Resilience in textile enterprises and supply chains

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Resilience, in an organizational sense meaning the ability to withstand crises and disturbances, has become a buzzword during the last ten years. It is associated with established activities like risk and crisis management and business continuity planning, but it allows for new perspectives and insights into the conditions for doing business. Applied to the whole supply chain it also provides tools for managing and aligning the logistics flows in an appropriate way. But why is resilience essential for the textile and fashion industry?

The fashion garment industry in Northern Europe was one of the first sectors to relocate production capacity to lower cost regions. As a result industrial jobs declined and imports soared. Meanwhile we see the emergence of strong fashion brands that today operate very successfully in the global economy. Companies have converted from manufacturer to branded marketer or from multi-brand store to branded retailer. Many enterprises failed and disappeared, while several others prospered. Why has this development taken place and how did some firms manage, while others collapsed? Was it a matter of cost only? The answer is context-dependent and multi-faceted. Several factors have a decisive influence, both external and internal to the enterprises and their supply chains. They are also often changing over time, be it for example financing policies, monetary conditions, customs and quotas, wages and trade union actions, general business and industry climate, consumer patterns, saturation of markets, quality and design issues, degree of risk aversion, resilience of enterprises and supply chains, or the ability to manage demand time versus lead time.

In a recent investigation on textile-related SME that have withstood the recent economic crises but faced major threats to their financial performance and ultimately to their survival, it is evident that economic resilience has become a property to be cultivated in such firms. Thus there is also a need for studying or understanding the dynamics of resilience, considering the vulnerabilities in today’s world. Stoltz (2004) considered resilience as the key requirement in organisations for developing sustainable edge over the less resilient ones. Resilience is therefore to be considered a discriminating factor between successful and surviving firms and those that fail. Much recent research aims to contribute to the understanding what creates organisational resilience, its attributes, formative elements and framework, or to devise ways and indicators to measure it.

In this overview, recent research on critical success factors and properties supporting resilience development in the textile sector will be addressed and discussed.

The three-dimensional concurrent engineering perspective

The conventional approach to design is to assign representatives from support functions to review and recommend changes as the design evolves. The more recent concept of concurrent design involves a multi-functional design team, which is highly structured and with greater responsibility and authority. This means that the design function is broadening and that not only the product but also the processes related to product innovation are explicitly taken into account.
Organizational business success, in terms of economic performance for any company in
the global textile complex, is thus a resultant of its distinctive competences – innovation
or specialization along the fundamental blocks of three-dimensional concurrent
engineering, 3-DCE, i.e. the simultaneous development of products, processes and –
most critically – supply chains (Fine, 1998).

This three-dimensional perspective of an organization is essential for providing a
holistic perspective in mapping business competence. In a recent research approach a
matrix was developed for business competence mapping to streamline the organizations
according to their pattern of distinctive competence, disassembled along the 3-DCE
domain. Out of 25 analyzed companies recording a profit build-up (2005-09), 18 had
achieved their economic success along different combinations of product, process and
supply chain attributes. It is also argued that innovation and specialization are the
routines or pathways to be successful, and statistical models are developed to validate
the hypothesis. Any firm not deemed to be innovator or specialist in some respect
cannot be successful in the long term. This is critical in identifying the manifold of
distinctive organizational competences and success factors for all business architectures
and deducing a success pattern. A failure to do so can essentially lead to firms running
out of long term success, as seven of the responding firms reflected. The research seems
to be viable to identify and relate firm strategies to their critical success factors and
develop solutions for the future.

It is shown how development of the building blocks of three-dimensional concurrent
engineering perspectives and complementary value systems and fostering such
capabilities/competencies can develop a multitude of critical success factors for
organizations, thus yielding business success. For this purpose, another combined
explanatory and exploratory study was conducted on 42 Swedish textile, clothing and
fashion firms for organizational competence mapping along the 3-DCE domain and
analyzed to understand the key areas in which to invest and how to invest their
resources and time. The results are manifold and show that most of the key success
factors are created and sustained through 3-DCE designing. It also highlights the
necessity to incorporate intangible value propositions into the 3-DCE model to generate
an ‘extended 3-DCE’ framework for conveying operational performance and hence
organizational success, also corroborating that a trajectory/commonality exists in
synthesizing these factors leading to success (Pal & Torstensson, 2011).

Quantifying resilience

While organisational resilience generally has been considered a qualitative entity, a
recent study attempts to relate resilience to the degree of business health in terms of
economic viability (Pal et al., 2011). Financial statements (1989 to 2009) of 20
companies related to textile, clothing and fashion in Sweden were analysed to draw the
appropriate conclusions. The study used Altman’s Z-score as an indicator of business
health, which includes discriminant ratios related to both short-term and long-term goals
of a firm. Furthermore, the Z-score transition profile helps the company assess its
business health and resilience during a crisis, and further analyse the underpinning
attributes.
The findings support that there is a relation between the levels of organizational resilience and business ‘health’. It was seen, in the study, that firms classified as ‘not at all’ or ‘hardly’ resilient in the specified time periods were in general poor in terms of business ‘health’ and had a risk of slipping into distress situations at any time. This complements the work of Sundström and Hollnagel (2006) describing a similar phenomenon of catastrophic organisational failure of Baring PLC, as the company slipped into an unhealthy and subsequently a catastrophic business state, due to market events, illustrating the lack of resilience. Highly resilient firms were shown to enjoy a healthy business state in the crisis situation, and de Waal (2008) termed these organisations as high performance organisations (HPOs) – having strong financial results, satisfied customers and employees, high productivity, etc. (Epstein, 2004), showing resilient characteristics. These HPOs showed high achievements in terms of financial and non-financial results, better than those of its peer group over a period of time of at least five to ten years (de Waal, 2006, 2007). At the same time a number of investigated businesses consistently showed lack of resilience, staying on an average just two years in the healthy state compared to that of eight years for rest of the peers, between 1989 and 2009.

It is therefore proposed that a business ‘health’ transition profile (of Z-score) and systematic coding is effective to differentiate firms in terms of resilience level. The contributions of the five important financial ratios to the resilience level in different periods were also assessed for the studied organisations. The contributions of most of these ratios were observed to be more in the resilient firms compared to those non-resilient and also to the overall average. For example, in case of two analysed firms during the recent financial crisis, the higher liquidity, leverage and solvency, compared to the other studied firms, resulted in maintaining a healthy state, while for two other firms liquidity, profitability and capital-turnover contributed to their resilience development (in the period 2004 to 2006), so that they could be ‘partly’ resilient in the crisis. A fifth firm maintained a high resilience during the 1990s economic crisis by generating higher capital-turnover and liquidity, which likely yielded a high recovery potential for the company after the crisis, and it could also generate higher liquidity, sales, profitability and more. On the other hand, it is evident that the firms not resilient during different time periods in context to the crisis event were poor in terms of the economic ratios, compared to the overall average of all the studied firms. The lack of proper development of economic resources and assets in the companies, in terms of liquidity, capital-turnover, leverage, profitability, etc. resulted in poor resilience, particularly for three of them, which were totally non-resilient during all the studied periods. One of those showed negative working capital for six consecutive years (2004 to 2009) and negative EBIT for four consecutive years (1989 to 1993), while another generated negative profits for five consecutive years (2005 to 2009), proving their distress conditions during crisis (according to Slatter, 1984). This may characterise organizational resilience in terms of attaining favourable business ‘health’, related to key financial ratios.

Resilience essentials for textile SME

Economic recessions have created challenges for small and medium-sized enterprises (SMEs) and contributed to disruptions requiring them to be resilient. At times of economic crises, SMEs face major threats to their financial performance and ultimately
to their survival. The average number of Swedish textile and clothing (T&C) firms that went bankrupt during the recent crisis (2007-09) escalated twofold compared to the average over 2000-10. Following the 1990’s economic crisis nearly 12% of the T&C companies went bankrupt in 1994-95. The structural industrial statistics also plummeted in these crisis years, aggravating many internal problems in SMEs as a ripple effect.

A recent study concentrates on what constraints are faced by Swedish textile-related SME during economic crises of the past two decades (1990-93 and end 2007-09) and identifies the antecedents and their differential degrees of influence on economic resilience. It also deepens the understanding of the underlying patterns in the antecedents, observed in SMEs, favouring or inhibiting resilience due to their significance or deficit, respectively.

An exploratory investigation was conducted in two phases, first through a survey and followed by a series of interviews, responded to by eight Swedish textile and clothing SME. Annual reports provide a detailed account of the financial performances of these firms. A conceptual resilience framework had previously been developed, based on a review of extant literature.

Findings provide insight as to how the responding firms considered resourcefulness, viz. cash flow and investment finance, relational networks and material assets, along with ‘dynamic competitiveness’ through strategic and operational flexibility to be key enablers of resilience and financial performance, mostly through generation of profitability, liquidity and sales-turnover. Responses also highlighted the indirect influence of the ‘soft’ learning and cultural aspects, like attentive leadership and collectiveness, on economic resilience, considered tacit and ingrained in small and medium-sized family businesses. Additional process initiatives (growth and continuity strategies) were also emergent patterns to properly utilize and direct the antecedents for resilience development. These are beneficial for firms to understand the key areas in which to invest for developing resilient business models (Pal & Torstensson, 2012).

Several key patterns emerged from the analysis of the acquired information. Within the organizational resilience framework prescribed here, the key enablers or antecedents have been identified that were considered essential by the owners/managers of the SME in strengthening resilience in crises. These refer to the following factors:

1. Financial resources: Cash flow and investment finance

Cash flow in firms emerged to be of significant influence, as purported by the owner-managers, along with investment finance, in facilitating or inhibiting resilience at crises in some way or the other, as also highlighted by Vossen (1998) and Van Gils (2005).

Cash flow constraint arising out of too much borrowing of foreign currency during the 1990’s, followed by a sudden currency devaluation (in Sweden) in 1992, affected the liquidity ratios, while rising costs of production and overheads also affected cash reserves in many ways. A decrease in sales turnover due to volume and margin ramp-down and a decrease in customer base and low price competition in the 1990s also inhibited firms’ cash flow affecting the leverage ratios. Cash flow problems due to a
sudden shift from supplier’s credit to cash payment scheme or sudden postponement of installation orders from customers were among other reasons.

An investment finance constraint is also evident in firms, due to misjudged business ventures, bankruptcies of group subsidiaries or newly made investments in acquisitions and new product development (NPD), thus limiting their financial reserve during quick crisis recovery. Such investment finance problems are aggravated by lack of proper credit support from banks, as demonstrated also by Sullivan-Taylor and Branicki (2011), while good bank support may lead to better liquidity and leverage ratios.

2. Relational networks

Freeman (2004) analyzed how close relationships in working with the suppliers, customers and marketing partners to get more order volumes were essential enablers of resilience development. Such a pattern was observable amidst the recent credit crunch as key antecedents of resilience development, contributing to the development of capital-turnover ratio. On the other hand, lack of external support seems a potential resilience inhibitor, particularly for SME (Fassoulska, 2006). This considerably increases the supply chain vulnerability during crisis. The analysis emphasized several factors contributing to the shrinking supply and customer relational networks of SME, as pointed out by the owners/managers, like ‘consolidation of suppliers into few large ones’, ‘lack of alternate high-quality suppliers’, ‘restricted customer base due to low-price competition’ etc.

3. Material assets

Current asset problems, aggravated by price hikes along with huge stock lots, due to a sudden decrease in orders, are common during crisis. Such constraints were evident during the recent credit crunch, in terms of excess raw material stocks or sometimes shortage of supply or huge storage of finished goods. They were considered to be potential inhibitors of resilience development, as it compelled the firms to depreciate their stock values and think of consolidated internal restructuring for higher efficiency planning. This considerably affects the profitability, sales-turnover and leverage ratios.

4. Strategic flexibility

Strategic flexibility in terms of decision-making is a critical aspect in small firms (Vargo and Seville, 2011). Such flexible strategic planning lay in devising rolling long-term plans to maintain necessary readiness, even during crises and supported by oligarchic decision-making, unlike most family firms run through monocratic leadership (Gunasekaran et al., 2011). Such strategic flexibilities are also essential to devise changes in organizational design/business model by delocalizing production completely or shifting product core from fashion clothing to industrial products, etc. Vargo and Seville (2011) also noted how the lack of a proper crisis strategic planning, mainly due to slack resource constraints, was deemed to be a key inhibitor to resilient functioning in small firms. Overall, strategic flexibility can be critical for growth aspects in firms related to capital-turnover increase.
5. Operational flexibility

Even though Sheffi (2007) and other authors have emphasized the role of operational and structural flexibility only in case of large firms for building resilience, it seemed to be quite an emergent resilience building theme in SMEs as well. The recent study highlighted the role of structural flexibility in determining the make-buy decisions in case of small manufacturing firms for contributing considerably towards resilience development by increasing profitability and cash flow. Such control over one’s own manufacturing pipeline results in lower lead-time and inventory management advantages as well. However, lower flexibility in inventory management by handling raw materials or finished goods inventory, lower flexibility in manufacturing or make-buy decisions also resulted in a lack of resilience by affecting profitability and liquidity, in line with Thun et al. (2011) highlighting the lack of preventive instruments in SMEs in tackling supply chain risks.

6. Continuous improvements

Quality issues maintained through continuous improvement were a key antecedent to resilience in one firm to cater to the requirements of its large automotive sector customers. The responding firm applied efficient small batch manufacturing to improve the production efficiency, reduce lead times and be sufficiently lean, thus enhance operational agility, also highlighted by Ismail et al. (2011) and Kumar et al. (2011) as a necessity to maintain quality criteria for resilience development in case of SMEs.

7. Learning and cultural aspects

The survey emphasized a strong degree of correlation for this ‘soft’ antecedent in bolstering resilience, as also shown by Vargo and Seville (2011). Even though a majority of the owner-managers, when questioned for this study, accepted such strong relationships, they could not justify how it could inhibit or facilitate resilience in economic crises. This vacuum and non-specificity in justifying the strong influence to empirically support the extant research can be attributed to some reasons. Firstly, the owner-managers considered employee collectiveness, know-how and well-being to be very much ingrained or obvious in case of small firms, as also found by Acquaah et al. (2011). So whether in crisis periods or not, these soft values are considerably high in small firms and do not directly facilitate economic resilience development, unlike in large organizations. A complementary consideration is the degree of informality existing in small firms’ visions and knowledge, which tends to make these learning and cultural aspects very tacit (Ates and Bititci, 2011). Secondly, such ‘soft’ aspects do not facilitate economic resilience directly. Moreover, authors perceive such learning or cultural aspects to be long-term in augmenting firm performance and not crisis dependent, where small firms mostly rely on short-termism. However, some of the respondent firms considered lack of ‘cross-functional training for developing working teams’, ‘silo organizational structure’, and lack of ‘formal education’ to be inhibiting resilience development during the crisis of the 90s. The role of leadership and management decision-making were influential factors in facilitating resilience during the recent crunch, in line with findings by McManus et al. (2008) and Seville et al. (2006) Firms like those could break-away from the ‘command and control culture’ (Ates and Bititci, 2011) generally prevalent in small family firms, and became more entrepreneurial and open, and showed better economic resilience.
A major conclusion is how firms can develop their resilience potential by tuning their strategic assets and capabilities. For the investigated SME the key variables among them are: a) investment finance and cash flow, b) material assets and networking, c) strategic and operational flexibility, and d) attentive leadership.

The patterns are revealed through the discussion above. Financial reserves and their mobility enhanced investment opportunities for the resilient firms through sufficient growth perspectives (along product and market development), while firms that showed financial constraints succumbed to the crises effects, showing poor financial performance. This is supported by having established close relationships in the value chain for the resilient firms, allowing them to continue getting considerable order bookings from the customers and favourable price negotiations with suppliers. Such profitable inter-organizational relationships (IOR) also ensured easy access to raw material assets at competitive price. Next, flexibility in strategic decision-making was evident in resilient firms for proper crisis strategic planning, complemented by flexibility in manufacturing and distribution to get cost and lead-time advantages over competitors. For the manufacturing firms, economic resilience through production effectiveness also demanded proper execution of lean management and continuous improvement approaches. Overall, the resilient respondents were able to efficiently utilize their slack financial and material assets through better relational networking, higher flexibility and continuous improvement to develop resilient economic performance in crises, steered attentively through realistic leadership and decision-making.

Practical implications of the research findings to the business practitioners are manifold. Textile SME can have an understanding of the underlying factors or antecedents and their different effects, bolstering resilience for successful performance in crises. Particularly this unfolds a great opportunity for businesses to devise resilient solutions, based on their financial and material asset availability, enhanced by higher flexibility, continuous improvement in efficiency and networking by developing IORs for dealing with future economic crises, like the double-dip recession or Euro-zone crisis. Also, businesses can have a clearer understanding of where and how to invest to develop their unique response repertoire in crisis periods, essential for building strategic readiness, and utilize the slack resources for resilience building (Ismail et al., 2011). This can eventually have a strong impact on their resilience by addressing a range of crisis-related problems.

Strategic planning for resilience

Economic resilience is linked to crisis management and business continuity and growth perspectives, thus crisis strategic planning initiatives become fundamental in supporting resilience and form the strategic differentiating point in relation to the response repertoire of resilient and less resilient businesses.

A recent study addresses categorization of resilient and less resilient enterprises in terms of their financial performance, while identifying their shortcomings in such crises and
the differentiating strategic initiatives underlying the response repertoire of resilient and less resilient SMEs.

A majority of the case firms identified a decrease in order-volume as the major problem during the crises. In terms of key strategic initiatives the resilient firms showed better short-term crisis management strategies, due to higher operational flexibility with regard to various cost-cutting measures, such as retrenchment, reduced fixed overhead costs or decreasing customer and supplier base, and an ability to ramp down production when necessary, while the less resilient firms lacked strategic readiness due to resource scarcity. Almost none of the firms could develop any crisis-based growth strategy. The resilient firms differed from the less resilient ones, the most in terms of long-term strategic initiatives showing long-term continuity planning by unique initiatives to improve cost-effectiveness, such as delocalization of manufacturing, continuous improvement and lean management, and in terms of growth strategies as well, like market penetration by increasing sales and product ranges, long-term diversification strategies through market expansion, and long-term transformational initiatives by focusing more on acquisitions and production outsourcing.

Such multiple strategic initiatives are essential for developing a model for crisis strategic planning categorizing firms along four difference types of resilience viz. latent, planned, adaptive and dynamic along two dimensions characterized by low and high degrees of planning and adaptation respectively. It was observed that resilient SME mostly showed planned resilience in financial crises, through long-term continuity plans and growth initiatives. Such a model essentially serves as a reliable benchmarking tool to measure resilience and position the firms in a competitive landscape during crises to evaluate their strategic response repertoire.

Figure 1. Facets of crisis strategic planning

Creation of financial, material, relational and conceptual slack (Chattopadhyay et al., 2001; Nohria & Gulati, 1996; Schulman, 1993; Vogus & Sutcliffe, 2007) through cost minimization techniques and implementation of growth initiatives were the keys towards development of an organized response repertoire in resilient organizations, as compared to the less resilient ones. Almost all the firms tried to cut running costs as far
as possible, so short-term crisis management strategy was observable in most of them. Also almost all of them tried to retrench staff and diminish customer base, but the resilient firms also sought legal union’s support to decrease the salary and working hours, so that they can retain competence even in crises. Delocalising production, adjustment of the product pyramid to invest in extension of product range as well as cost-effective process management were also measures considered by resilient firms to retain operational excellence. The resilient firms also used more flexible production systems along with value adding products in their range, some of them shifting from high volume-low margin products to very specific core products. Furthermore, resilient firms concentrated on increasing sales by extending the product ranges through cross selling and add-on products and services. This registers as sufficient degrees of innovation in the resilient firms. Thus co-management of innovation and excellence provides the right dynamic balance for creating slackness for utilization during strategy formulation (Pal et al. 2012).

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