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ACADEMIC PAPER

ABC/ABM – activity-based costing and activity-based management

A profitability model for SMEs manufacturing clothing and textiles in the UK

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Abstract

Purpose – There is the potential to improve the competitive performance of small to medium-sized companies (SMEs) particularly in the UK clothing and textile industry, a sector of the economy that has had little exposure to activity-based costing and activity-based management (ABC/ABM).

Design/methodology/approach – A review of the current literature relating to ABC/ABM was made, with reference to its poor take up amongst SMEs and those in the clothing and textile manufacturing sector particularly. A case study was undertaken to test the theories and assumptions in the context of SMEs in the clothing and textile industry.

Findings – The case study showed that there are opportunities to improve the profitability of SMEs if the findings were transposed to other similar businesses willing to invest the time and effort into setting up an ABC/ABM system.

Research limitations/implications – There is the opportunity for further research in other areas of business activity in the fashion industry.

Practical implications – This is a practical application of a financial management tool that would be useful to academia, managers in SMEs in the clothing and textile industry, government planners looking for ways to increase profitability for UK firms.

Originality/value – The paper takes an existing well-known financial tool and examines its use in an area of the economy with little or no previous exposure to its benefits.

Keywords Activity based costs, Clothing, Activity based management, Textile industry, Small to medium-sized enterprises, United Kingdom

Paper type Conceptual paper

Introduction

Hussein and Gunasekaran (2001) commented on the rapid advancement of information technologies and global competition that have helped make conventional management accounting systems irrelevant.

Gering (1999) supported this arguing that traditional accounting has a tendency to provide information that though accurate is often late, irrelevant and misleading.

Traditional management accounting systems (TMAS) were mainly developed to serve the accountancy function not the needs of the decision makers in the firm. Activity-based costing (ABC) popularised by Kaplan and Cooper in the 1980s can be described as a methodology, which enables the financial information in the firm to be used for active decision-making. This is activity-based management (ABM).



This paper explores the concept of ABC/ABM and questions its application by small to medium-sized companies (SMEs) engaged in manufacturing clothing and textiles in the UK.

The paper references the term “Clothing and Textiles” to reflect the government focus on this industry. Although clothing and textiles are different types of business with varying cost structures, the fundamentals of ABC – for example, cost centres, cost drivers, etc. – apply in each case.

Manufacturing does not exclusively use ABC/ABM concepts, its application to other areas of the value chain were listed by Pieper (1999). They include logistics, marketing and sales, service, technology, financial administration, general administration, distribution, and information resources.

Why small and medium-sized enterprises?

Gunasekaran (1999) showed that for an SME to compete effectively in the global market, the cost of a product should be reduced by increasing productivity, i.e. the relationship between total output and total input – or by reducing manufacturing costs at the production floor.

Drury and Tayles surveyed 260 UK SMEs (companies with less than 500 employees) in 1993. They were found to have under developed accounting procedures. They also found that other “non-financial” factors were considered just as important: for example customer satisfaction, product quality, delivery and supplier reliability. The conclusion, however, is that there exists an opportunity to improve the decision-making process in the SME through ABC/ABM.

This sector of the economy is seen by the OECD as a major driver of economic growth and adjustment – SMEs are considered to be, more flexible, innovative, quick to react to changing markets, less bureaucratic, entrepreneurial, and “in-touch” with reality.

Perhaps of greatest importance to SMEs engaged in clothing and textile manufacturing – embedded as they are in a traditional industry where there are low barriers to entry, where productions runs can be minimal and labour is relatively intensive (and expensive): is an opportunity to examine overheads (through ABC) that can lead to fundamental changes (through ABM) to what is produced, how it is made, etc.

ABC

ABC became a popular costing tool amongst manufacturing companies in the 1980s. Manufacturing companies have high levels of indirect costs ranging from 70 to 95 per cent. Under TMAS these indirect costs are absorbed into the product by, for example, allocation on a £ per direct labour hour or, a £ per machine hour or, a per cent of prime cost or, per cent of direct material and so on. These allocation methods became the cost drivers. In short, through TMAS, all indirect costs are traced to the product. Resources consumed are allocated in proportion to the volume of each product produced.

Herein lies the problem. As Pieper (1999) noted that volume cost drivers fail to account for product diversity in the form of size or complexity. Similarly there is not a direct relationship between production volume and cost consumption.

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10

ABC however, traces cost to the activities that the company is involved with. Take for example, in Tables I and II, our small manufacturing company “Garmento Co Ltd” it produces three product ranges – blouses, skirts and jackets. The costs have been allocated using both TMAS and ABC methodologies.

We can see the difference between the cost of blouses, skirts and jackets using TMAS and ABC methodology. The differences are highlighted in Figures 1 and 2.

Table I.

	TMAS			Total
	Blouse	Skirt	Jacket	
Direct wages	500	600	800	1,900
Direct materials	200	250	300	750
Indirect overheads	700	900	1,300	2,900
Total	1,400	1,750	2,400	5,550

Table II.

	ABC			Total
	Blouse	Skirt	Jacket	
Process orders	150	150	150	450
Pattern cutting	250	470	650	1,370
Garment construction	320	550	600	1,470
Pressing and finishing	70	100	400	570
Packaging	80	130	300	510
Storage	80	120	600	800
Delivery	100	150	130	380
Total	1,050	1,670	2,830	5,550

Cost Allocated by TMAS

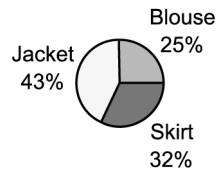


Figure 1.

Cost Allocated by ABC

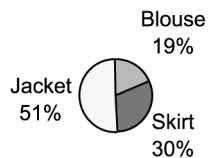


Figure 2.

Possible reasons for the difference could be:

- The jacket requires specialist packing in a box with promotional information (e.g. Gortex).
- The skirt requires greater machinist skill if a problematic fabric such as silk is used.
- The jacket needs specialist shaping for pressing of lapels and shoulders.

In Table III, we can see how all the products are profitable under TMAS.

Whereas in Table IV, ABC cost tracing indicates that jackets are unprofitable. These differences are highlighted in Figures 3 and 4.

	Blouse	Skirt	Jacket	Total
Units produced	280	175	96	
Selling price per unit	5.5	11	27.5	
Revenue	1,540	1,925	2,640	6,105
Cost	1,400	1,750	2,400	5,550
Profit (Loss)	140	175	240	555
Cost per unit	5	10	25	
Profit (Loss) per unit	0.5	1	2.5	

Table III.

	Blouse	Skirt	Jacket	Total
Units produced	280	175	96	
Selling price per unit	5.5	11	27.5	
Revenue	1,540	1,925	2,640	6,105
Cost	1,050	1,670	2,830	5,550
Profit (Loss)	490	255	-190	555
Cost per unit	3.75	9.54	29.48	
Profit (Loss) per unit	1.75	1.46	-1.98	

Table IV.

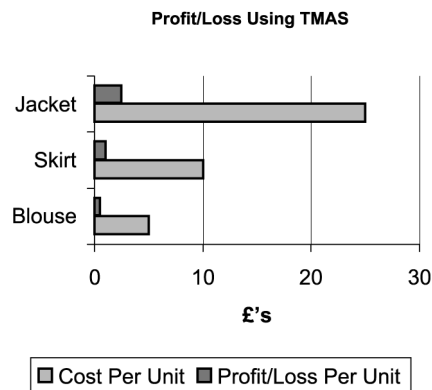


Figure 3.

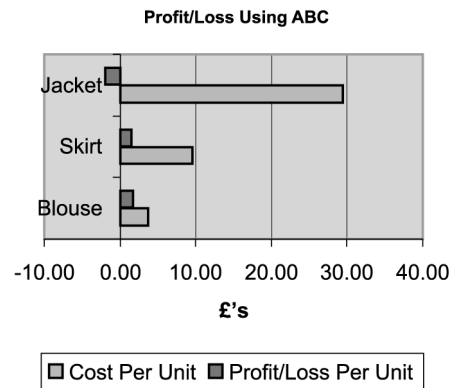


Figure 4.

Using this valuable cost information the company can focus on the management of activities to improve performance. By centring on its activities as the prime drivers of cost, it will have a more realistic understanding of what overheads are consumed by different product lines.

The ABC process should not be a “one-off” event, it demands a fundamental mind shift by the management (which may prove more difficult in SMEs) – “a process of relentless and continuous improvement” (Gunasekaran, 1999). There are approaches and techniques, which can help the managers in SMEs, deal with the mental hurdles associated with financial issues, these include the balanced scorecard system (Kaplan and Norton, 1992). Ng and To (2002) have recently developed software to aid the application of ABC in the apparel business.

ABM

As the results of the ABC exercise are rolled out into the organisation, the benefits quickly become apparent. Managers will now have a clear view of many issues that will aid their decision-making.

Focus on significant costs will give impetus to improve processes – thereby reducing cost, through for example, total quality management (TQM), just-in-time (JIT) or process re-engineering.

The organisational cost/organisational value relationship will be recognised – enabling managers to retain those activities with a high cost but also a high value: whereas those activities with high cost but low value will be withdrawn or re-engineered. Similarly activities will be identified which are core to the firm, and those that are simply supporting.

Perhaps the greatest value of the information is its role in the measurement of performance with accountability.

The results of ABM are varied but in general a number of common conclusions have been established (ABC Technologies, 2000):

- high volume products/services are over-costed;
- low volume products/services are under-costed;
- significant differences in customer profitability are observed (i.e. the firm knows where it makes its money);

- significant opportunities to improve activities and processes are identified;
- 25-35 per cent of activities do not contribute to the firm's aims and objectives; and
- as a general rule 80-85 per cent of costs are consumed by 15-20 per cent of activities.

Clothing and textiles, SMEs and ABC/ABM

The clothing and textiles (and footwear) industry has a number of large integrated companies but it is characterised by SMEs. The industry is highly concentrated geographically – cotton textiles in the north west, woollens and worsteds in Yorkshire, linens in northern Ireland, fine knitwear in Scotland, knitwear and footwear in the East Midlands. Clothing production is more dispersed but with sizable concentrations in the West Midlands and North and East London in the established ethnic communities, (Department of Trade and Industry, 2000). “The UK textile and clothing manufacturing sector has been shedding labour, to the tune of approximately 142,000 jobs, or 28 per cent of the workforce, over the last decade” (UK Fashion Report, 1998/1999). The same report highlights a number of factors that have led to the decline:

- Low inflation has enabled retailers to hold prices down – presenting a challenging competitive environment for manufacturers.
- Lower overseas production costs particularly, labour.
- Rising domestic production costs – though at a slower rate than general industry due to “greater incidence of sub-contracting and outward processing trade” in textiles and clothing manufacturing.
- Customer demands and expectations have changed – smaller runs, shorter product life cycles and higher quality.

Declining export markets

The 2001 survey of textiles and clothing by the government office for London found that the sector (in the capital) was dominated by SMEs. These SMEs are characterised by being very small (55 per cent have under five employees), have a turnover of less than £0.5 million (47 per cent of the sample) and are owned by a person from an ethnic minority. Cut Make and Trim (CMT) firms who make up 27.5 per cent of the sample, were more likely to be owned by someone from an ethnic minority (82 per cent), and have a turnover of less than £0.5 million (over 75 per cent).

In comparison with the rest of the sector (designer, specialist and ladies) CMT owners are far more pessimistic about the future (64 per cent believe that CMT business is declining). Comments from London clothing and textiles firms indicate that financial issues particularly minimum wage legislation and the subsequent inability to compete with manufacturers in Romania, China, India and Malaysia, are at the heart of the pessimism. Similarly the high cost base, particularly soaring rent and rates in London adds to the woe.

Yet there is recognition that a sustainable UK clothing and textile manufacturing industry is desirable. Jim Hodgkinson, former chief executive of New Look commented “we care about UK manufacturing because if we desert our UK manufacturing base, we destroy UK jobs. We take money out of the pockets of our own customers which

means they can no longer afford to shop with us” (Clothing World, 1999). “Having our own manufacturing base improves the efficiency of the supply chain. It is very easy to make the transition from being in control to being out of control” (Clothing World, 1998).

The need to respond quickly has taken on a greater significance with the successful entry into the UK clothing market of Swedish retailer Hennes & Maritz – selling cheap throwaway fashion. Similarly, Spanish company Zara, with its supply chain closely located near to its headquarters, is able to respond to the “Fast Fashion” demands of a buying public eager to wear what they see the celebrities wearing in Heat or Hello magazines. UK retailers led by Phillip Greens Top Shop are responding to the challenge demanding from their suppliers shorter lead times – down to six weeks, and the ability to quickly respond to changes in fashion tastes – increasing production of popular items whilst ceasing production on poor sellers.

The evidence indicates an opportunity exists to develop ABC/ABM to improve the profitability of SMEs in clothing and textiles.

Implementation of ABC/ABM

Gunasekaran (1999) described how the implementation of ABC in SMEs required eight issues to be considered if the process was to be successful. The issues were:

- (1) Top management commitment – there is a need for the senior managers to be fully conversant with the principles of ABC/ABM, to show their commitment to the process and enthuse the people below them.
- (2) The team managing the process should be kept as small as possible: liaising with senior managers to advise on strategic, technological and day-to-day operational problems.
- (3) ABC/ABM implementation training by universities through workshops and seminars.
- (4) Incentive policy to motivate participation, both for SMEs undertaking the process and employees working in the companies.
- (5) Education and training highlighting the principles, capabilities, goals and objectives of ABC/ABM, for all employees. Consultation and education is essential at all levels of implementation – employees are directly involved in the activities which the ABC/ABM process seeks to examine.
- (6) Analysis of critical activities – do not drill too deep! Manufacturing could have 10 or 200 activities. The key is to focus on the key ones.
- (7) Once key activities have been identified the cost and the value added of each is calculated. From this process will emerge those activities which add greatest value, those which when compared to benchmarks can be improved and those which add no value to the organisation.
- (8) Monitoring the process – ensuring the results of the implementation are rolled out into effective decision-making.

The experience of one company – a case study.

Mills *et al.* (1998) commented that unless we understand how an organisation got where it is, it is difficult to determine the appropriate steps to take next. If not properly

understood, the focus that drives it in a certain direction will continue to operate, despite whatever well-intentioned decisions are imposed upon it.

It is therefore appropriate according to Kumar (1999), to look at a case study as there is an assumption that the case being studied is typical of cases of a certain type, so that, through intensive analysis, generalisations may be made that will be applicable to other cases of a similar nature.

XYZ Co Ltd is an SME in the clothing and textile industry based in South London – established in 1995. It manufactures women’s formal and casual wear for a single retailer – the relationship is perceived by both parties to be positive. They also undertake pattern cutting and grading work for a lingerie manufacturer (representing 5 per cent of activities).

Future strategy is based on satisfying the needs of these primary customers, and maintaining a healthy balance sheet.

Within the firm there is a perception that the biggest earner is Trousers (45 per cent of activities), closely followed by Skirts (35 per cent of activities), and Dresses (15 per cent of activities), earn the lowest margins. Production is determined by the size of an order and is entirely in-house – which is seen as a positive by management.

The current costing method has been employed by XYZ since formation in 1995.

- a factory wide (blanket) overhead absorption rate is used;
- direct labour and direct materials are calculated by use; and
- cost and profit is simply calculated by adding £0.50 to each unit (regardless of the product type).

According to the literature it is not unusual for traditional manufacturing organisations to use factory wide (blanket) overhead cost rate to allocate overhead costs to products (Figure 5). Esculier (1997) argues there are basically two cost concepts “direct cost and absorption cost – the latter being connected with local tax rules for valuation of finished product inventories and derived taxable profits”.

Table V represents the total costs incurred at XYZ for all product lines and activity.

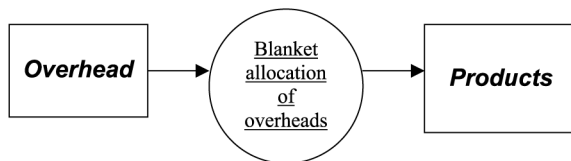


Figure 5. Total Costs incurred at XYZ

Direct labour	250,000		
Direct materials	75,000		
	325,000	325,000	Prime cost
Production overheads	50,000	375,000	Production cost
Admin expenses	25,000		
Selling expenses	20,000		
Distribution expenses	13,000		
Finance expenses	12,000		
	70,000	445,000	Total cost

Table V.

If for example, we now take a single product line (Table VI) – trousers (45 per cent of activity). The cost structure is evident in Table VI.

Under ABC – direct labour and production overheads would be allocated by level of activity. Table VII applies the ABC process to trouser manufacture. The cost allocation is given in Table VII.

By simply examining the activities involved in the manufacture of trousers it is clear that this is a much more profitable activity than was previously thought. By using the same selling price, profit generated by trouser making rises from £5000 to £28500.

This “hidden” profit is likely being consumed, at present, as a cost by one of the other product ranges, i.e. skirt or dress making, or pattern cutting and grading for the lingerie manufacturer. The company should now examine these. By identifying those activities that are consuming the greatest cost managers will be able to make decisions, which will ultimately increase profitability. They could, for example, with costly product lines cease production; alternatively the range could be outsourced allowing the firm to concentrate on the expansion of the profitable lines.

The work of XYZ Ltd is modelled in Figure 6. All the activities of the company are clearly illustrated – trousers (45 per cent), closely followed by skirts (35 per cent),

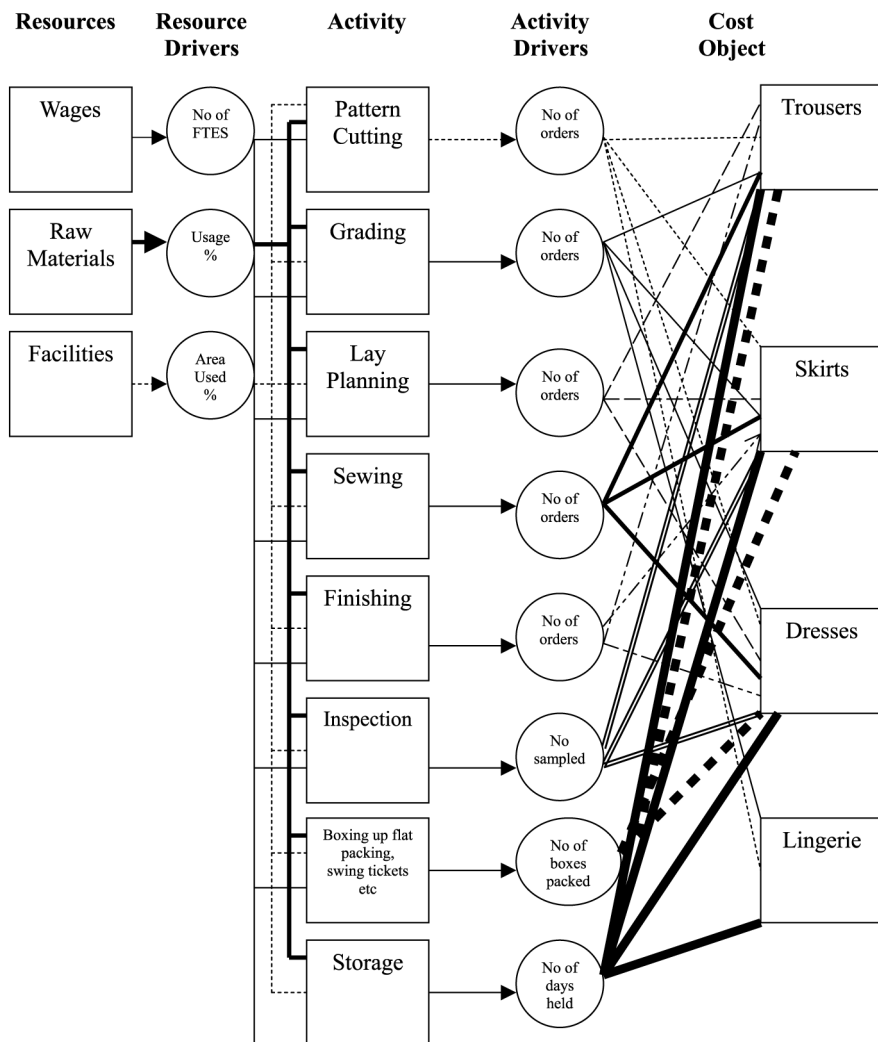
Trousers (by TMAS)	10,000 units		
Direct labour	112,500		
Direct materials	33,750		
	146,250	146,250	Prime cost
Production overheads	22,500	168,750	Production cost
Expenses	31,500	200,250	Total cost
		20.03	Total cost per unit
		20.53	Selling price
		205,250	Total revenue
		5,000	Profit

Table VI.

Trousers (by ABC)	10,000 units		
Direct materials			33,750
Direct labour + Production overheads	Pattern Cutting	22,000	
	Grading	19,000	
	Lay Planning	18,500	
	Sewing	21,000	
	Finishing	14,300	
	Inspection	6,500	
	Boxing Up etc.	3,500	
	Storage	7,000	
		111,800	145,550
Expenses		31,500	177,050
			17.71
			20.53
			205,250
			28,200

Table VII.

A profitability model



17

Figure 6.
The work at XYZ Ltd shown through the ABC model

dresses (15 per cent), pattern cutting and grading work for a lingerie manufacturer (5 per cent). It is possible to trace the true costs of a product by looking at the activities involved in its manufacture. For example, by examining what resources (wages, raw materials, and facilities) are consumed in the making of trousers, through the component activities involved in the manufacture and processing – i.e. pattern cutting, grading, lay planning sewing, finishing, inspection, boxing up (flat packing, swing tickets etc.), storage, and calculating how much each costs, it is possible to accurately attribute values to this part of the firm’s business. This is then repeated for the other products and services the firm engages in.

Gunasekaran (1999) clearly indicates that the outcome of the ABC process allows managers to:

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- (1) target cost reduction, identify and promote good practices;
 - (2) measure performance and so increase efficiency;
 - (3) make informed decisions about product pricing and profitability;
 - (4) manage and control budgets; and
 - (5) ultimately roll out the ABC tool for other cost objects, thus providing, for example, individual customer profitability.

Limitations of ABC/ABM

The advantages of ABC/ABM through the increased understanding of cost behaviour have been shown. However there has been a sustained criticism of ABC. Johnson (1992) warned of the dangers of concentrating too much on costs, rather than on what activities should actually be performed. Frizelle (1998) noted that there are likely to be problems associated with the identification of the real source of cost – "...tending to under-cost the complex and over-cost the simple drivers". Sohal and Chung (1998) described how implementing the process of ABC was costly in itself, and the resulting extra information would need to new employees to deal with it.

The effectiveness of cost control was questioned by Drucker (1964), who argued that the only effective way to cut cost is to cut out an activity. Similarly Levitt (1960) argued that nothing is more wasteful than doing with great efficiency that which should not be done. "ABC is made to look superior because no alternatives to conventional absorption costing are given consideration", (Davies and Hines, 1994).

Summary

ABC/ABM enables firms to focus on its activities and products; it traces cost-to-cost drivers, for example, the number of machinists needed to produce trousers. The business then understands; its business processes in detail; the cost of process failures; the relationship of processes to customers; the profitability of customer segments; and the affordable amount that can be spent on influencing the preferred customer groups.

"ABC Information, by itself, does not invoke actions and decisions leading to improved profits and operating performance. Management must institute a conscious process of organisational change and implementation if the organisation is to receive benefits from the improved insights resulting from an ABC analysis" (Cooper, 1996).

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