

**CLIMBING THE VALUE CHAIN: STRATEGIES TO CREATE A NEW PRODUCT
DEVELOPMENT CAPABILITY IN MATURE SMES**

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ABSTRACT

Purpose – Increasing productivity gaps and declining manufacturing bases create complex challenges for mature SMEs. One solution advocated by academia is to reposition along the value chain—moving to a position of greater value. This study examines strategies used by firms to reposition through creating a new product development (NPD) capability. In doing so, the study seeks to resolve gaps in extant literature on NPD in mature SMEs.

Design/methodology/approach – An exploratory approach is taken, analysing in-depth case studies of three mature UK manufacturing SME.

Findings – Four strategic approaches to enable the creation of a NPD capability (strategic alliances, licensing key technologies and ideas, outsourcing and deploying an internal development process) are found. Each may facilitate an SME to reposition but the findings highlight that these strategies are not mutually exclusive as different combinations were employed to accelerate and leverage change.

Research Limitations/implications – Limited number of case studies constrains our wider understanding despite providing richness. The findings highlight four different strategies for repositioning but there may be other routes.

Practical implications – Deeper understanding of how to climb the value chain, providing valuable lessons for mature SMEs facing a need to reposition to generate new growth opportunities.

Originality/Value – Provides an understanding of how mature manufacturers utilise different strategies to overcome resource constraints and generate a NPD capability to assist in repositioning. This resolves weaknesses in current literature that so far have not adequately examined the process of shaping a NPD capability and the strategies used to reposition.

Keywords – Innovation, NPD, SMEs, value chain, repositioning.

Paper type – Research paper

INTRODUCTION

Over the last decade productivity gaps have increased and manufacturing bases have been eroded in many countries resulting in a drive for change within the manufacturing sector. The 'Manufacturing Strategy' produced by the then Department for Trade and Industry (DTI, 2002, 2004) in the UK, outlined the key challenges it foresaw for manufacturing firms, recommending, "*firms will need to move up the value-added chain and embrace knowledge-intensive, high-skilled manufacturing to compete more on quality and less on price*" (DTI, 2004 p.12). In conjunction with the current economic environment, it is clear that manufacturing organisations must rethink their strategy and enter the debate on how more innovative practices might enable them to create higher value and ultimately to improve their competitive position.

Of particular importance within this debate is the significance of small-to-medium enterprises (SMEs) "*as they are the life blood of modern economies*" (Ghobadian and Gallear, 1996, p.83). Often casualties of large supply chains, SMEs are frequently relegated to the position of subcontractor where little profit margin exists and opportunity to create value is low. Additionally, owing to globalisation and rapid technological change, these firms are under increased pressure from rising imports from new competitors with better cost bases. Since manufacturing has come to rely upon process efficiencies in a bid to improve its overall effectiveness (Gunasekaran *et al.*, 2002), value creation must be sought elsewhere. In light of these issues, extant literature on new product development (NPD) portrays it as a primary means to achieve renewal. Indeed, Dougherty (1992) refers to it as the 'engine of renewal' and Brown and Eisenhardt (1995) state that NPD is "*among the essential processes for success, survival and renewal of organisations, particularly for firms in either fast-paced or competitive markets*" (p.344). Therefore, NPD has the potential to aid SME manufacturing firms in significantly improving their current position and long-term competitiveness. Therein, survival depends on successfully developing a strong NPD capability that enables the firm to rapidly reposition along its value chain to outmanoeuvre and out-compete rivals. However, the question remains, how might this be achieved from the perspective of repositioning along the value chain?

The value chain was conceptualised by Porter (1985) and characterises the process that a product or service moves through, from raw materials/conception to final consumption, and the value that is added (or not) at each stage to create a compelling (or otherwise) value proposition. In the words of Brown (1997):

"The value chain is a tool to disaggregate a business into strategically relevant activities. This enables identification of the source of competitive advantage by performing these activities more cheaply or better than its competitors. [Crucially] Its value chain is part of a larger stream of activities carried out by other members of the channel-suppliers, distributors and customers[too]."

To remain competitive and assume a position that creates greater added value, a firm must create an ever-improving fit between its competencies and customers. In order to ensure such 'fit' Edwards *et al.* (2004) propose three strategic options in the pursuit of greater value creation. Firstly, a firm can deliver value by increasing efficiency and effectiveness within the value chain. This can be achieved through the adoption of better

practices of production. Secondly, through introducing innovation into the production process of either products or services that generates more revenue—via either higher prices or larger volumes—but realised by remaining at the same position in the value chain. Thirdly, undertaking a fundamental change in position in the value chain, moving to one where products and services generate more value in new and better ways than before. Taking this third strategic option, it remains unclear how this option manifests into strategies in practice that enable (or disable) the development of an NPD capability to enable fundamental value chain repositioning, and, whether these strategies create real and sustainable long term value.

Given this discussion, this research focuses on SMEs seeking to create a NPD capability as part of its strategy to reposition and generate higher value. The literature provides many examples based on ‘good practice’ of successful new product development yet the strategies employed to change and overcome the resource constraints that SMEs face to then create a NPD capability have largely been overlooked. The purpose of this paper is to understand how mature SME manufacturers can achieve strategic change through repositioning their organisation and creating higher value through designing and developing new products. The research questions we address therein are: (1) how do manufacturing SMEs utilise different strategic approaches to generate a new product development capability? (2) How do manufacturing SMEs use these strategies to reposition and do they create new and significantly greater value?

THEORETICAL BACKGROUND

Dynamic Capabilities and Value Creation

We draw on the theory of dynamic capabilities to explore the importance of a NPD capability in value creation, as this theory seeks to describe the process of renewal and change firms can undertake to improve their competitiveness. Teece *et al.* (1990) stated that firms possess a set of firm-specific capabilities, which includes the strategic management of its structures and routines as well as the knowledge and skills creating a firm’s competitive advantage. Firms over time are required to learn and acquire new capabilities through shedding resources, integrating them together and reconfiguring existing capabilities into new bundles to restore competitiveness and generate new routes to value and competitive advantage (Teece *et al.*, 1990). However, Monkhouse (1995) explains that SMEs frequently have an inability to analyse their own capabilities and ascertain shortcomings such that their capabilities stagnate. They further argue that this problem is compounded by SMEs’ failure to find support from appropriate state agencies. Arguably such weaknesses can compromise SMEs’ ability to reposition along the value chain.

Within the area of dynamic capabilities, NPD has been established as an ‘identifiable and specific routine’ (Eisenhardt and Martin, 2000). The strategic importance of NPD has been attributed to its ability to offer sustainable competitive advantage (Helfat and Raubitschek, 2000) and act as a key mechanism for organisational growth and renewal (Lawson and Samson, 2001). The theory of dynamic capabilities, then, calls attention to the need for the renewal of firms’ competencies in changing environments. If, as it is argued by Eisenhardt and Martin (2000), product development has the ability to alter the resource configuration of the firm, NPD can be considered one

such capability necessary for a firm that is attempting to renew and reposition itself along its value chain.

Repositioning Strategies in the NPD Capability Literature

Mature SMEs face several complex challenges when attempting to reposition along the value chain. These challenges increase when the firm seeks to create and exploit an NPD capability. At the heart of this problem is the historic architecture of the firm's products (Sosa *et al.*, 2004). Historic product architectures shape deeply entrenched architectural knowledge and orient firm's resource base towards these historic architectures in turn. Accordingly, when firms attempt to move towards novel architectures and new ways of doing things, they encounter knowledge- and resource-based obstacles over and above obstacles in reshaping organisational structure alone to manage the new product process (Sosa *et al.*, 2004). Efforts to reposition along the value chain then are intrinsically tied to strategic choice decisions taken to resolve knowledge- and resource-based limitations. It is for this reason that the processual and structural changes that can accompany efforts to reposition along the value chain are not inevitable (e.g., Pfeffer and Salancik, 1978).

The extent of processual or structural change required during a repositioning effort, if any, is dependent on the strategy selected to achieve repositioning. For example, pursuing a fully in-house NPD capability might require the firm to build cross-functional teams capable of combining different matrices of knowledge that shape new product solutions that go far beyond the firm's historic product architectures. However, an outsource strategy as an alternative method of organising the value chain might require little or no change in existing organisational structure.

Complexities emerge when wholly new product architectures create new knowledge and resource demands. A mature SME likely has little stock of slack resources owing to age- and size-related vulnerabilities (Henderson, 1999). Mature SMEs are also vulnerable to rigidities and technological obsolescences that diminish opportunities for new product architectures to emerge before an NPD capability is in place (Henderson, 1999; Leonard-Barton, 1992). Creating the NPD capability then is the first requirement the firm must complete. The strategy taken for value chain repositioning, and to generate the NPD capability, is therefore the chief input into a programme that might later evolve into a full internal change initiative. Thus, of this product architecture–organisational structure–repositioning strategy triad, our focus is solely on the repositioning strategy and how strategy as an input enables the development of a NPD capability.

Repositioning Strategies for Value Creation

Value creation through strategic change has been described in the literature as renewal (O'Connor, 2008), rejuvenation (Stopford and Baden-Fuller, 1990), repositioning (Ryan *et al.*, 2007) and turnaround (Williamson, 1999). Whilst used interchangeably, different nuances do exist among these terms. However, for the purpose of this research, we are interested in the term 'repositioning' and define it as a fundamental change to a different position along the value chain where the product or service offering that the firm delivers generates more value in new and better ways. Accordingly, this requires dynamic change to the internal capabilities of the firm.

The literature on repositioning is limited (Ryan *et al.*, 2007) but there are instances where strategies for repositioning have been identified (Edwards *et al.*, 2004; Hooley *et al.*, 1998). Edwards *et al.* (2004) provide a useful summary of the strategic options available for firms wishing to generate higher value and therefore reposition. These strategic options are (1) value-adding partnerships, and, (2) make, buy or outsource; yet there is little empirical evidence of how firms have utilised the proposed 'value creation' strategies to reposition along the value chain and whether or not they in fact achieve their stated intent. We will now briefly review the literature that discusses these possible strategic options.

Networked partnerships

The literature presents a number of strategies that involve external relationships with other firms such as value-adding partnerships (Edwards *et al.*, 2004), strategic alliances (Hooley *et al.*, 1998), licensing relationships (Tsai and Wang *et al.*, 2008) and collaboration (Sawers *et al.*, 2008). Therefore this study will take a wider perspective and examine what we refer to as 'networked partnerships', acknowledging the activities that extend outside a firm's boundaries and where firms come together for mutual benefit.

Johnston and Lawrence (1988) state that value-adding partnerships are "*a set of independent companies that work closely together to manage the flow of goods and services along the entire value-added chain*" (p.94). As such, networked partnerships involve several SMEs joining together to emulate a large vertically integrated firm. By working together, each can benefit from the relationship by sharing and drawing on each other's skills, resources, capabilities and knowledge. Edwards *et al.* (2004) argues that value-adding partnerships are now increasingly viable given advances in computer technology, where information can be easily shared along the supply chain enabling easier control and collaboration.

Strategic alliances much like value-adding partnerships are arrangements between two or more independent firms to cooperate on certain business activities (Borys and Jemison, 1989). Yet value-adding partnerships as described by Johnston and Lawrence (1988) refer only to small firms whereas strategic alliances can include all firms regardless of size. The benefit of a strategic alliance is that firms share a common understanding and seek to achieve a better competitive position. Strategic alliances can take many forms including joint ventures, consortia, licensing agreements, product exchange and buyer-supplier arrangements (Borys and Jemison, 1989).

In spite of internal strengths, it is perhaps too much to expect a small manufacturing firm with its own product range and scarce resources to be able to update its portfolio without external collaboration. Even less likely should it be expected that an SME will have enough influence over its supply base to leverage and reduce procurement costs significantly (Hanna and Walsh, 2000). Strategic alliances allow SMEs to reach sufficient dimensions to obtain the advantages of being large and, at the same time, keep the advantages of SMEs in terms of specialisation and flexibility (Pil and Holweg, 2003).

Co-operation via networks can have significant impact on the ability of small manufacturers to compete in a global marketplace, enabling small firms to deliver complex subassemblies and maintain their competitive position by circumventing their competitors (Hanna and Walsh, 2000). As Jarillo (1988) summarises, if a firm can 'farm out' to an efficient supplier and retain only those activities that provide it with an

advantage, then “a superior mode of organisation emerges”. However, Freel’s (2003) study provides evidence that strong links were not apparent between innovation and networking. But other research studies have indicated that apart from a small group of very innovative firms with high technical expertise in a market niche, SMEs in general usually depend on collaboration with external know-how experts to innovate (Kailer and Scheff, 1999) because of their limited personnel and know-how capacities. In order to achieve improved innovativeness and higher profitability, collaboration among SMEs and experts external to the firm appears to be considerably important (Kailer and Scheff, 1999). Still, the benefits of networking do depend on how firms choose to collaborate (Hughes *et al.*, 2007) and therefore the form of collaborative strategy they adopt might ultimately dictate how networked partnerships might add value to the firm, enable a NPD capability to emerge, and ultimately determine how it repositions up the value chain.

Make-or-buy and outsourcing

In addition to networked partnerships, value creation is also possible through make-or-buy decisions. Evidence from various industries shows that making the best use of internal resources and capabilities is not always sufficient for NPD success (Lowe and Taylor, 1998; Zhao and Calantone, 2003). Therefore outsourcing is viewed as one ‘strategic approach’ to take advantage of external resources and specialised capabilities.

Outsourcing allows a firm to concentrate its ‘best-in-world’ resources and capabilities on a few core tasks to provide unique and superior value for customers (Quinn, 1999). When properly developed, strategic outsourcing substantially lowers costs, risks and fixed investment while greatly expanding flexibility, innovative capabilities and opportunities for creating higher value-added (Quinn, 1999). Outsourcing also gives the firm access to resources and capabilities not available or not easily developed internally but with much less coordination costs compared to networked partnerships. As Zhao and Calantone (2003) state, each firm has its own best-in-world core competencies, which would be prohibitively expensive or even impossible for another firm to duplicate. However, in some situations, even if the firm can manage a task efficiently, there may be strategic reasons to externalise it (Zhao and Calantone, 2003). Outsourcing complicated tasks to others is a way to incorporate external expertise into a firm’s own NPD programme, and performance can be greatly enhanced therefore (Venkatesan, 1992).

Within mature firms, internal architecture, routines and know-how are geared solely to the core area of the business leading to a streamlined range of product-services that in itself constrains value chain repositioning. Outsourcing can help to overcome these problems. Outsourcing is also a means by which a mature SME can overcome rigidity in its architecture knowledge. Over time, architectural knowledge becomes embedded in the structure and procedures of mature firms (Sosa *et al.*, 2004), such that a firm can then struggle to successfully develop a NPD capability and subsequently reap its benefits. Even if the firm could adapt its knowledge base, it would then lack resource to convert into adequate product-service. Outsourcing as a form of vertical disintegration frees scarce resource which can then be deployed on additional value-creating activities while at the same time benefiting from the act of customised value creation that outsourcing offers (Sousa and Voss, 2007). Through outsourcing either manufacturing or product design, in part or in full, for example, mature SMEs can not only add value to its value

chain, and so move up the chain, but can also create a fundamental shift from one product chain to another. In so doing, the mature SME secures an opportunity to glean value from not just its current activities but new activities made possible by capitalising on the world-class capabilities of others. The SME in question suffers only the coordination or contractual cost of these resources as opposed to investment costs (e.g., Arnold, 2000; Gulati and Singh, 1998).

In-house development as an alternative however affords the mature SME ultimate control over the final NPD capability and so future opportunities to optimise the value chain are then fully within its control. A drawback of outsourcing is that subcontractors are normally specialists in their particular area (e.g., Sousa and Voss, 2007). From a value chain perspective, the firm would need to secure several reliable outsource partners depending on how complex the NPD task became. Value from the NPD capability therefore cannot be fully attributed to one chain. Indeed, the focal firm cannot control the investment decisions of its outsource partners, and may then face the need to seek new partners continually. In effect, an NPD capability rooted in outsourcing may be transient whereas an in-house strategy means the firm can fully appropriate the value of the NPD capability despite initial higher investment costs. Control over the full NPD capability afforded through an in-house strategy might then enable superior long-term movement to an entirely new value chain position or an entirely new value chain for the firm. In effect, make-or-buy decisions such as in-house development can enable greater benefits over time beyond simply transaction cost benefits (Canez *et al.*, 2000)

RESEARCH METHODOLOGY

The philosophical position guiding this paper stems from the interpretive paradigm, drawing on the belief that reality is socially constructed and subjectively viewed by the people who give it its meaning. The researchers' role is to discover and describe the insiders view rather than impose an external perspective. In line with this philosophical standpoint, a qualitative methodology is used to provide a richness to the data gathered and the findings drawn therein (Silverman, 1993). By adopting a qualitative approach, an understanding can be developed as to how mature manufacturing SMEs can create a NPD capability to successfully reposition along their value chains.

A case study methodology was adopted for this research as this approach provides the opportunity for an extensive examination of a single instance of a phenomenon of interest (Collis and Hussey, 2003). Indeed, Eisenhardt (1989) argues that the case study allows considerable understanding of the dynamics present within a single setting to emerge. Case study research allows empirical observation to occur within its real-life context, and thus comprises an all encompassing method to deal with a full variety of evidence including documents, artefacts, interviews and observations (Yin, 1994).

Data Gathering

To ensure the validity of the findings, the selection of the case studies was a foremost decision. The case studies were identified through consultants working in the Manufacturing Advisory Service in the East of England (MAS-East)—a UK government-sponsored organisation offering business assistance and advice to manufacturing firms on how to improve their operations. Through their daily activities

MAS-East consultants were able to identify and introduce the authors to a pool of appropriate firms that were attempting a process of developing a NPD capability and attempting to undertake a change in strategy (repositioning) to move up the value chain. This research used a purposeful sample. We acknowledge that some bias may be present as the SMEs involved had used the services of MAS-East and were willing to receive aid and advice from an external source in order to change and survive. Still, the firms were undergoing the exact type of change that this study was interested in and thus these firms served as excellent data sources to learn how each firm would approach the problem of strategic repositioning along the value chain by forming a NPD capability.

Once direct contact between the firms and the researchers had been established, a thorough check was made to determine whether or not each firm matched the necessary criteria for inclusion. These criteria included recognition that as an organisation they were actively attempting to change and attempting to create a NPD capability; that this change programme stemmed from a recent record of struggle; and the firm historically had little or no previous experience of NPD. Furthermore, the firms had to fit the classification criteria of an SME. We adopted the UK Government definition, which defines an SME as a firm that employs fewer than 250 people and has a turnover less than £22.8 million. Figure 1 contains the full set of criteria. Although there are no set rules for case selection, the conditions used in this study were designed to elicit those firms that offered an optimal 'opportunity to learn' (Yin, 1994) so that the resulting case studies would offer powerful and meaningful insights worthy of academic scrutiny. The criteria used at the outset also prevented those firms that were not in need of significant renewal and therefore meaningful value-chain repositioning to be selected as cases. Without a significant change programme, the SME would unlikely yield much insight into the issue of NPD capability formation or value-chain repositioning to be of satisfactory academic and practitioner value.. At the end of this screening process, three firms were selected as case studies.

[Insert Figure 1 about here]

A number of research methods were employed to aid data triangulation. Triangulation represents the use of a variety of data sources in a study to ensure that, taken together, it is possible to identify and represent as accurately as possible the phenomena under investigation (Denzin, 1978; Easterby-Smith *et al.*, 2002). The data sources used within the study included unstructured and semi-structured interviews with multiple respondents in each SME, participant observation, and use of company documentation and broader documentary evidence. The semi-structured interviews formed the main source of evidence collection and were conducted with key personnel involved in the process of creating a NPD capability in each firm. The interview protocol was based on the 'success factors' of NPD identified from the literature in addition to questions designed to probe how the changes were being encouraged; what strategies were adopted, why and how they were implemented; and the outcomes of these endeavours. The interviews were designed to allow additional findings to be generated. To further support the understanding of the organisation and its operations, tours of the facilities were conducted. The identification of relevant people to interview followed a 'snowball' effect. The initial unstructured interview (usually with the Managing Director) was used to identify key people after which interviews were arranged accordingly. In some cases, these subsequent interviews highlighted further employees that would be

useful to interview, until it was felt that all key employees had been interviewed. Table 1 details the number of people interviewed in each case study. Typically, 5 to 6 people were interviewed in each firm and this enabled the researchers to compare notes across respondents and ask additional questions to each one as the need emerged to both clarify points from other respondents and to pursue emerging lines of enquiry. These efforts further aided triangulation.

[Insert Table 1 and Figure 2 about here]

Data Analysis

The interview transcripts generated from the case studies were analysed and interpreted using Radnor's (2002) six-stage technique, as summarised in Figure 2. This technique ensures the logical coding of data and marshalling of evidence, avoiding the dangers of inaccuracy which might have arisen from an over-mechanistic approach. Once the data were coded, the approach sought to maximise the degree and speed with which the data could be analysed and reanalysed through the use of an integrated suite of Windows Office computer software. Working from a copy of a taped transcript as the database, Radnor's (2002) data analysis model directs researchers to use subtle coding to permit qualitative data linking, shaping and searching. By using this method of analysis, a level of sensitivity to detail and context was enabled as well as accurate access to information, rigorous searching for patterns and building of theories or explanations grounded in data. As a whole, the method allows key themes from the research study to emerge naturally from the data, enabling the researchers to then connect these themes with key themes generated from a previous literature review. As such, this model simplifies and enriches the process of interpretation thereby minimizing the risk of subjective error or bias in data analysis.

Once the analysis and interpretation of the interview data was complete, a company report highlighting the findings was presented to each firm. This formed a further part of the validation process and offered the researchers an opportunity to have the findings confirmed and substantiated. This established confidence in the accuracy of the findings.

Case Background

Company A was formed in 1895 and was the first company to begin engineering and manufacturing for the theatre industry in the UK. Over time it developed a position where its reputation stretched worldwide, becoming the world leader in theatre products. Company A boasts a large product range including stage machinery, counter-weight systems (to move scenery), stage weights, scenery braces and pulleys. By the late 1980s, Company A's ownership had passed to a company specialising in manufacturing large cinema screens found in multiplex cinemas. Taking advantage of Company A's manufacturing capabilities, particularly the welding and painting facilities, the stage side of the business became increasingly neglected by the parent company. Witnessing this neglect, the Director of Stage and Audio Visual approached the parent company with an offer of a management buy-out, which was agreed. Nineteen members of staff were transferred and all the products associated with Company A in addition to some antiquated machinery. Whilst the image of Company A remained positive due to its long standing reputation, there had been years of complacency and reluctance to deal with the client base, with little thought for innovation and new products. The current management

of Company A, who initiated the buy-out, appreciated the fact that Company A had been a market leader, and felt there existed the capacity to be a market leader again by repositioning the company through an emphasis on NPD. Table 1 summarises the product development undertaken within Company A.

Company B was established in 1964 as the first merchant of permanent magnets in the UK and was part of a group of three manufacturing units. Around 2001, a management buy-out took place with the new owners of Company B and their American counterparts backed by venture capital. As a consequence, a large proportion of Company B's manufacturing was moved to the US. This saw a reduction in manpower in the UK by roughly half to 26 people. In conjunction with the changes in ownership, changes in the magnet market were also experienced, moving from customers purchasing over a million magnets a week to a situation where Company B's customers had become much smaller businesses, who were now themselves beginning to move their custom to China. However a reversal in this trend became apparent, believed to be due to the inability of customers to check the magnetic properties of the products in advance through their Chinese suppliers (a frequent source of complaint). Customers of Company B realised that a cheaper price did not always result in reduced overall cost benefits. In a bid to survive Company B implemented a two-pronged approach. The first element of their new strategy involved providing tailored solutions as their customers often knew the end point they wished to achieve but did not know how to achieve it. In the past, Company B had provided free advice but changes in fortunes and their new approach meant charging for the provision of solutions as a step towards offering high-value and if needed customised products. The second element of their reposition strategy was to introduce new products. Table 1 summarises the product development undertaken within Company B.

Company C was established over a hundred years ago and employed approximately 230 people. Over the years Company C had been part of several groups and in 1998 ownership of Company C changed again through a management buy-out. The traditional business of Company C was producing nylon impression fabric (NIF); a material which, when inked, was placed in typewriter or printer cartridges. During the 1970s and early 1980s, Company C considered itself a serious player in the computer printer market. Also around this period, a new lightweight, high-performance fabric had been introduced to the firm, ideal for outdoor activities—although a clear market was not determined at that point. It was not until the management buy-out in 1998 that the company realised it had to change. A review of its materials revealed an opportunity to develop the lightweight, high-performance fabric and reposition the company away from the printing industry towards high-performance outdoor sporting fabrics. As the development of the new high-performance fabric was taking off, competition from large material producers in China, with their larger factories, increased thus Company C pushed towards innovation by working closely with key technical sportswear producers (summarised in Table 1).

FINDINGS AND ANALYSIS

Assessment of the case firms revealed three predominant strategies used to create a NPD capability in order to move up the value chain. These three strategies were: (1) networked partnerships made up of alliances and licensing; (2) in-house development;

and (3) outsource. These are summarised in Table 2. This section explores the rationale behind why the firms adopted such strategies and how the findings drawn from these cases relate to extant literature.

[Insert Table 2 about here]

Networked Partnerships

Networked partnerships included both the formation of alliances and licensing technology from external sources. Company A and C utilised alliances in their strategic repositioning (Table 2). The rationale for the use of alliances by the two SMEs was that it provided access to knowledge, such as technology or customer preferences. Through utilising the skills and knowledge developed by others, the NPD process was accelerated with results being achieved more quickly than would have otherwise been possible. This was captured in Company A, who had over a hundred years' industry experience and contacts. Through the effective use of its network, Company A overcame its skill shortage and developed its first product. Whilst Company A had the design for their new product they did not have the technology to develop it further or the skill to develop the technology in-house. After much searching, and whilst visiting a trade fair, Company A came across a company producing the technology they could utilise in their new product, Zip-line, thereby offering the necessary solution to Company A's problem. After several meetings the two companies formed an alliance where the technology was incorporated into Zip-line, which was launched successfully.

Alliances provided Company C with a detailed understanding of the requirements of its customer and the requirements of the end customer, proving invaluable in developing new fabric properties that enabled Company C to distinguish its product from cheaper foreign imports. Forming close linkages with several major firms in the outdoor clothing market enabled the parties to benefit from the work being carried out together on the development of new materials. It guaranteed Company C a buyer for its new material and the reputation of working with the best in the industry, thereby creating significant value.

In conjunction with alliances, licensing was used as a formalised agreement that enabled technologies and ideas to be used in the NPD process. Company A utilised such a strategy (Table 2) and as with alliances, licensing enabled the technology gap to be rapidly reduced. For example, Company A licensed the technology that formed the key element of their new product design thereby providing Company A with a quicker route to market, crucial for this product. Furthermore, had Company A attempted to develop the technology themselves, the route to market would have been longer and more complicated as they had insufficient resources or technological know-how. The ability to license ideas and technology therefore enriched the firm's value chain

Observable Practices in Networked Partnerships

Research on alliances concentrates mainly on large organisations and only recently have researchers recognised that SME firms are also pursuing alliances (Stuart, 1998). Frequently, the motivation for alliance formation is access to or development of new technologies and alliances have proved advantageous in this respect (Stuart, 1998). Our findings support this, with alliances and close linkages creating mutual advantage. It enabled companies A and C to develop new products overcoming their lack of internal

capabilities. Through alliances with key partners, it was possible for the three SMEs to begin the process of adding value and thus move up the value chain.

Also under the umbrella of networked partnerships was the concept of value-added partnerships, with the concept applying to groups of SMEs who wish to manage the flow of goods and services along the entire supply chain (Johnston and Lawrence, 1988). However, the companies in this study were not attempting this. Rather the analysis of the findings suggests an alignment with the alliances literature in that these were partnerships that were used to 'plug' a specific technology gap. It was only through taking advantage of these alliances that Company's A and C were able to develop a NPD capability, moving from acting as a subcontractor to a firm that was able to create more value through creating and developing new products. This observation illustrates that alliances can underpin the 'third option' described by Edwards *et al.* (2004) for value-chain repositioning, where new products are generated to fundamentally change the firm's value proposition. Undertaking a fundamental change in position in the value chain, moving to one where products and services generate more value in new and better ways than before, has largely remained an unclear strategic option. In this instance, Company A and C used a combination of networked partnerships to convert their burgeoning NPD ideas into product-service realities. Interestingly, prescribing one strategy alone to a firm is neither optimal nor appropriate it seems, as our analysis implies that firms bundle strategies together (even under one seemingly innocuous title such as 'networked partnerships') to develop pathways to value-chain repositioning.

Licensing was also used as a strategy to quickly bridge gaps in resources, and skills and was used in conjunction with alliances. Licensing has been recognised as a commercialisation strategy for new technology-based firms (NTBFs) to establish their new technology in various markets (Kollmer and Dowling, 2004). However, Kollmer and Dowling (2004) note that little research has taken place into the mechanics of technology transfer and using licensing as a means to bridge resource or skill gaps therein. This study reveals that licensing can be used by SMEs to bridge such gaps rapidly and to supplement the formation of a NPD capability and thus reposition along the value chain. As this research suggests, mature firms may use licensing for very different reasons than NTBFs. In this instance, mature SMEs used licensing in the context of creating a NPD capability and as a way to improve their overall position on the value chain. In this sense, licensing was used as an input into the innovation process, rather as an output and route to market which is how it is typically viewed in literature.

Overall, this research substantiates that taking advantage of networked partnership, particularly alliances and licensing, is a cost and time effective way to achieve a NPD capability quickly, enabling firms to combat a lack of resources and skills. Given time and financial constraints, arguably it would have been difficult for the firms in this study to develop the internal technology required strategically reposition alone. In addition, due to rapid change in each of the case firms' industries, by the time a NPD capability had been built on its own, the firm may have lost the ability to capture any advantages from repositioning itself. Thus, by taking advantage of a networked partnership, the firms were able to quickly gain access to complementary assets and in this case, create and leverage a NPD capability more quickly (e.g., Mitchell and Singh, 1992). Indeed, Deeds and Hills (1996) argue that entering into a limited number of strategic alliances to access complementary assets is often required to help increase a

firm's rate of new product development, which is an observation supported by our findings. Ultimately through, by overcoming resource constraints these firms were able to change the strategic direction of the firm and offer new products developed by the firm to generate higher value.

Design and Develop In-house/Outsource

Evidence of in-house product development and manufacturing were supported by the findings as well as outsourcing elements of the design and manufacturing where cost benefits were derived. Again, a hybrid approach was seen with two of the three companies utilising outsourcing as a means to overcome gaps in resources. In-house development was evident in all three companies often as a means of controlling the process. Taken together with the results for networked partnerships, these results are further evidence of the complex web of strategies firms deploy to develop a NPD capability and ultimately reposition in its value chain.

Company B managed the design process solely in-house but recognised the opportunity for outsourcing part of the manufacturing process. As part of the in-house design Company B did however acknowledge that this was a new activity for the company as it had employed the skills of a designer to aid the design phase of the process. This was mainly because, as a small firm, Company B did not believe they had the necessary skills to aesthetical design a product. However, it was recognised that in order for the products to be competitive it was necessary to outsource part of the manufacturing process too as these skills did not exist within the company. As Company B already had good contacts in China it made business sense to utilise these contacts and take advantage of the cheaper parts, thus outsourcing part of the manufacturing process to improve the competitiveness of the outcomes of their NPD capability.

In the case of Company A, a hybrid approach to new product design was adopted. Indeed, 'Clip' was not designed for the theatre industry, but Company A recognised that it had the potential to benefit the theatre industry. Rather than imitate the product which was not considered a worthwhile process owing to markedly different design and production competencies, it decided to buy the clips from an external manufacturer and brand them under the firm's own brand. This strategy proved successful in generating new revenue and won an industry award for innovative product design. Further evidence of a hybrid strategy is therefore present. Company A did not have the necessary design or production skills to develop the motor central to Zip-line therefore the design and manufacture of this product was also outsourced.

Company C was the only company that managed the whole NPD process in-house as well as the manufacturing of the fabric. It was however proactive in involving market leaders in the specialised outdoor sportswear market to understand market requirements and ensure success.

Observable Practices in Make-or-Buy and Outsourcing Decisions

The literature has concluded that manufacturers are beginning to move away from aggressive in-house developments and are seeking the formation of a variety of inter-organisational relationships as a basis for NPD strategy and capability-building (Sengupta, 1998). This research demonstrates this. In the constant drive for higher quality, lower cost and faster-to-market products, many firms have begun to learn "how

not to make things” (Zhao and Calantone, 2003, p.51). If Company A had not outsourced the motor system for Zip-line the development would have been a much harder proposition. By using outside resources and capabilities, the firm could fully implement a NPD strategy to enhance its value position (Zhao and Calantone, 2003). According to Day and Wensley (1988) survival largely depends on how the firm builds, develops and protects its core competencies. A caveat to this is that the effectiveness of these competencies may in part depend on drawing on the resources and capabilities of others. Indeed, our companies seek to perform some NPD tasks internally because of the need to protect specific advantages. In other words, if NPD tasks are closely related to core competencies, externalising them would undermine the value position of the firm. Firms should then be careful when entering outsource partnerships (Zhao and Calantone, 2003). Retaining (some) control offers more scope to appropriate value over time.

Many of the resources and capabilities essential to competitive advantage lie outside the firm’s boundaries and as such Grant (1991), for example, believes that outsourcing should be considered when necessary resources and capabilities are not available internally. Through outsourcing, the firm can gain from otherwise unavailable competitive advantages and increase value by capitalising on the core strengths of others, as Company A illustrated with ‘Clip’, without having to build and manage complex relations as would be the case with networked partnerships. This enabled Company A to provide its customers with a valuable product and not suffer the cost of manufacture or the cost of coordination. Utilising a ‘buying-in’ or outsourcing strategy was more cost effective to Company A as it did not have the necessary skills to manufacture the plastic clip. Capability or resource development takes time and so gaps in currently-needed capabilities filled through external relationships close these gaps rapidly to enable much faster repositioning than what could be achieved through a purely internal NPD process.

Whether over time a greater advantage would develop if a company fully internalised a capability is questionable given the opportunity cost in terms of time and investment. Still, one issue that is not considered here is the acquisition of strategically valuable firms in order to internalise a capability. Also, the firms examined here are vulnerable to a partner being unable to fulfil its obligations (except Company C). In part, this explains why these firms adopted a hybrid strategy as doing so reduces the overall risk to the firm’s NPD capability and value position. In that sense, the advantages of combining strategies to develop a NPD capability and thus enable value chain repositioning goes beyond resource and competence leverage and time-to-market advantages to include risk management and capability reinforcement.

DISCUSSION AND CONCLUSIONS

This research sought to understand how mature manufacturing SMEs implement different strategic approaches to create a NPD capability to enable them to renew and reposition along the value chain. We contribute to literature by developing a better understanding of how SMEs, that have not approached NPD before, can significantly reposition along the value chain, improving its productivity and overall economic contribution. The case firms contradict literature by not relying on any single strategic ‘option’ but rather using networked partnerships as well as outsourcing and in-house development to create a new capability for developing new products, altering their current business model and product offering in the process as the firm repositions up the

value chain. These findings shed new light on the different strategies that SMEs implement, often to combat constraints they suffer as a consequence of size (e.g., a shortage of knowledge, skills and resources) relevant to developing new products.

In all three SMEs, recognition prevailed that to survive they could no longer compete if they maintained their respective current positions, and Figure 3 illustrates the shift that occurred in the firms' respective value chains through their adopted strategies. This process of renewal for all three SMEs involved the creation of new capabilities through a combination of 3 strategic approaches: networked partnerships, outsourcing, and in-house development. By adopting these strategic approaches, they were able to design, develop and launch new products into the market (see Figure 3). Importantly, in different combinations, the strategies enabled value chain repositioning not just in terms of higher value to the current product range (improved value chain position) (e.g., Company A), but also created wholly new value chains as firms created new product outcomes starkly different to past historical products (creating new high-value chains) (e.g., Company C). With a larger sample, it would be valuable in future to identify whether specific strategy combinations enable a greater or lesser degree of renewal and repositioning.

[Insert Figure 3 here]

Our findings show that the strategic approaches adopted by the SMEs in this research were not mutually exclusive and a combination of two or more of the approaches were used in a bid to reposition their organisations. This demonstrates that to be worthwhile the strategic approaches have to be carefully selected to capitalise on existing capabilities or bridge a gap that the SME could not easily close internally. Combining internal and external resources enabled the firms to generate very different value propositions. Company B's core competence in magnets was extended to offer tailored advisory services and customised solutions, moving starkly away from its past as a simple distributor. Company A created new-generation products for its industry by converging technology from different markets into its own. This renewed its reputation as a leader and differentiated itself from peers in a more value-oriented way. Company C saw a complete shift from the printing industry to high-performance fabrics. By focusing on alliances, it added considerable value to its chain as well as its partners and is now in a defensible and high-value position in a growth market. So, the blending of strategies enabled renewal by leveraging existing competencies and allowing new ones to come to the fore. But, none could have succeeded with a purely in-house approach (as perfectly illustrated by Company C).

Authors have found that alliances help to reduce the time-to-market for a new product compared with the manufacturing option (Sengupta, 1998). But in this research a balance has been identified in most of the case studies between alliances, licensing and some form of in-house development to achieve this goal. Therefore this research offers a contribution to knowledge on how SMEs develop products 'in-house' and how various strategic 'options' in fact blend together in the process of creating a NPD capability and to achieve value chain repositioning. Thus, we do not see networked partnerships as a purely separate route to NPD capability creation and ultimately value chain repositioning as is often implied in many studies of cooperation and competition. Indeed, whilst Edwards *et al.* (2004) delineate networked partnerships as one possible route to value chain repositioning, implied in their work is that firms can blend strategic options

together. By focusing our findings back onto the notion of positioning and value, we can conclude that firms adopt a hybrid or mix of strategies as a means to enable NPD and value chain repositioning, and the nature of that blend depends on the resource and knowledge base of the firm, cost and investment implications, and on the firm's ability to coordinate one strategy over another. For example, coordination costs are far less with outsourcing as contractual obligations capture in exact terms the product-service to be provided whereas with networked partnership, contracts are often weakly specified and the nature of collaboration and its outcomes are typically more exploratory and evolutionary (e.g., Gulati *et al.*, 2000). In our cases, we can surmise that, at the minimum, the selection and blend of options (or the degree to which one is used over another) depends on the unique blend of competencies, resources and skills present within each firm coupled with the challenges they face. As such, viewing each strategy as a separate route may in fact compromise the ability of a firm to shape an effective NPD capability rapidly. Indeed, a purely externalised NPD capability (one that is purely dependent on relationships) would be fatally compromised if a partner suddenly failed or was unable to sustain its commitment. Equally, a purely internal approach is not feasible either due to rapid market change and the diminishing value and rapid obsolescence of resources and capabilities. This in part explains a tendency for mature firms to become trapped in sub-optimal positions in the value chain.

Still, our work highlights that in order to adopt different strategic approaches successfully, involvement in some external networks is essential. It was through external networks that each firm was able to begin the process of creating a NPD capability, specifically, by accessing knowledge, skills and experience that each lacked. These findings underscore the importance of participating in inter-firm networks to provide SMEs with access to a broader pool of resources and knowledge, thereby helping them to overcome size- and age-related disadvantages. Increasingly therefore, sustainable competitive advantage is a product of how firms capitalise on the resources of others as much as their own in developing and leveraging unique capabilities.

More recently, the role of inter-firm networks as channels for innovation and learning within regions and localities has been emphasised in the context of an apparent shift towards a knowledge-driven economy. Indeed, participation in wider networks can facilitate processes of learning and innovation amongst SMEs through the sharing of resources and capabilities within an uncertain economic environment (Gulati *et al.*, 2000). The strategic approaches that utilised external organisations offered a way to create a NPD capability despite the lack of knowledge, skills and technology, and so reduced the impact of resource limitations experienced by the firms, as well as reducing the total cost, as long term bonds that generate trust, lower transaction costs (Jarillo, 1988). These strategic approaches allowed the firms to concentrate on key tasks, enabling the product to be developed more quickly and efficiently. Often new firms are associated with a strong entrepreneurial spirit, which the literature suggest that mature SMEs lose as the mechanisms that allow them to be successful become inhibitors to innovation (Leifer *et al.*, 2001; Leonard-Barton, 1992). The findings from this study do not support this view *per se*. Therefore this research suggests that, in their innovative activities, SMEs might have a behavioural advantage over large firms despite large firms' material resource advantages. Mature SMEs, owing to their ability to exploit more readily knowledge created outside the firm within the sphere of their own competencies and

skills (Audretsch and Vivarelli, 1996) can generate a NPD capability to reposition up the value chain, despite initial disadvantages.

Despite current beliefs that manufacturers are moving away from an internal NPD capability, this research found that firms complement in-house development through external strategies to accelerate capability building and subsequent innovation processes. Using such a strategic approach allows firms to keep control of the process, providing the firm with a strategic advantage (Zhao and Calantone, 2003) as well as arguably reducing costs by using internal resources and allowing more value to be appropriated internally. Indeed, each firm demonstrated their ability to acquire and absorb new knowledge and were able to recognise the value of new and external knowledge, assimilate it and apply it to commercial ends, as well as learning to utilise existing knowledge differently, thereby helping to create a NPD capability in both an explorative and exploitative manner.

In conclusion, the findings provide new knowledge on the strategic approaches that SMEs can employ to create a NPD capability, enable change to take place, and more importantly aid SMEs to reposition along the value chain. Firms beginning the arduous task of creating a NPD capability must acknowledge that the firm has to 'learn how to learn' the process of creating a NPD capability, as different components will take longer to develop. The recognition of this problem has been lacking in the NPD field and in part explains why theory has inadequately explored how a blend of strategies can be deployed to develop the capability and so effectively reposition up the value chain. Ultimately this research provides a useful starting point in this regard. The research findings indicate that these SMEs have had to find different ways to create their NPD capability through a range of NPD strategies. The strategies that the case firms utilised were not mutually exclusive and a combination of strategies was evident. Involvement with external organisations enabled all of the firms in some way to create a NPD capability, either through the creation of an alliance or through outsourcing elements of the NPD process. In addition to these outward-facing strategies, all the firms in this study were involved in some form of 'in-house' development. Often the argument for this was cited as being the ability to control the process as well as utilising the key skills and resources the firms had already developed over many years. In the drive towards alliances and relationship formation, it is perhaps easy to lose sight of the fact that historical investments in resources, skills and processes are still as valuable as those obtained elsewhere. The issue here is that external relationships such as alliances were needed to unlock their full potential.

Managerial Implications

Improving the competitiveness of manufacturing SMEs requires them to earn a reasonable rate of return on their investment. However, in order to benefit from a reasonable return, the answer is not simply a case of cutting cost and achieving short-term cost leadership. Rather the answer lies in continually creating goods and services with high added value. Bessant *et al.* (2003) argue that sustainable growth depends on developing the capacity to learn along the whole spectrum of firm activities, and, just as appropriately use this knowledge to innovate in ways that add new value to customers. As such, this requires the firm to build a NPD capability and reinforce it over time.

The route to strategic renewal through a NPD capability is unlikely to involve a singular path or strategy and similarly it does not all have to be in-house. Equally, it does not have to be performed wholly externally either. The firms in our case analysis employed a blend of strategies that capitalised on their internal strengths while minimising the effect of their internal weaknesses by partnering with external firms and outsourcing to specialists to draw on their advantages to move up the value chain. The result was a faster-developed NPD capability that generated superior product-market innovations. In this sense, internal and external resources were used to enhance the firm's value chain and reposition accordingly to better compete in the marketplace. The one common factor however was a reliance on external connections to kick-start the change process and begin the development of a NPD capability. As such, managers must proactively develop weak ties and network relationships ready for when their firms need to push for a NPD capability to renew their business (Noke *et al.*, 2008).

Future Research and Limitations

Our work contains some limitations but these do open interesting avenues for further research. First, only a handful of case studies were used. Whilst this was done to maximise the opportunity to learn, a greater number would allow us to further explore the validity and reliability of the findings. Second, we only examined and detected four different strategies but there may be other ways to create a NPD capability and subsequently move up the value chain. We do not claim to be exhaustive but rather advocate further research to explore for alternative strategies, or as we found herein, alternative blends of strategies. In this regard, research studies have tended to dichotomise or separate strategies whereas our work demonstrate firms rarely adopt single ones. Future research would benefit from allowing firms to more clearly specify their strategic approach and specifically examine for a blend of strategies. Without such nuances, researchers might misunderstand and misrepresent the actual approaches taken by firms. Third, our study is exploratory and qualitative in nature thus generalisation of our findings beyond theory is limited. As such, we encourage quantitative research to examine our findings in more depth. Fourth, our study looks at mature SMEs who faced an immediate need to develop a NPD capability and strategically reposition through superior value-added and innovation. However, firms that face fewer immediate threats, or are of a different age or size, may choose different strategy combinations in pursuit of similar goals. Overall we believe there are fertile reasons for continued research efforts from our work.

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Criteria by which a firm was judged suitable to become a case study:

- SME (Government definition):
 - Turnover not more than £22.8 million
 - Balance sheet total not more than £11.4 million
 - Not more than 250 employees
- Manufacturer: traditionally a subcontractor, manufacturing products to other people's design
- Little or no previous experience of developing new products
- Struggling to survive or compete purely on manufacturing due to low-cost competition from abroad
- Company feels that in order to survive they have to attempt or have had to implement a strategy of new product development, which they are starting to implement in order to develop a new dynamic capability

Figure 1: Case Study Criteria

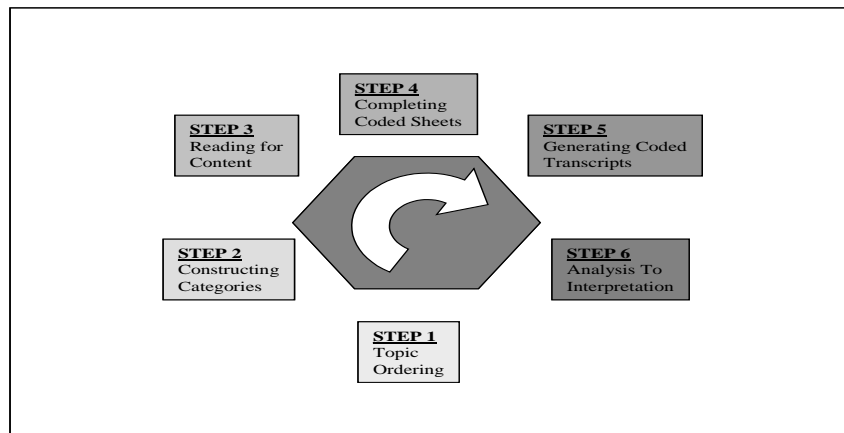


Figure 2: Illustration of Data Analysis Method

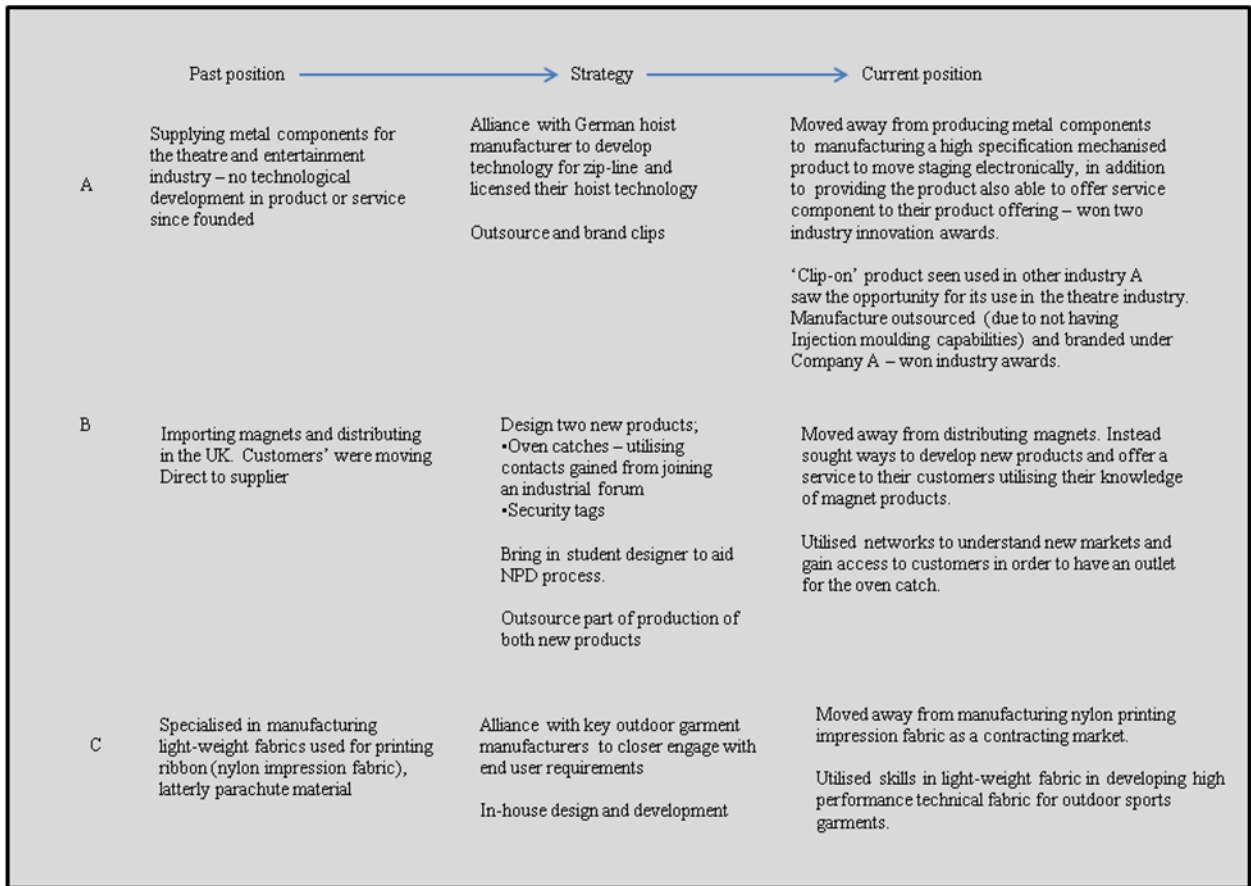


Figure 3: Strategic Renewal in the Case Studies

Company	Size (Number of people)	No of people interviewed	Summary of new products
A	18	5	<p>* Zip-line – a motorised counterweight system with the potential to modernise the industry through improving health and safety issues and reducing costs. Developed through licensing technology from German Company</p> <p>* Clip – is a plastic clip purchased from a supplier and packaged under A name, but not previously sold in the theatre industry. Its introduction and application was new to the theatre industry and used to clip material to scenery.</p>
Bi	26	6	<p>*Security tag device – a device used to prevent clothes from being stolen from shops; the device is based on old technology, but is a new product for Company B.</p> <p>* Oven catches – the product used magnetic catches rather than a clasp mechanism, previously been difficult to incorporate magnets into oven catches.</p>
Ci	230	6	<p>* Hi-Tech outdoor fabric – the product was a light-weight breathable material used in the outdoor pursuit market.</p>

Table 1: Summary of Case Studies

	COMPANY	A	B	C
NPD STRATEGIES	Networked Partnerships			
	Alliances	✓		✓
	Licensing	✓		
	Make/Buy/outsource			
	Outsourcing	✓	✓	
	In-house	✓	✓	✓

Table 2: Summary of Strategic Approaches