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**DIVERSIFYING INTO TECHNICAL CLOTHING MANUFACTURE AS ENTREPRENEURIAL
LEARNING: A SITUATED LEARNING THEORY PERSPECTIVE**

Nicholas Theodorakopoulos

University of Aston

Aston Triangle

Birmingham B4 7ET

UK

Email: n.theodorakopoulos@aston.ac.uk

Nada Kakabadse

University of Northampton, UK

David Bennett

Chalmers University of Technology, Sweden, and University of South Australia, Australia

Catarina Figueira

Cranfield University, UK

Breno Nunes

University of Aston, UK

Abstract

An organisation's ability to internalise external knowledge and learn from various sources in undertaking new product development and/or entering a new market is crucial to its competitive performance. Nevertheless, little attention has been paid to how growth-oriented small firms identify and exploit entrepreneurial opportunities, i.e. take entrepreneurial action, related to such methods of development, in a mature, contracting industry. The latter is particularly relevant to recent discussion and debate in academic and policy-making circles concerning the salvage of the clothing manufacture industry in developed industrialised countries, by intensifying efforts relating to diversification into high value manufacturing sectors. This paper, based on an instrumental case-firm, demonstrates analytically how learning as entrepreneurial action relating to diversifying into /technical clothing – i.e. a high value manufacturing/innovatory sector - takes place, drawing on situated learning theory. It is argued that learning relating to such entrepreneurial action is dynamic in nature and is founded on specific organising principles that foster both inter- and intracommunal learning.

Keywords: high-value manufacturing, technical clothing manufacture, technological capabilities development, situated learning theory, communities of practice

Introduction

The last two decades saw a dramatic increase in environmental dynamism and complexity, which morphed the competitive landscape for the majority of EU clothing manufacturers into a hostile territory. It has been a period characterised by a shift in power to large retailers, fierce competition from low-cost exporting Asian countries and increased environmental regulation. These forces combined, contributed to a dramatic contraction and restructuring of the industry, commensurate with a reconfiguration of supply chains (Baden, 2002; Totterdill *et al.*, 2003; OECD, 2003a, 2004b; EC, 2010). Against this backdrop, despite the fact that clothing manufacture faces a severely harsh competitive landscape, an alternative vision is articulated where UK clothing manufacturers survive and prosper by embracing new technology and diversify into high value sectors, such as high performance/technical clothing (Abernathy *et al.*, 1999; EMCC, 2004; OECD, 2004a, b; Lane, 2006; EC, 2005, 2010). Yet, the clothing manufacture sector has been far from leading edge in management practice, workforce and organisational development found in other sectors (Totterdill *et al.*, 2003). Therefore, such entrepreneurial action, i.e. undertaking changes in strategic content relating to diversifying into high value sectors - including changes in the products clothing manufacture firms supply, the markets they serve and/or their underpinning organising processes – merits attention. Conceivably, such changes constitute evidence of organisation-level learning (Richter, 2004) and are central to the notion of entrepreneurship (Schumpeter, 1934; Davidsson *et al.*, 2002). They are linked to innovation, competitive advantage and small-firm growth (e.g. Smallbone *et al.*, 1995; Georgelis *et al.*, 2000; Smallbone and Wyer, 2000; Joyce and Woods, 2003; SBS, 2006).

In the light of the above, the aim of this paper is to shed light onto how entrepreneurial action enabling the successful diversification of a clothing manufacture firm into high value, technical clothing sector can be effected. Situated learning theory (SLT) (Brown and Duguid, 1991, 1998; 2000; Lave and Wenger, 1991; Wenger, 1998, 2000; Brown and Duguid, 2000; Brown, 2004; Snyder and Wenger, 2010) is used as the main analytical lens to elucidate the development of technological capabilities that underpin business growth through such diversification activities. The rest of the paper is organised as follows. The next section provides the theoretical background, delineating SLT and its constituent elements. This is followed by a section outlining the research design of the study this paper is based upon. The ensuing section presents an exemplar (Yin, 2003) or instrumental (Stake, 1995) case study. The penultimate section discusses the findings of the study, followed by the final section, which concludes the paper and suggests avenues for further research.

Theoretical Background

Entrepreneurial action entails creating new resources or combining existing resources in new ways to develop and commercialise new products, move into new markets/service new customers and/or introduce new organising processes (Sexton and Smilor, 1997; Hitt *et al.*, 2001; Gartner *et al.*, 2003). Growth-oriented small firms, the driving engine of economies across the world, are conceived of typifying entrepreneurial action, relating to identifying and exploiting successfully entrepreneurial opportunities (see for instance Davidsson *et al.*, 2002). By default, such entrepreneurial action is integrally related to innovatory activity (Schumpeter, 1934) and learning (Richter, 2004).

From a social constructionist/practice-based perspective, SLT offers a potent theoretical lens for enhancing understanding of entrepreneurial action in a diversification into high-value added/technical clothing context, by examining the phenomenon on the platform of social, participative practice. The theory has been gaining momentum in organisational studies concerned with learning and innovation during the last decade, providing an alternative to conventional organisational learning approaches. SLT's centrepiece, the notion of communities of practice (CoPs), provides the embedding generative framework for the development of new knowledge, emphasising the need to understand learning and knowing related to innovation as social micro-processes (Brown and Duguid, 1991; Wenger, 1998; Brown and Duguid, 1998; Brown and Duguid, 2001a, b; Tsoukas, 2002; Huysman, 2004; Tsoukas and Mylonopoulos, 2004). Hence, learning as change and innovation occurs through participation in social micro-processes related with practice, within communities of practice, where new meanings and identities are (re)created. The term 'practice' signifies a regular activity, such as work, especially at a profession.

Notwithstanding the recent calls for taking a practice-based approach to entrepreneurial learning (Rae and Carswell, 2001; Rae, 2002, 2004; Taylor and Thorpe, 2004; Thorpe *et al.*, 2005) – with the exception of a few studies (Theodorakopoulos *et al.*, 2005; Theodorakopoulos *et al.*, 2011; Theodorakopoulos and Figueira, 2012) - SLT has not been used systematically to any length in this context. Our thesis is that it can be applied to scrutinise how learning underpinning entrepreneurial action relating to diversification to technical products in small, growth-oriented, innovatory clothing manufacture firms is achieved. This entails how relevant knowledge is generated in shared spaces where multiple actors operate and how then it is internalised and used to develop new technical clothing products.

Situated learning theorists maintain that change, learning and innovation (or learning as change and innovation) takes place in the interface between members of interrelated CoPs (Brown and Duguid, 1998; Wenger, 2000; Swan *et al.*, 2002; Wenger *et al.*, 2002; Scarbrough *et al.*, 2004; Snyder and Wenger, 2010). Constellations of interrelated CoPs form a 'social learning system' (Wenger, 2000) that produces an 'ecology of knowledge' (Brown and Duguid, 1998). Employees, beyond being members of their organisational CoP, they also belong to other broader CoPs, owing to their professional networks and specialisation (Brown and Duguid, 2001a; Swan *et al.*, 2002). For instance, knowledge workers of technical clothing manufacture firms, possess specialist skills and knowledge to variant types and degrees, which gives them access to their wider 'professional' CoPs, beyond their organisation. Connected in this way, these boundary spanners "can rely on a complex system of overlapping communities, common backgrounds, and personal relationships to help evaluate and propagate knowledge" (Brown and Duguid, 1998, p. 102). Hence, knowledge generated inter-organisationally, i.e. in the wider, professional CoP, can be transferred into the organisation and vice versa.

However, whilst knowledge may flow to members of a professional CoP that span organisations, exhibiting 'leakiness', it may not flow within the organisation amongst members of different CoPs, with different epistemic principles, showing simultaneously 'stickiness' (Brown and Duguid, 1998, 2001a). Therefore, building a strong

organisational CoP and creating cohesion between employees belonging to different professional CoPs becomes important for enabling inflows and deterring outflows of knowledge. Whilst it is difficult to achieve this in large organisations due to specialisation of knowledge and expertise resulting from division of labour, the small firm offers a fertile ground. The small firm is typically characterised by a flexible and multitasking workforce, where employees have a better understanding of each others' work, oftentimes having to perform various functions, in different areas.

The components highlighted by Brown and Duguid (1998) and Wenger (1998, 2000) form the crux of the conceptualisation used to address learning as entrepreneurial action in new product development and diversification into highly technical clothing . It is submitted that a CoP can be assessed on three dimensions: its quality (higher learning energy), its boundary experiences (i.e. more generative interfaces with other organisational or professional CoPs) and the identity of those belonging to a CoP (e.g. identities become more receptive to new ideas and possibilities). In turn, the stronger a CoP, the more productive its boundaries and the healthier its identities, the higher its ability to create new meaning and innovate. That is, an organisation as a potent CoP is more capable of taking entrepreneurial action, for instance, identifying and exploiting entrepreneurial opportunities relating to diversification into technical clothing.

With regard to building a potent organisational CoP to underpin learning and innovation (manifested in entrepreneurial action), Wenger (1998, p. 22) argues that 'if learning occurs naturally then what is needed is not to create learning, but rather to create the circumstances that make learning empowering and productive'. In this respect, organising for learning pertaining to entrepreneurial action in the context of diversification to technical clothing alludes to paying due regard to factors that can enhance communal learning. Boundary events, brokers, boundary objects, membership structures and inclusive participation are highlighted as crucial organisational design elements in this respect (Brown and Duguid, 1998; Wenger, 1998; 2000; Wenger et al., 2002; Brown, 2004; Snyder and Wenger, 2010). Prescriptive recommendations relating to organising interventions concerned with nurturing and shaping CoPs to enhance learning capabilities bring to fore the aforementioned design elements (Lesser and Everest, 2001; Wenger *et al.*, 2002; Plaskoff, 2003; Snyder and Wenger, 2010).

Although such prescriptive approaches provide a compass useful for practitioners, such popularised versions of SLT have been criticised because they have dimly recognized the idea that learning practices are shaped, enabled and constrained by relations of power. According to such critics (e.g. Fox, 2000; Contu and Willmott 2000, 2003; Marshall and Rollinson, 2004).. 'Situated learning' and the concept of CoPs has been promoted within a managerialist/functionalist remit as a medium or even as a technology of consensus and stability The original conceptualisation of learning situated in CoPs has selectively appropriated notions to serve a managerialist mindset; radical, key elements relating to power relations and political activity have been marginalised or entirely disregarded. Put another way, there is a marked shift from earlier participation in an analytic community engaged in practices related to enhancing understanding for emancipation purposes to an analytic community concerned with prediction and control for improving performance. Therefore, it is postulated that a more central consideration of power is needed to extend the contribution of SLT. Applying SLT as the major analytical lens without paying due regard to critical issues relating to power relations and political activity can obscure elements that may be pivotal in enhancing understanding of the learning processes underlying entrepreneurial action relating to diversification into technical products in growth-oriented, small clothing manufacture firms. The next section outlines the research design of the study this chapter is based upon.

Research Approach

The empirical part of the paper grounds SLT on a longitudinal case study. This entails a small, clothing manufacture firm, which managed to successfully diversify into technical clothing. The latter constitutes a new economy, growing sector, representative of high knowledge-content products. As mentioned earlier, clothing manufacture firms in Western developed countries are advised to diversify into higher-value manufacturing and move into high-knowledge content sectors, such as high-end fashion design or performance clothing/technical clothing. Therefore, this kind of knowledge-based clothing manufacture firms are often considered as model firms with regard to entrepreneurial behaviour and knowledge creation for firms in other industries. In the same line, logic suggests that such firms afford better opportunities to gain insight into the dynamics of organising to learn than those by traditional firms. Hence, the case-firm examined in this study is purposively selected on theoretical grounds, typifying this kind of firms. Put another way, Beta-Clothing (a pseudonym to preserve anonymity) is a case study that serves as an exemplar, aiming at analytical generalisation to theory - i.e. not statistical generalisation (Yin, 2003). Arguably, Beta-Clothing, as a successfully diversified, growth-oriented, innovatory small clothing manufacture firm constitutes an instrumental case (Stake, 1995).

Rapport with the firm was developed over eight months, involving in-depth personal interviews with key decision makers/key agents, knowledgeable of growth-related entrepreneurial action. These key informants had experienced directly and contributed significantly to entrepreneurial growth attributable to new product development, in different capacities; from process manager, to technical assistant, to project manager, to Sales Manager, to Managing Director. During the interviews participants discussed a learning episode of entrepreneurial action relating to entering the ballistics protection market – a technical clothing sector - in detail. In this undertaking, learning is seen as involving both cognitive change and action in accord with Vera and Crossan (2004). The learning episode technique employed in this study is a variation of the ‘critical incident’ or ‘critical event method’, which has been applied to entrepreneurship studies (Deakins and Freel, 1998; Cope and Watts, 2000; Cope, 2003; Chell, 2004; Zhang *et al.*, 2006). Focus was on processes that supported Beta-Clothing’s entrepreneurial action relating to developing new products for a new market. This took place over a period of eight months approximately and contributed significantly to the growth of the company. The interviews aimed at encouraging the participants to expand on the process that led to the episode, what caused it, how it was resolved, who was involved in that process, what was learnt, how and when. The purpose was to obtain an insight on how issues evolved over time and where and how ideas were developed, integrated and used in order to understand how the process of entrepreneurial action was effected.

Formal interviews were supplemented by extensive informal discussions during lunch breaks and casual encounters outside the premises of Beta-Clothing, non-participant observation and examination of relevant documentation and archival data, where available. Concerted efforts were made to triangulate sources to address the problems associated with retrospection, mainly lapses in memory and *ex post* rationalisation (Easterby-Smith *et al.*, 2002). Importantly, in accord with Weick (2002), it is maintained that studying the phenomenon retrospectively provided the opportunity to capture the respondents’ reflection on what happened during this episode of entrepreneurial action not as an isolated incident, but as an indicator of wider tendencies (Cope and Watts, 2000; Cope, 2003) in organising for acting entrepreneurially in an open-innovation context. The Miles and Huberman’s (1994) general analytic procedure was followed, which supported extension logic (Yin, 2003). The QSR NVivo software was used to code and retrieve, which proved quite useful in handling large volumes of data and managing complexity. Notably, the package was also useful in linking ideas, exploring patterns and in creating an audit trail/case-study database so that the findings are trustworthy (Yin, 2003).

Beta-Clothing as an Instrumental Case

Operating environment

The Clothing Manufacture industry constitutes a diverse and heterogeneous arrangement, comprising the manufacture of a wide variety semi-finished and finished products. It is still a significant part of the manufacturing sector of the UK economy; with some 11,000 companies involved in the manufacture of clothing and textiles, it constitutes the fifth-largest employer in manufacturing, providing jobs in areas of otherwise high unemployment (Key Note, 2010). Clothing manufacturers are concentrated in particular regions, contributing to their wealth and cultural heritage. The contribution of the clothing industry employment in East Midlands, London, North West and Scotland is substantial, as it still represents more than 10% of manufacturing employment. Despite the marked decline, these regions remain to a certain extent dependent on the clothing sector.

Its importance for social and economic cohesion is amplified by the fact that the sector is dominated by a large number of SMEs. Being one of the oldest in the history of industrial development, the clothing industry is often referred to as a 'traditional industry'; an 'old economy sector', as large parts of the production process have remained labour intensive (OECD, 2004a, b). Contextual forces – markedly technological developments, liberalisation and globalisation - have had a profound impact on the industry. The last two decades saw a dramatic increase in environmental dynamism and complexity, shaping the competitive landscape for the majority of EU clothing manufacturers into a hostile territory. It has been a period characterised by a shift in power to large retailers and fierce competition and increased environmental regulation, resulting in dramatic contraction and restructuring of the industry (Baden, 2002; Totterdill *et al.*, 2003; OECD, 2004; EC, 2010). With the phasing out of the Multi-Fibre Arrangement (MFA), globalisation and on-going liberalisation had and continue to have a profound impact on the clothing sector. High import penetration from large low-cost exporting Asian countries such as China, India and Pakistan, which are no longer confined by quantitative restrictions and 'anti-dumping' quotas, constitutes one of the most significant influences on the clothing manufacture sector. Import penetration has grown most significantly from a low base in the 1960s and 1970s to 56% in 1998 to over 90% of the total market by the end of 2000's, relating primarily to standardised products with predictable seasonal demand levels (Key Note, 2010).

Moreover, the highly concentrated purchasing power of large retail chains gives them enormous leverage over clothing manufacturers (Dicken, 2003). A significant development in the sector, with far reaching implications, has been the change in the procurement policy of major clothing retailers, which since the mid 1980s and especially during the second half of 1990s suspended their UK manufacturing activities. The growth of global sourcing and outward process transactions (OPT) has been stimulated by a change in retail strategy (Totterdill, *et al.*, 2003). The changes in the procurement policy of large retailers resulted in the reduction of their UK manufacturing base. Factory closures and rationalisation across the UK, throughout the 1990s and more markedly during the first half of the 2000s, has been the dominant trend in the sector. Manufacturers, in response to a relentlessly intensifying competition, price deflation and declining sales and profitability had to transfer production to low-cost producer countries, with knock-on effects in their supply chains. According to ONS (2006) figures covering all clothing, textiles and leather goods, the value of 'private-sector manufacturing business investment' fell from £656m in 1996 to half that figure in 2001, and continued downwards to £213m in 2005.

Against this backdrop, the competitive advantage of Western developed nations' clothing sector in general and UK clothing sector in particular, largely depends upon exploitation of new emerging technologies, new materials, innovation and skills (DTI, 2002; EMCC, 2004, OECD, 2004a, EC, 2010). New performance uses for sports and 'smart' functions such as thermal insulation and capability to adapt to environmental conditions, as well as protective clothing for defence purposes, present great opportunities for diversified manufacturers (Oxborrow, 2000; Totterdill *et al.*, 2003, EMDA, 2008). Hence, despite fears that the UK clothing industry faces near-certain

devastation, an alternative vision is articulated where, where the UK clothing manufacturers embrace new technology and the flexibility to respond to demand for technical clothing. As the demand for differentiation increases even further, UK manufacturers exhibit innovation in the design and flexible production of new, knowledge-content products. Under this scenario, well diversified high-value technical clothing manufacturers survive and prosper (Abernathy et al., 1999; EMCC, 2004; OECD, 2004; Lane, 2006; EC, 2005, 2010). However, the clothing sector has been far from leading edge in management practice, workforce and organisational development found in other sectors (Totterdill *et al.*, 2003; EC, 2005, 2010) and therefore such transition, although desirable, may not be easy. The following sections deal with how Beta-Clothing managed to diversify successfully into technical clothing – more specifically in the ballistic protection market. An analytic description of the case-firm's internal context is followed by a discussion of the key learning elements underpinning entrepreneurial action relating to Beta-Clothing's diversification efforts, drawing on broader tendencies.

Internal Context

Beta-Clothing Ltd is a small Clothing Manufacture based in the Midlands of England. It was founded in 1995 and, currently employs 96 full-time workers. It manufactures and supplies a wide range of regular as well as technically advanced, high performance garments and ballistic armour protection articles. It is managed by four Directors, who own an equal share in the business. Clive, Ken, George and John head the four functions around which Beta-Clothing has been structured: UK Sales, Exports Sales, Production and Finance respectively, with John, the Financial Director, acting as the nominal Managing Director. The company currently has two divisions. Its clothing division produces articles to various specifications and styles. Its technical garments are made to be moisture and wind proof, thermally efficient, light and heat resistant, flame retardant, breathable and compatible with body armour. Its second division, Armour and Ballistic Protection, is a relatively new development. Since 2004 it supplies a range of armoured vests and jackets for law enforcement and military personnel, as well as for civilian staff operating in hostile environments, such as media correspondents, security guards and bodyguards who can be exposed to very high and diverse threats. Both divisions meet individual customer requirements for outer fabrics, pockets, pouches, sizes, styles and insignia. Nowadays Beta-Clothing supplies a wide range of garments beyond knitwear, including thermal and protective clothing, such as underwear, shirts, vests, trousers, jackets and ballistic protection clothing to military organisations, law enforcement agencies, emergency services and large corporate organisations. Its UK customers include the MoD, the Police, the Royal Mail, airlines and utilities, as well as retailers, wholesalers and distributors. Its products are exported to the USA, countries of the EU, Scandinavia, Middle East and Far East with 40% of its turnover coming from exports to 30 countries.

Organisational Structure

Knowledge in Beta-Clothing can be broadly divided into three genres: market specific, production/technology specific and administration/finance specific knowledge. The relatively flat structure of the firm reflects this division in practice and knowledge and enables communication between members of the four main functions, sales being more market oriented and production more technology focused. Being a smaller organisation, there is a greater overlap between the four main functions/sub-CoPs, and the people who deal with each cognate area have a fairly good understanding of the others. According to George:

"I would say marketing and sales, production, finance and procurement are the main knowledge areas and if you look at the chart, the business is structured around these. We've got a very flat structure, which makes us very flexible and it enables communication between different parts and decisions to be made very, very quickly. We haven't got to go up and down a long organizational chart... We don't have an open plan office layout but what we do have, we have people working in teams, located together... There is an overlap, but we are relatively small organization, so there has to be a degree of overlap to cater for illness, absence, holidays etc. People from different areas

have to liaise with each other constantly and so they can appreciate what other departments do, how things work in other areas.”
(George, Production Director)

Strategic Orientation

Beta-Clothing’s respondents maintained that its competitive advantage is based on a focused differentiation strategy (Porter, 1985); catering for the corporate and Armed Forces markets by offering a comprehensive range of products including technical clothing and body armour. Skills related to mixing offshore with home production and specialised knowledge and expertise requisite for the technical part of the business are embedded within systems and routines characterising social practice in the organisation (Tsoukas 2002; Tsoukas and Mylonopoulos, 2004). Discussing practice in Beta-Clothing, Clive commented on the importance of the knowledge and skills embodied in the living experience of workers in this way:

“Core strength is the people who are employed...The experience they have is our strength as an organisation which shows in our people. They have been in the game for so long, they know the supply base, they know the way we operate, they know the systems, they know the products, what it takes to meet the standards and they know what our customers want. The sort of experience you can only get by putting the years in...Technical clothing and body armour is the future for us definitely. For that you need different skills for that, or additional skills, not different skills because we still got a textile base but we also see the ballistics technical skills which we have grafted onto the business.” (Clive, UK Sales Director)

Managing domestic and outsourced operations effectively, along with possessing and applying specialised knowledge related to manufacturing technical clothing and body armour can be classed as dynamic capabilities that confer quality, speed and flexibility, which are instrumental in establishing competitive advantage. George, who deals with sourcing and production, referred to the significance of these attributes in pursuing a focused differentiation strategy (Porter, 1985) in the corporate and Armed Forces clothing market segments in this way:

“We are in a challenging market sector that is changing at a rapid rate; we aim to provide our customers best value. That means quality products – excellent service. The types and quantities they want, when they want them. Many items are available from stock; samples, special measures, top up orders, personalisation and small runs are normally available with short lead times and competitive pricing. Take a Police Force for example; they will have new recruits starting every month. They don’t know the size or shape of those recruits until a week before they are due to start and so for them delivery is important. If we are dealing with private organizations, decisions are never made when they should be made, lead time is always an issue; delivery dates are very particular.” (George, Production Director)

Organisational Culture

Conducive to enhancing learning capabilities and skills is Beta-Clothing’s culture, which promotes openness in communication, inquiring, learning and organisational development. Looking after the employees is regarded as something that enhances commitment and learning capabilities, which in turn increases productivity and competitiveness. Workers are provided with opportunities to gain qualifications, advance their skills and become more inquisitive. During a discussion on cultural aspects, Clive referred to Beta-Clothing’s efforts to develop its current staff and recruit people with a set of skills that will enable the business to take advantage of cutting-edge knowledge, enhance its dynamic capabilities, explore opportunities and compete effectively in a global market place:

“We believe in development. We try to bring people up to speed and we send them on training courses and let them go back to college - local training, business courses. We’ve been giving assistance, financial assistance as well in order to make it easier...The people that we want to recruit have to be far more skilled than the people we’ve got today, they got to have a different skill set. And that skill set means being more switched on to the global marketplace. They have to be better qualified and more inquiring. We need better qualified people, people with more textile skills, more technology skills...with academic qualifications and inquisitive minds. People who are switched on, who are looking to explore possibilities, people who can contribute with new ideas.” (Clive, UK Sales Director)

According to the respondents, employees in Beta-Clothing enjoy harmonic relationships in principle, in a familial-like environment, devoid from formalities and corporate bureaucracy in their relations, which allegedly typifies small firms (Schumacher, 1973). This climate appears to be conducive to informal, situated learning, attainment of new meaning (Brown and Duguid, 1998, 2000; Wenger, 1998, 2000) related to exploring and exploiting entrepreneurial opportunities. All respondents referred to a culture that appreciates hard work to produce quality products timely, commitment, superior expertise, sharing, learning and innovativeness.

Entrepreneurial Action as Diversification into High Value added/Technical Clothing

Key Learning Episode – Diversifying into the Ballistic Protection Clothing Market

Having presented the internal context, the following section discusses entrepreneurial action in Beta-Clothing against a significant learning episode. This concerns the establishment of the Armour and Ballistic Protection division in 2004 and signals Beta-Clothing's entry into a new, promising market of higher knowledge-content/higher added value products. Entering this market was an effort to enhance the technical products part of the business, differentiating Beta-Clothing's competitive position and hedging against an increasingly hostile environment. Creating the Armour and Ballistic Protection Division meant that Beta-Clothing had to expand its knowledge-base and obtain expertise in a particularly specialised area.

All of Beta-Clothing's armoured jackets and vests incorporate high performance heat and sweat management linings. The production of such knowledge content clothing had implications for the skills base needed to compete effectively in this market and signifies the company's new strategic direction. All respondents commented on the strategic significance of manufacturing body armour. The establishment of the Armour and Ballistic Protection Division enables Beta-clothing to differentiate its position by specialising in a niche market where price is not the prime purchasing criterion and profit margins are high. Illustrative is the way John elaborated on this point:

“So, we are providing body armour and I see that as the future for the company. I see turnover in the clothing sector falling in future – you can't compete with the Far East on price. That's why we have introduced the body armour because that is going to develop over the next years. The game is different; expertise, quality and speed matters and you don't have to sell so many items to achieve the same turnover. It has a high average value. The average value of our [non-technical] clothing products is probably £10. The average value of a body armour sale would be around £300...I see that as one of the most important things happened in the life of the business.” (John, Finance Director and nominal Managing Director)

The episode marks significant changes in Beta-Clothing's value chain (Porter, 1985) that the firm underwent in order to generate dynamic capabilities to compete effectively and cope with the challenges stemming from the external environment. It is considered as indicative of broader tendencies in entrepreneurial action.

Entrepreneurial Action Enabled by Learning within Communities of Practice

Developing New Meaning and Identity in Boundary Interactions

With regard to identifying entrepreneurial opportunities, as the episode of entering the ballistic protection niche market illustrates, the interaction between boundary spanners of interrelated CoPs (e.g. Wenger, 1998) holds centre stage. Arguably, clothing manufacturers, textile suppliers, corporate and military purchasers and expert advisors constitute a constellation of interrelated CoPs which form a social learning system (Wenger, 2000) and provide ecologies of knowledge (Brown and Duguid, 1998). Moreover, employees of such firms belong to other broader CoPs owing to their specialisation. For instance, workers of clothing manufacturers with special interests, such as sales people, designers and technologists, beyond being a part of their organisational CoPs they also belong to a

broader ‘professional’ network, which produce its own social practices, identity and ‘epistemic culture’ (Brown and Duguid, 2001a; Swan et al., 2002). There is a sufficient degree of convergence on valued activities, norms and professional identities, interpretative frames and heuristics that characterises such networks or ‘social practices’ (Wenger, 1998, 2000, Snyder and Wenger, 2010), which cut across departments and organisations.

Trade shows and workshops contribute to overcoming divisions in practice and generating significant interaction that may lead to the identification of entrepreneurial opportunities and relevant learning (Scarborough *et al.*, 2004). The respondents of Beta-Clothing explained that such boundary events are instrumental in acquiring valuable information/knowledge not only on technological developments but also on wider areas of their business. Knowledge generated through participating in such events eventually led to entrepreneurial action as the episode concerned indicates. During a discussion on how knowledge related to entrepreneurial opportunities is generated in Beta-Clothing, Clive commented on the significance of such events and the importance of forming new ideas and meaning through participation in such boundary interactions. Beta-Clothing’s decision to enter the ballistic production market in 2004 was influenced by information and knowledge acquired initially by participating in such events:

“We felt that body armour was something that was going to become more and more important...it is going to be very much a growing market...We could see that there is demand for these products. It was certainly coming up in the shows and face-to-face meetings with customers and we could see the way discussions in these events organised by the Defence Manufacturers Association, in trade that our customers are moving. And we knew that we could offer a good product to them.” (Clive, UK Sales Director)

Participation in boundary processes involving interaction with boundary spanners of various organisations, such as salespeople of organisations like Beta-Clothing and corporate buyers who belong to this social learning system often afford the engaging parties with new information and knowledge at a technical and business level (Wenger, 2000; Wenger *et al.*, 2002). It has to be noted that interactions between the various boundary spanners of organisations participating in such events, including buyers and suppliers are quite informal, which underscores the social nature of information and knowledge (Brown and Duguid, 2000b). On this point Clive maintained:

“It’s all informal. The seminars and especially the trade shows are quite important events for getting information. By talking to people there like manufacturers, buyers, advisers, we tend to find out what is happening in the market. Sometimes we identify the right contact or come up with new ideas but like I said it’s always informal, casual conversations; having said that people here are encouraged to .” (Clive, UK Sales Director)

Boundary Objects

It has to be noted that boundary encounters promoting the circulation of tacit knowledge support and complement other sources of information and codified knowledge about the market, such as trade magazines and web pages which add to the connectivity of the constellation of CoPs (Wenger, 2000) comprising the uniform/corporatewear and protective clothing sectors. Artifacts displayed in such sources facilitate the imagination and alignment of these communities (for instance over utility, styles and technical characteristics), which raises awareness of the repertoire of methods and standards (Star and Griesemer, 1989; Star, 1995). Most importantly, such boundary objects contribute to an interpretative framework for the identification and exploitation of entrepreneurial opportunities George commented on the heuristic value of these sources in this way:

“We look at the trade magazines and websites of competitors and the industry in general – I’m talking about workwear and uniforms – and we try and see what’s new, if there are any new developments, any new trends or technical stuff that has to do with certification, or even invitations for tenders. Sometimes by looking at magazines and websites we come up with ideas for developing new products or target new customers...Then we may explore that further in workshops or tradeshow.” (George, Production Director)

Ballistics Experts as Powerful Knowledge Brokers

With regard to the second episode – entry in the ballistic protection sector - of particular importance is a specific group of opinion leaders in the industry who act as advisors to the MoD. These are experts in ballistics who have knowledge of the customers' needs. Conceivably, their trajectories facilitate engagement with interrelated epistemic communities (Brown and Duguid, 2001a) encompassing technical clothing manufacturers like Beta-Clothing and corporate/Armed Forces purchasers. These trajectories proffer identity-forming experiences that foster sensemaking of what technology and solutions are available to tackle demand for a given product category. Due to their status, they are close enough to connect strongly with the customer organisation and have an influence on its buying behaviour, yet far enough to gain from new experiences that participation in a variety of contexts affords (Brown and Duguid, 1998).

Arguably, their trajectories in the field promote the connectedness, expansiveness and effectiveness of their identity, which help them act as brokers (Wenger, 1998, 2000) or translators (Brown and Duguid, 1998) credibly. Indicative is the account provided by George on the identification and exploitation of the opportunity to provide ballistic protection products in the second learning episode. The consultant that Beta-Clothing employed to develop ballistic protection products and obtain the requisite certification was someone who was well known in the CoP of ballistic protection manufacturers. Having worked for different manufacturers and also as an advisor to the MoD in the past he was able to see how Beta-Clothing could best address the Armed Forces' needs for ballistic protection. Clive elaborated on this point:

“We got someone else on board at that time to take responsibility for that, because we had no experience or knowledge at all of body armour. This person had the scientific knowledge and experience required because he has been involved in the industry for a number of years and he is a consultant, he is a consultant to the MoD. He is a forensic scientist, a ballistic scientist. I had never met him, never spoken to him, but I knew that by reputation he was the person to take us forward. His name pops up with other body armour manufacturers, with customers, he was known in the industry. He was giving presentations, he was on the lecture circuit... Our technical consultant is actually a Home Office advisor to the Police. He sits on the NATO Committee for ballistic protection and so beyond the technical knowledge, technical skills he understands the customers, and so the MoD and the corporates listen to people like him. He knows where the customer is coming from, their needs, their concerns etc. and so he draws our attention to how we should go about developing and marketing these products.” (Clive, UK Sales Director)

It has to be noted that power relations (Blackler and McDonald, 2000; Fox, 2000; Contu and Willmott, 2000, 2003) are inherent in the intercommunal social structure between advisors and boundary spanners of manufacturers of ballistic protection products such as Beta-Clothing. They appear to play a significant role in gaining access to government and military procurement systems. Advisors to the customers are opinion leaders who can restrict legitimate participation to and learning in such supply chains. George elaborated on this point:

“Our ballistic protection clothing has been developed in consultation with someone who advises the MoD - he is one of them. That helps because the advisors have the power to influence their decision. The buyer has to take into account their opinion about body armour or whatever before he makes a decision. And as they say people buy from people. Of course you have to have a good product, but it doesn't help much being on the wrong side. If the advisor for some reason is not fond of a given supplier, then it's a problem for that firm... He may like or dislike a supplier because of something that has happened in the past or just because he wants to be in line with the other advisors, he doesn't want to go against the flow, it depends really. The problem is if you are cut out you don't get the chance to learn what is required and develop.” (George, Production Director)

Establishing Meaning in Intraorganisational Social Interaction

Although arguably different functions, such as sales and production make up sub-communities within Beta-Clothing, their identities connect through engaging with each other, imagining (i.e. having a good understanding)

of respective practices and aligning their activities with broader purposes (Wenger, 1998, 2000). Daily, casual interactions with colleagues contribute to shaping their identity as Beta-Clothing's experts, learning what matters and what not and contextualising information received in boundary interactions. Information and knowledge related to the exploration and exploitation of entrepreneurial opportunities and good practice identified at an individual or group level are then disseminated in Beta-Clothing. New meaning is particularly shared with the 'dominant coalition' (i.e. the core team of the four Directors) and key workers responsible for sales and production - to obtain feedback and ideas that can enhance sensemaking and refine/modify meaning. Ultimately, decision-making rests with the 'dominant coalition'.

In the final analysis, entrepreneurial action related to the identification and exploitation of opportunities to enter the ballistic protection sector appears to be the culmination of informal dialogical processes and social interaction (Wenger, 1998; Brown and Duguid, 2000a, b, 2001b; Orlikowski, 2002; Wenger et al., 2002). Such activities involve the 'dominant coalition' as well as other key boundary spanners, such as salespeople, technologists and ballistics experts that together negotiate new meanings. Discussions with the respondents on the two learning episodes revealed that collective sensemaking and learning at the core team/organisational level, related to identifying and exploiting entrepreneurial opportunities, is taking place in informal social interaction, which is integral to Beta-Clothing's communal praxis (*ibid*). Notably, negotiation of new meanings requisite for strategic renewal underlying the identification and exploitation of such opportunities is facilitated by the fact that workers share office space, have lunch together at the cafeteria, or take coffee at the main corridor during the course of the working day. It would appear that there is a 'ba' space where 'knowledge assets' and tacit knowledge requisite for making sense and acting upon such opportunities are mobilised and shared informally (Nonaka *et al.*, 2001). Departing from the diversification episode in question, Clive elaborated upon this point:

"We're trying not to have too many formal meetings. I don't want to get tied down with formality...Informality is definitely an advantage...Our offices are next to each other. We work in such close proximity that it [dialogue] is happening all the time. Often we have a coffee together, we visit each other, it's actually difficult not to interface; we are together all the time. We also have formal meetings, which are minuted; board meetings are once a month. We have production planning meetings once a week, whereas the production planner and the team meet with the procurement people to find out what's happening offshore and we have product development meetings. A lot of people are involved in development because you've got procurement and purchasing, sample development, sales and production; about every 3 months. But we are communicating informally all the time. Workstation location is very important. Fact is, although we don't have an open plan office as such here, simply because of the layout of the building, we do work in teams together and all conversations can be overheard, we all know what's going on, which means that people can pick up the threads. New ideas are discussed and debated and everyone knows what's happening in the business and can contribute." (Clive, UK Sales Director)

Power Relations and Political Activity

Although, in principle, workers' negotiability of meaning in collective sensemaking related to entrepreneurial action appears to be limited, 'knowledge workers' such as graduate technologists and ballistics experts tend to be more influential. By virtue of their specialist knowledge, their input in strategy making is solicited and taken into account by the 'dominant coalition'. Commenting on Beta-Clothing's effort to enhance its learning capabilities in order to diversify to technical products and differentiate its position in the marketplace, Clive elaborated on the importance of including graduates in the decision making process related to strategy development:

"So, we got to try and make sure that the flow of enthusiasm and knowledge is the right way...we are going to keep her up here and we are going to have her [the graduate] as part of this team here [management team]. We don't want her to go into the factory and away from the sphere of influence." (Clive, UK Sales Director)

The 'dominant coalition's' approach to legitimising the peripheral participation (Lave and Wenger, 1991) of neophyte graduates in processes related to strategy making facilitates their mobility towards the core of Beta-

Clothing's organisational CoP. This helps them attain identities of mastery and contributes to the development of Beta-Clothing's learning capabilities, which in turn confer dynamic capabilities requisite for entrepreneurial strategic renewal. Although learning is often deliberate and consciously pursued amongst the members of the 'dominant coalition', John's account indicates that Beta-Clothing's CoP may not always be a unitary whole, but a 'loose' coming together of members with variant interests and agendas. Antagonistic relations between newcomers and more experienced members, "...arising from the wider situatedness of work organizations within politico-economic contexts" can impede the creation of meaning and learning (Contu and Willmott, 2000, p. 272). In the past, other neophytes that pushed for changes in work organisation that shifts the balance of power have been met with suspicion by certain oldtimers, who tried to resist change in the organisation.

Political intrigues and power configuration in Beta-Clothing's CoP kept these new members of Beta Clothing's CoP in marginal positions, pushing them back into identities of non-participation (Contu and Willmott, 2000, 2003). Consequently, opportunities for innovative input and learning were missed. This is at odds with organisational values that foster OL, such as commitment to learning, open-mindedness and shared purpose (Morgan and Turnell, 2003). It can potentially undermine the cohesiveness and mutuality of the organisational CoP and restrict the expansiveness and effectiveness of its communal identity (Wenger, 1998, 2000, Wenger et al., 2000; Brown, 2004; Snyder and Wenger, 2010). When participation is restricted and the currency of new meanings and insights put forward by new members is dismissed on political grounds, the community's sensemaking and learning capability requisite for effective entrepreneurial action are undermined. Core competencies of a firm can turn into core rigidities (Leonard-Burton, 1995). John elaborated on this point in this way:

"In the past, new employees with skills and ideas had faced resistance from certain people here that opposed changes, playing politics. These were valued employees, legacy of the old business with experience – they knew the business inside out and we couldn't just get rid of – all now gone, retired. But the point is that when you have power struggles and politics, surprisingly so because we are a relatively small business, it's not good. Because new ideas are blocked and people feel alienated and, at the end of the day, we miss opportunities. This is something that we are aware of and we are making every effort to encourage people to put forward new thinking and curb resistance." (John, Finance Director and nominal Managing Director)

Hence, Beta-Clothing makes concerted efforts to widen participation and optimise learning processes relating to entrepreneurial action, as the above quote illustrates. The next section concludes the paper and suggests avenues for future research.

Conclusion

UK manufacturers operating in the clothing industry have seen an increasingly complex, dynamic and ultimately hostile operating environment over the last two decades. The main challenges they face relate to high import penetration from low-cost producers, skills shortages, as well as short, fast and flexible production cycles, determined by large customers and generally the nature of the markets they serve. In the final analysis, fitting their customers' supply chains requires capabilities relating to quality, speed, dependability, flexibility, and cost. Against this backdrop, Beta-Clothing was considered as an exemplar (Yin, 2003) or instrumental (Stake, 1995) case. A major learning episode of entrepreneurial action was scrutinised, revealing wider tendencies, in accessing external knowledge and internalising it. Beta-Clothing underwent this episode in order to gain competitive advantage and address effectively challenges stemming from its operating environment.

SLT elucidated the learning mechanism underlying entrepreneurial action. From this perspective, drawing attention to intra- and interorganisational/intercommunal power relations and political activity revealed that such phenomena condition situated learning and, ultimately, entrepreneurial capabilities and organisational performance. Notably, the episode of diversifying into ballistic protection clothing – a high knowledge content/high value added

sector - exemplifies broader tendencies, which potentially characterise the entrepreneurial learning processes underlying entrepreneurial action of this kind. That is to say, these tendencies transcend the particular episode and relate to entrepreneurial learning indicatively.

From the study of Beta-Clothing as an instrumental case (Stake, 1995), i.e. not as a sample of one, it is evident that the learning mechanism underlying entrepreneurial action (i.e. the identification and exploitation of entrepreneurial opportunities) is enabled by key actors' legitimate social participation at intra- and interorganisational/intercommunal levels. Knowledge and skills underpinning entrepreneurial action are inextricably linked with social participation in a web of learning systems and ecologies of knowledge (Brown and Duguid, 1998; Wenger, 2000; Brown and Duguid, 2001a). They take place in the interplay between social competence and personal experience at individual, group, organisational and interorganisational levels (Wenger *et al.*, 2002; Richter, 2004). Hence, such learning is found to constitute a strategic resource crucial to competitive advantage, echoing Deakins and Freel (1998, 2003), Cope (2003) and Harrison and Leitch (2005).

It is evident the ability to undertake effective entrepreneurial action hinges on displaying a learning capability defined in social communities (Wenger, 1998, 2000; Wenger *et al.*, 2002). It is an outcome of a process of contextual learning, where social and intuitive understanding of problems, needs and solutions is developed through situated immersion and social participation in industry or other community networks (Rae, 2004; Taylor and Thorpe, 2004). Such a learning capability constitutes an entrepreneurial capability (Alvarez and Barney, 2000), which would appear to be a function of the intra- and intercommunal capacities of the organisation. The term 'intercommunal capacity' relates to the competency to gather information and create knowledge pertinent to the identification and exploitation of entrepreneurial opportunities through interaction with other organisations/CoPs. Conversely, 'intracommunal capacity' refers to the competency to absorb, develop, operationalise and institutionalise such knowledge within the organisational CoP. Intra- and intercommunal capacities confer a learning capability that can be classed as dynamic in its own right.

Application and refinement of SLT in this paper contributes to a better understanding of the learning mechanism underlying entrepreneurial action relating to diversification into a high value manufacturing sector, facing a hostile competitive environment. It constitutes an advancement of a substantive theory of entrepreneurial learning in this context. Boundary events, brokers, boundary objects, membership structures and inclusive participation that addresses power asymmetries are highlighted as crucial organisational design elements enabling entrepreneurial action. Optimising the function of these elements is instrumental in the development of knowledge and the technological capabilities needed for effective diversification into technical clothing in particular and high-value manufacturing in general. Hence, the paper has substantial implications for clothing manufacturers wishing to diversify to knowledge-content/high value-added/technical clothing, as well for business support providers concerned and strategic development. Future research should be conducted in a variety of settings, of differing environmental dynamism and complexity. Drawing on Eisenhardt and Graebner (2007), we call for multiple-case research involving firms of different age, in different development stage, operating in contrasting sectors.

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