by using activity based costing and management to trace assets to products, or by tying capital back to products (Hubbell, 1996; Kee, 1999) but this was not done in Electronics. Instead, volume based allocation was used for space costs, raw material stocks, and accounts receivable and payable because it was considered “too complicated and not worth the cost” to use ABC. When asked how the capital in terms of floor area for Test products was determined in the production and distribution centres, the centre managers gave different answers. In production, the floor area was calculated by adding the area occupied by specific machines to the floor area used in assembly, testing lines etc., all of which was allocated using a standard annual production volume. The distribution centre simply used a volume based allocation method to determine the floor area required. In other words, for the “service” based aspects of production – assembly, testing and distribution – volume is seen as the sole driver of space usage, which may seem simplistic but is a pragmatic answer to the problem of capital allocation. Nonetheless, the accuracy of the resulting asset pool for the product is open to question.

Certain accounting adjustments recommended for the calculation of EVA also affect the value of the product asset base. For example, internally generated intangibles such as brand name are added back to the capital value in the GAAP balance sheet. Given the size of Electronics, any product level allocation of such benefits would be a “guesstimate” at best, and so no such adjustment was made. Similarly, the EVA calculation was further simplified by opting not to capitalise the operating lease payments on equipment used for manufacturing Test products. Nor were one-off research and development costs for Test capitalised.

Electronics’ approach matches the findings of Francis and Minchinton (2002) in demonstrating that companies find it difficult and arbitrary to establish a value for capital at divisional or product levels within the organisation.

The above changes made it possible to reflect certain overhead savings within Test’s unit costs and more clearly assess the impact of cost saving efforts on unit product costs and EVA. Savings on materials and components reduced the cost gap by 30% and changes to assembly processes and partial relocation of some assembly activities resulted in the target unit manufacturing cost for Test products being successfully achieved prior to the start of mass production twelve months later.

The way in which the EVA based target costing system triggered the introduction of ABC costing, a form of ZBB
and product level balance sheets and income statements, clearly illustrates the complementary nature of many of the SMA techniques identified by Cadz and Guilding (2008). It also suggests that accounting practice is subservient to corporate strategy, rather than independent of it (Hiromoto, 1988).

4.2.4. Phase 2: target costing post production

In Phase 2, the project team faced the new challenge of further cost and EVA improvement. Post production cost targets are used throughout Electronics to link the target and life cycle costing systems, in a similar way to the application of Kaizen costing in Japanese automobile firms (Monden and Hamada, 1991). SBU cost saving targets are formally set in the annual budget, and actual cost savings for each product family reported on a monthly basis and compared against budget. Approximately 20–30% of the management team and target costing team’s annual bonuses are tied to the achievement of these targets.

For Test products the cost reduction target was set at 7.5%, taking into account the lifespan service and repair costs, salvage costs and phase-out expenses. Achieving the target was seen as central to the success of the overall business unit, and also directly impacted upon annual product EVA through both cost savings and capital investment additions/reductions.

The challenge for the project team was that limited cost saving opportunities remained after mass production commenced as 75–80% of the cost had already been determined in Phase 1. Nonetheless, the long life cycle of Test products meant that the company viewed cost and capital control during the manufacturing stage as equally important to the pursuit of both customer and shareholder value maximisation.

Efforts were concentrated on continuous supply chain management, the relocation of service and repair processes to Indonesia or China and tighter working capital management. For six months the target costing team held weekly meetings, chaired by the R&D director, to monitor progress. The meetings served as both the project management mechanism and also the formal communication channel for cross-functional teamwork. Monthly cost saving reports were produced, with savings calculated against baseline unit manufacturing cost, i.e. the yearly standard unit cost applying the zero based budgeting approach introduced in Phase 1. The standard cost was revised downwards annually to reflect the new figure which then became the baseline cost for the subsequent year. In this way product costs were managed downward throughout the whole life cycle.

The involvement of suppliers was central to the achievement of cost savings during this phase of target costing. Test products are “manufactured to stock” in order to meet high levels of customer demand, and inventory represents a significant portion of the products’ net assets, whilst accurate forecast sales and MRP planning are critical to ensuring optimal stock levels under such a system. Historically, uncertainty in customer forecasts had often resulted in excess stocks of both components and raw materials.

Electronics began working with suppliers to set them annual cost reduction targets. Such co-operation is particularly important in an EVA based target costing system, because vendor management inventory systems can be used to transfer control of stock to the supplier. The result is lower raw materials stocks and hence a reduced capital cost of holding the inventory (Fry et al., 2000). As shown in Fig. 5, control of capital cost (including working capital) is the responsibility of the SBU’s Finance Director.

The importance attached to tight inventory control within Electronics and the SBU is illustrated by the fact that monthly and yearly inventory turnover targets are assigned to the finance director, the management accountant and the management team, and 50% of their variable bonus is tied to this inventory KPI. Additionally, Speaker tasked one management accountant with specific responsibility for factory level inventory management. Weekly inventory management meetings are held, and chaired by finance with attendance from representatives in purchasing, logistics, warehouse and distribution. Most attendees are also target costing team members.

The search for cost savings via relocation of assembly and production processes for Test products proved more difficult to achieve because of the technical complexities of incorporating the resulting changes in capital into the product cost and EVA. One option, to sub-contract an operation to a plant in China where labour and factory rental costs were lower, was initially rejected because the necessary substantive investment in new fixed assets resulted
in a reduction in the life cycle EVA for Test. The unit operational cost saving was less than the unit cost of capital increase. The target costing team subsequently modified the relocation proposal to shift only the most labour intensive portion of the assembly process. This required much less capital injection, reduced unit manufacturing costs and increased the product level EVA. This illustrates how the use of EVA based target costing can both extend but also alter the mix of cost reduction opportunities that are sought. It is interesting to note, however, that investment decision making across the overall group is still based upon NPV analysis rather than discounted EVA.

Four years after the start of the target costing programme for Test products, the unit manufacturing cost had been reduced by almost 50% and working capital improved from 93 days to 60 days. As the products are still in production, cost savings efforts continue, new targets are set annually and Test products’ actual annual EVA, including forecast to the end of the lifecycle is reported on a yearly basis.

5. Discussion and conclusion

5.1. Overview

The market and product characteristics of Test closely mirror the intensive competition, extensive supply chains and long product development cycles that were classed as characterising the best practice target costing companies in the CAM-1 study (Ansari et al., 1997). Furthermore, the six key principles for target costing identified by Ansari et al. (1997) are systematically applied. Firstly, the costing is price led, with target costs being established on a “retail price minus” basis. Functional analysis is combined with value engineering to decompose the product into engineering sub-functions linked directly to customer requirements, as illustrated in Table 2. The result is a target manufacturing cost that satisfies the required profit margin. Secondly, the system is customer focused, with market and functional analysis being used to gain understanding of customer requirements and their willingness to pay for specific product features. Thirdly, the approach places a strong focus on design, emphasising cost avoidance in product and process design across the product life cycle. Fourthly, the organisational structure within Electronics illustrates cross-functional involvement by combining vertical reporting structures with horizontal cross-functional teams, such as the Test target costing team. Table 1 shows that the team includes members from a wide range of disciplines and their performance is evaluated on the basis of achievement of the target cost. Ansari and Bell’s (1997) principle of supply chain involvement is evidenced in Electronics by the close involvement of suppliers in cost saving initiatives, and the use of vendor management inventory systems. Lastly, a key feature of the target costing system within Electronics is its life cycle orientation. Operating, maintenance, service and repair and phase out costs (as shown in Fig. 3) as well as economic profit are continuously re-estimated over the full product lifecycle. The early stage redesign of the on/off switch is an example of how engineers incorporate future maintenance considerations into early stages of the target costing process. Such a multi period perspective turns target costing into a three dimensional exercise in which capital cost, maintainability and sales/purchase price fluctuations are reviewed and balanced through a product’s life cycle.

The target costing system within Electronics thus fits the broad profile of such systems as described in the existing literature but is simultaneously highly distinctive in its use of EVA as the measure of financial return. Hartman (2000) and Shrievs and Wachowicz (2001) provide a theoretical justification for pushing EVA from corporate down to product level, by demonstrating that a product’s value added, when based primarily on its accounting income rather than cash flows, can be used to measure its NPV. Our case study provides an empirical perspective on the issue, and the implications for strategic management accounting in four key areas. These are: the relationship between accounting practice and corporate strategy; the impact of an EVA metric on cost reduction strategies; the technical problems of accounting for capital at product level, and the impact of introducing a shareholder value focus into a system which is commonly seen a customer oriented. We now discuss each of these in turn.

5.2. Accounting practice and corporate strategy

The case study shows that using EVA at product level links group strategies with operational activity, reflecting what Chua (2007, p. 492) describes as “strategy-accounting talk”. In the words of the R&D Director, product level EVA for Test products “links the corporate target of value creation to product management in a consistent manner. It is also an attempt to get the shop floor to buy into the value based management concept as they are already aware of the target costing requirement.”

It is evident that accounting staff within Electronics play a very important role in connecting product level performance management to broader corporate strategy, providing empirical support for Bhimani and Bromwich’s (2010) suggestion of links and interaction between SMA, multi-functional team working and value based management. Test’s cross-disciplinary target costing team were collectively responsible for delivering customer value and continuous performance improvement within a group wide performance system that was EVA focused.

The organisational framework of Electronics supports this form of accounting involvement at operational level. Whilst the cross-disciplinary team held overall authority for product EVA, the functional expertise and oversight was provided via vertical structures. In other words, the case suggests that certain types of organisational structure may be particularly supportive of target costing.

The broad strategic focus of the accounting system within Electronics also demonstrates the complementary nature of many of the SMA techniques identified by Cadez and Guilding (2008) and the potential oversimplification associated with viewing them as independent of one another. The boundaries between target costing, Kaizen costing and life cycle costing appear to be very blurred in practice.
5.3. The impact of EVA on cost reduction strategies

The use of EVA as the measure of financial return requires target cost to be redefined to include capital costs. This creates opportunities for savings through cuts in fixed and/or working capital that would not be identified in a traditional target costing system. The case evidence indicates that EVA based target costing focused management attention on capital costs. The result was more careful evaluation of make or buy decisions and the routing of assembly processes, through comparison of the marginal benefit versus marginal costs of the capital used (Kee and Lane, 2005). Working capital savings, for example via the vendor management inventory systems, were easily implemented and the inclusion of capital costs into cost saving proposals enhanced management control by directly linking the capital budgeting and product management systems. This would suggest that traditional target costing perhaps underestimates the scale of potential cost savings, particularly in the area of working capital.

5.4. Technical challenges of EVA target costing

The case confirms the extent to which product profitability management remains a problematic area for management accountants. In the case of Test, efforts to push EVA down to product level were hampered by technical accounting difficulties which required the construction of product balance sheets and replacement of the volume based overhead costing system with one based on ABC.

Kaplan and Cooper (1998) suggest driving EVA down to product level by integrating it with ABC costing, and in Electronics a new ABC system proved fundamental to the success of the EVA initiative. ABC was only used, however, for estimating certain product costs and not, as suggested by Hubbell (1996), to trace assets back to products. The reason given was that ABC was too complex and expensive. Within a large group such as Electronics, the prevalence of shared assets and transfer pricing added to the complexity of the EVA calculation, confirming and extending Zimmerman (1997) and Francis and Minchington's (2002) findings that synergies make the application of EVA at lower levels of an organisation highly problematic.

Ultimately, the accounting staff within Electronics resolved the technical challenges of deriving an EVA for Test products by massively simplifying the accounting adjustments suggested by Stern et al. (1995) down to a level that meant the value added measure was closer to residual income than EVA. No intangibles were added back to the product balance sheets and neither research and development nor operating leases were capitalised. Choosing pragmatism over theoretical precision highlights the ongoing divide between theory and practice in management accounting and the need for further research into improving the techniques currently available for identifying the capital used on a product by product basis.

5.5. Shareholder value versus customer value

The use of EVA rather than earnings as the profit metric in target costing directly links SMA to shareholder value based management. At the same time, the case study affirms Bourguignon's (2005) contention that the interpretation of the term “value creation” has evolved within management accounting. Electronics is seeking to merge customer value and shareholder value perspectives into a single performance management system. The shift towards a shareholder value focus is of particular interest given the cultural context of the case study company and confirms Jones and Luther’s (2006) findings of a change in thinking amongst German managers in favour of the Anglo American approach and increased use of financial information for decision making.

The alignment of customer and shareholder interests in a single target costing system is potentially problematic and raises fundamental questions about the extent to which accounting, as a financially oriented discipline, can serve the needs of a customer focused organisation. The Test target costing team were required to include measure target cost by including a cost of capital, but the case evidence suggests that whilst this refinement resulted in changes to the product costing system – via the introduction of ZBB and ABC costing – it did not impact on the attention given to customer value. In modifying Test products the target costing process began by analysing the market, customer requirements and their willingness to pay for new product features. The resulting target price, minus EVA, then generated the target costs, broken down into functions and components. Post production, the process retained its focus on customer value, with cost saving suggestions in both product and process design made subject to customer value analysis. It would appear, therefore, that the exercise was not simply one of cost minimisation, but also of aligning costs with customer value.

In reality it is impossible to fully evaluate the extent to which customer value within the Test case might have been sacrificed – if at all – in the search for cost reductions. The only evidence lies in the control systems used to achieve target cost, and the relative power held by the team members. In Section 4.2.4 it was observed that bonuses for both the SBU’s senior management and that of the EVA team are closely linked to cost saving targets. Such incentives might suggest that cost considerations and value added will dominate decision making, giving cost cutting a priority status, but the multi-functional composition of the team serves to temper this bias by giving the customers a voice. We therefore conclude that this specific case suggests that it is possible to align customer and shareholder perspectives in the target costing process. Clearly, however, there is a need for further research in this area, particularly looking at power balances within multifunctional teams as these will affect the prioritisation of different objectives.

5.6. Conclusion

The case confirms the findings of Cooper and Slagmulder (2004) that target costing can be combined with other SMA techniques including life cycle costing, Kaizen costing, attribute (functional) costing and ABC to enhance product profitability management. The case also indicates that whilst target costing is seen as a cost reduction tool by some authors and a strategic profit management system by
others, it can also protect customer value and serve as “the bridge connecting strategy formulation with strategy execution and profit generation” (Ansari et al., 2007, p. 512). Nonetheless, linking strategy to product profitability management is highly problematic in the case of EVA.

Our empirical evidence demonstrates that whilst Ansari et al. (1997) are correct in suggesting that there is scope to extend the measure of financial return in target costing beyond ROS or ROA, technical accounting issues make it extremely difficult to use EVA for this purpose. We therefore conclude that if the cost and complexity of accounting for capital is deemed excessive then EVA becomes impracticable as a measure of return in target costing, and residual income is a preferable and more practical alternative. Regardless of the chosen measure of financial return, however, target costing provides a useful illustration of the inaccuracy of Schonberger’s (1996) contention that management accounting is irrelevant for controlling the processes underlying enhanced customer value.

**Appendix A.**

Managing Director
Research and Development Director
Finance Director
Costing Manager
Senior Design engineer
Senior Production Engineer
Procurement Manager
Factory Performance Manager
Human Resources Manager

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