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Development of Technological Capability in South African Industry:

An Industrial Network Approach

Work-in-Progress Paper

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Abstract

The paper deals with the first phase in a project on South Africa's need to develop technological capability, especially in the private industry, as a means for achieving economic and social goals. For six decades, the South African industry has developed in a highly protective environment. The opening up of the market after the first democratic elections in 1994 and the current trade liberalization policy revealed a lack of international competitiveness in many branches of the industry. In order to increase the competitiveness and reintegrate South Africa in the world economy, there is a need, *inter alia*, to raise the technological capability both within surviving firms from "the old economy" and the new black empowered companies, which are now being established with support of the government.

The study focuses on capability development through learning processes taking place in inter-firm relationships, in particular between foreign firms operating in South Africa and their local business partners (suppliers, customers, etc.). It is known from research carried out in industrialized countries that interactive learning is crucial for competence development. The purpose in the project is thus to examine how interactive learning can contribute to technological development in South African industry. Four specific research questions have been formulated: (1) What are the preconditions for inter-firm learning? (2) How can inter-firm learning, in a South African context, be used to develop technological capability in different types of firms and industries? (3) What implications can be drawn for business management? (4) What implications can be drawn for policy makers?

The theoretical point of departure consists of two schools of thought, viz. the technological capability literature and the industrial network approach.

The methodological approach is qualitative in nature and based primarily on in-depth interviews with foreign as well as local firms. To be able to draw valid policy and management implications, three sectors have tentatively been selected: mechanical and electrical engineering, telecom, and information technology.

This first phase of the project – being presented in the present paper – focuses on the first research question that concerns the overall preconditions for inter-firm learning in South African industry.

Introduction

The present paper is based on a newly started project concerned with the creation of technological capability in South African industry for the benefit of industrial and economic growth. More specifically, the study focuses on inter-firm learning, in particular between foreign firms operating in South Africa and their local business partners.

In many ways the industrial and economic development in South Africa during the last decades, and related challenges for policy and management, is similar to the experience of other developing countries in Africa, and elsewhere. That is, the import substitution strategies for industrialization, popular in the 1960s and 70's, have failed to produce desired growth rates, and the over-protection of industries has hampered competition and resulted in poor economic performance. In the 1980s, many countries, implementing neo-classical guidelines advised by the World Bank among others, shifted their policies towards trade liberalization. The consequent changes of market conditions have created strong competitive pressure on the companies, which in turn has triggered restructuring processes both within individual firms and

entire sectors. In other words, when facing global competition many industries in developing countries have found themselves being far behind best practice.

At least on the surface, many of the problems and challenges currently facing South Africa are alarmingly alike those encountered in other developing countries, including the rest of Sub-Sahara. Underlying structural factors contributing to low growth rates are, for example, low investment rates by the business sector, shortage of skilled labor, old vintage of capital equipment resulting among others in poor export performance, low R&D activity, and a bias against the small and medium sized business sector (Marais, 1998). At the same time, it must be recognized that the situation in South Africa exhibits some unique traits. While the majority of the people is poor and lives under typical developing country conditions, South Africa hosts an industrial sector that is not small and part of which is technologically advanced. Despite the negative trend in the 1990s, the industry's contribution to GDP remained comparatively high – around 40 percent in 1999/2000, which made it the principal contributor to GDP. [1] Still, however, the industrial development remains closely linked to the success of the mining and agricultural sectors (Habib and Padayachee, 2000). The industry is viewed as competitive in the regional context among SADC countries, but less so from a global perspective.

When the new government was appointed after the first democratic election in 1994, it faced a difficult task to restructure the economy and put it on the right track. Ever since the 1920s, i.e. longer than in most other middle-income developing countries, the South African economy had been highly protected (and for some period isolated as a result of the international sanctions). The policies introduced by the new government aimed at swiftly transforming the previously sheltered economy into an open one facing global competition in many areas. So, for example, the industry was given mere five years to adapt to the tariff reform from 1995. Remarkably enough the target rates were set even below those specified in the WTO agreements (Kaplinsky and Morris, 1999).

Despite the recent years' positive effects of shifting the industrial development strategy from import substitution to export orientation[2], the gains both in quantitative and qualitative terms have been less than expected. The study by Kaplinsky and Morris (1999) indicates that firms in South Africa tend to be weak in hearing the market; few firms have changed internal production to face up to new competition; there are few signs that large firms assist small suppliers to upgrade their capability or improve the overall supply chain; there is little joint effort among firms (even those with common interests); and firms show weak links with supportive innovative institutions.

A tentative conclusion drawn by Freund (1994) is that South Africa needs more than a trade policy – it needs an overall industrial policy. In other words, it would be a delusion to believe that the tariff system alone is responsible for the situation. Rather, the number of structural problems to tackle are manifold stretching from promotion of new infant industries to strategies for expanding export activities (Lall, 1993). Although the main policy approach, reflected for example in the GEAR document[3], has been dominated by market liberalization

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[1] According to the World Development Report 1999/2000, industry's contribution to GDP was 38% in 1998 sinking from a 50% share in 1980. Sub-Sahara at large stood at 34 % for industry's share in 1998.

[2] For example, exports of elaborately transformed manufactured products have increased from 5% in 1998 to around 30% by mid-2000 (Location South Africa, 2000)

[3] GEAR stands for Growth, Employment and Redistribution Strategy, which is a policy document adopted by the ANC-government in 1996. GEAR is a strategic platform for the economic policy recognizing a market economy and embracing fiscal restraint and a strong, independent central bank. (Heinebäck, 1999)

thinking, the government has taken various initiatives directed at stimulating industrial development and change at the micro level.[4]

Furthermore, the role of Foreign Direct Investment (FDI) as a catalyst for transformation and growth has been recognized. However, despite the revival of FDI in South Africa and the incentives offered to foreign investors, few investments have been carried out in the manufacturing industry, and especially not in the export-oriented one. As shown by various reports, such as the World Investment Report 2000 compiled by UNCTAD, South Africa's ranking in attracting FDI is rather poor. This has forced the government to take a more assertive response to the problem in order to achieve the goal of positioning South Africa as a prime destination for FDI (*Location South Africa*, 2000).

The opening of the market to foreign manufacturers mercilessly revealed the weaknesses of the South African industry in terms of, for example, productivity (costs), quality and service. As a result, many companies have lost market shares or even been forced out of business (with increasing unemployment as a consequence). With few exceptions as it seems, the performance of South African companies is not world-class. Therefore, many of them need to improve their capabilities, if they are to compete successfully at home or in export markets. Improvements are needed in many competence areas, including such as general management, marketing, purchasing production and product development. In this study, the main focus will be on technological capability, which in line with Lall (1987) is viewed as the skills and competence involved in setting up, operating, improving and expanding productive facilities. As shown in numerous studies, upgrading of technological capabilities is a key issue in the pursuit of rectifying industrial performance (Lall, 1992, 1993; Lall and Latsch, 1998).

The need for new approaches

In unfolding the upgrading of capability, it is fruitful to view it as a process of learning. However, learning can take place in many ways. Major improvements can be achieved by intra-firm means, such as training of the personnel, recruiting skilled manpower (if available), and by carrying out in-house research and development (R&D) activities. It can be noticed that the traditional learning literature focuses on the individual firm as the nexus for accumulating capability and various processes leading to learning outcomes. While occasionally stepping outside the firm, it has been preoccupied mainly with formal alliances.

This study, instead, takes it starting point in research on business markets, according to which inter-firm networking within the frame of buyer-seller relationships plays a crucial role for learning and technological development (see, e.g., Håkansson, 1987, 1989; Laage-Hellman, 1989, 1997; Freeman, 1982, 1995; Ford, 1990, 1998).

There is increasing agreement among development economists that local networks and clustering may help enterprises to develop and become competitive (see, e.g., Schmitz and Nadvi, 1995, 1999; Schmitz, 1997). As pointed out by Bell and Albu (1999), growth solely drawing on in-house capability is limited. Our approach is thus based on the assumption that a

[4] For example, it can be mentioned that the Department for Trade and Industry supports individual or groups of companies through various programs or organizations, such as the Sector Partnership Fund, Export Councils, the National Economic Development and Labour Council (Nedlac), and the Fund for Research into Industrial Development Growth and Equity (Fridge). The state-owned Industrial Development Corporation (IDC), which was founded already in 1948 with the purpose of financing industrial development, is since 1994 involved in the development of new sectors. During the last years, the focus has been shifting towards smaller enterprises. To reach black businesses, in particular, IDC has developed special funding mechanisms targeted at empowerment. It can also be mentioned that several of the large state-owned industrial firms, such as ESCOM (electrical utility), have been active in spinning off small companies.

firm's capabilities are linked to the network of relationships – in line with clustering literature - in which the firm is embedded and therefore does not depend solely on the capabilities under the direct control of the firm. This also points to the importance of division of labor in the economy. The degree of specialization among industrial firms and the kind of linkages existing among inter-dependent firms not only affect the possibilities to use external resources and competencies but also the opportunities for learning from others.

In South Africa, as in many other developing countries, there are a number of structural factors that may act as barriers to effective inter-firm learning in business markets (networks). First, due to the limited number of technologically advanced firms within the country, it may be difficult to find competent partners (as a result of the previous isolation and sanctions, even the performance of the best companies is often inferior to leading manufacturers in the global market). Second, it seems that the division of labor in industry is less far-reaching than in more advanced industrial countries, which also would limit the potential for interactive learning in relationships. Marcus and Basson (2001), who found that South African firms tend to rely on in-house resources for developing innovations, observe this. Third, South African firms tend to do business with each other at arm's length distance. It means that close relationships between suppliers and customers are less common than in many other parts of the world. That the dynamics of business relationships is still an unresolved issue was corroborated in a pilot study carried out by the present authors in 2001.

Against this background it can be concluded that there exists a large potential to improve the interactive learning in South African industry, and by that means also increase its competitiveness. It is further hypothesized that foreign firms operating in South Africa, under the right conditions, can make important contributions to capability development in the country. They can contribute to this not only by internally upgrading their production processes and products. In addition, by interacting with local suppliers, customers and other external parties, they can help these firms to raise their technological (and other) capabilities. Of special importance in this context are foreign firms belonging to large, international groups. Through their relationships with parent and sister companies abroad these firms have access to valuable technologies and skills that their South African counterparts may lack. Even if these foreign firms, as one can expect, are profit-driven, it can be in their own interest to help local business partners to learn. For example, by building up a competent base of local suppliers, their own competitiveness can be enhanced. And if their customers in South Africa become more capable, this may have positive effects on their own business.

In summary, we are convinced that interactive learning taking place between foreign firms and their local business partners can play an important role in developing the technological capabilities of South African industry. This holds both for "old" companies, many of which have difficulties in coping with foreign competition, and for the new black empowered companies that have been established more recently. Not least with regard to the latter, there is a tremendous need to improve capabilities. The problem is that interactive learning does not come automatically, as manifested in the linkage institutions present today.[5] It is necessary for both parties in a relation-ship to have the right attitudes and insights as well as the ability to establish and carry out fruitful cooperation. There must also be an environment that supports such a behavior. In other words, how is the companies' willingness and ability to engage in inter-firm learning affected by, for example, business practices, institutions, government

[5] There are a handful institutions that have as their main goal to link up businesses, in particular small and large ones, such as BON, BLUE, BOC, AOI, and Thekweni (Kukard, 1999).

policies, and cultural factors? There is thus a need to get a better understanding of the prerequisites for inter-firm learning in South Africa and how the conditions can be improved in various ways, for example by the government.

Theoretical points of departure

Since the emphasis of this study is on linkages in the industrial system and the role played by inter-organizational learning mechanisms in technological capability development, we have chosen two analytical approaches that allow us to capture the variety and complexity of such learning processes, especially in periods of rapid transition. However, the study is as well deeply root-ed in earlier thinking on industrial development (see, e.g., Lall, 1992; Stewart and James, 1982; Herbert-Copley, 1990)

The first building block consists of *the technological capability literature*. It springs from two disparate strands: (1) capability concerning the learning process in developing countries (see e.g. Lall, 1990, 1992; Herbert-Copley, 1990) and (2) work on firm competence and organizational learning, mainly based on the experience from the industrialized hemisphere. The latter is represented in a plethora of writings originating from various schools of thought. The recent developing country strand of literature, in a nutshell, considers that the acquisition of technological capabilities is a learning process (Lall, 1990). This process, however, is slow due to its cumulative nature, but can be speeded up or even further retarded by a number of factors. Nonetheless, there are inherent features of both the technology in question and the learner, which have fundamental impact on the speed of learning. This brings us back to the issue of learning, which is viewed as closely related to existing knowledge and practices. That is, learning takes place based on what the learner - the firm - already knows and the firm's current area of activity. The lesson for industrialization is that it draws heavily on already existing technology and capabilities and that success depends on how these resources are mobilized for continuous learning. The weakness of the mainstream capability literature is its focus on the firm having unique capabilities and the concomitant preoccupation with intra-firm mechanisms. But as already observed, there are a few exceptions which mainly spring from other schools of thought, such as the technological systems and industrial network approaches. The rationale for emphasizing these approaches is the prevailing structural conditions enabling or restricting learning, in particular in a Sub-Saharan context having few 'teachers' and equally low number of 'fellow students'. Håkansson (1993), Lundvall (1988), Lundvall and Johnson (1994), and von Hippel (1988) are some studies that may serve as a bridge between the intra-firm perspective of the capability literature and the aspects considered in the industrial network approach. This bridging is necessary, since the latter approach does not explicitly discuss learning or firm capability.

The second building block is thus *the industrial network approach*. It deals with interaction among firms in business markets, for example in the context of technological development (see, e.g., Håkansson, 1987, 1989; Laage-Hellman, 1989, 1997; Biemans, 1991; Wynstra, 1998). The unit of analysis is rather the inter-firm relationships than the firm itself. The firm's capability is a mirror of its relationships with other firms and institutions. The emphasis is thus on interaction through the means of business relationships. The starting point, or the basis for establishing these relationships, is customarily the flow of goods and services, which may lead to conditions conducive to interactive learning. Still, there have been only a handful of studies applying a network approach to studying industrial development in developing countries. Existing literature on networks in Eastern Africa includes Bångens (1993, 1998), Ærø (1992), and Hewitt and Wield (1997). Hewitt and Wield argue that a wide range of institutions are relevant to industrial development, in particular support organizations

that can play the role of 'bridging' between various actors. However, there are still a number of issues that have to be clarified, such as how this bridging should take place and why firms should engage in learning relationships.

Objectives and expected significance of the research

The overall purpose of the study is to examine how inter-firm (interactive) learning, in particular between foreign firms and their local business partners, can contribute to the development of technological capability in South African industry. In the light of theoretical review and the specific South African context, four research questions emerge:

1. What are the preconditions for inter-firm learning in South African industry?
2. How can inter-firm learning, in a South African context, be used to develop technological capability in different types of firms and industries?
3. What implications can be drawn for business management?
4. What implications can be drawn for policy formulation?

The study intends to highlight important factors that affect the transfer and diffusion of skills and knowledge between firms as well as the joint creation of new capabilities. With regard to policy, it is expected that the study will produce deeper insights in how a 'learning economy" can be brought about. These findings will be useful in proposing policies conducive to industrial development and economic growth in South Africa.

Methodology

This is a three-year project (2002-2004) carried out in cooperation between Chalmers University of Technology in Gothenburg (Sweden) and Wits Business School in Johannesburg (South Africa).

To be able to draw valid policy and management implications, tentatively three sectors of industry have been selected for in-depth study:

1. Mechanical and electrical engineering
2. Telecommunications
3. Information technology (IT)

The choice was based on linkage dynamics as well as on these sectors' characteristics of technological capability and the nature of local and international linkages for the respective technology. Different methodological approaches will be applied for each sector, embracing the use of secondary data, cross-sectional data, and primary data through case studies or survey methods. The main data collection, though, will be done through in-depth interviews to enable us to probe into complex issues and create a holistic picture of the factors driving linkage creation. Interview manuals rather than questionnaires will guide the data collection.

The first sector is represented by firms such as Asea Brown Boveri (ABB), Atlas Copco, Electrolux, Sandvik, Scania, SKF, and Volvo Trucks, which were all covered by the previously mentioned pilot study. In this sector, local supplier capability is crucial and to a great extent dependent on the transfer of knowledge from the foreign company. The firms are global players, which affect their linkage 'behavior' towards local suppliers. This is a sector having great potential of backward and forward linkages, but is increasingly being linked to the global sourcing network (which puts huge pressure on local industry to stay competitive).

The telecom sector is currently being privatized and growing at a fast rate. It has been the top sector for foreign investment (*SA Insider*, 1997) comprising investors such as Alcatel, Ericsson, Siemens, ATC, TEMSA, MarPless, Nokia, etc. However, the state-owned operator, Telkom, is the determinant for investment activity controlling the landlines and having equity in Vodacom (the largest supplier of wireless services). The sector has already established itself in the local economy by attracting a large number of SME suppliers providing telecom services.

The IT sector has in a very short period of time generated a great number of job opportunities and proven to be globally competitive. For example, Dimension Data has been the fastest growing South African firm in the late 1990s. A number of foreign firms have set up offices in South Africa, but the local IT industry is growing as well. The government is committed to support the IT development as a step towards a knowledge society.

Some preliminary results

As already mentioned, a pilot study was carried out in 2001 as a preparation for the present project. In total, some twenty interviews were carried out with representatives of Swedish/foreign companies[6] and various organizations – Swedish as well as South African[7]. Below follows a short summary of some findings.

An overall impression was that there is a considerable political aura in the current discussion on the future developments of industry (in particular the role of small black businesses), which tended to affect the interviewees' opinions. That large and specifically foreign firms have a pivotal role in transforming the industrial sector into a modern and globally competitive one was in general agreed upon. There have been a number of government initiatives to support small and medium size enterprises (SME) to enter into the formal sector through various acts and programs aiming at competence building. There is no law stipulating local content for Multinational Corporations (MNCs) operating production facilities in South Africa, but the government is trying to influence these firms by other means, e.g., by offering allowances for strategic investments having significant effects on the competitiveness. Furthermore, incentives for inter-firm development project are provided through various funds, such as the Sectoral Partnership Fund, and the Swedish-South African Business Partnership Fund. BON, a Western Cape non-governmental organization, is an additional example of efforts to induce linkages, in particular between large and small firms. Another tool used by the government in order to stimulate local production is different customs duties applied to components compared to finished products. In the automotive industry, for example, there is now a gap around 7-8 percent, which seems to have had some effects. Furthermore, companies exporting cars from South Africa are allowed to import cars (completely built units, CBU) duty free on exemption basis as a reward linked to export volumes.

Many of the MNCs established in South Africa since long had pursued a "wintering policy" during the sanction years. When South Africa in 1994 opened up and became accepted as a legitimate trading partner by the world community, these companies often chose to reintegrate the South African operations in their global production organizations. Due to increasing foreign competition in the local market and the MNC's own demands on

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[6] Asea Brown Boveri, Atlas Copco, Electrolux, Ericsson, Sandvik, Scania, SKF, and Volvo.

[7] The Swedish Trade Council, the Swedish Business Association, the Swedish-South African Business Partnership Fund, Department of Trade and Industry (in Pretoria and Cape Town), National Research Foundation (NRF), National Productivity Institute (NPI), Industrial Development Corporation (IDC), the South African Chamber of Business (SACOB), Wesgro, and Business Opportunities Network (BON).

profitability a considerable restructuring of the operations was often necessary. This has resulted in numerous plants being closed down or substantially downsized (the latter often without reducing the output, which proves that large productivity gains have been possible to achieve by relatively simple means). In lucky cases, it has been possible to transform the South African plant into an integrated member of the MNC's global supply chain, for example, by giving it worldwide responsibility for certain products. It can be mentioned that Daimler-Chrysler and BMW have located all production of certain right-hand driven cars to South Africa. Ford is producing all exhaust systems for one of its models in South Africa.

Initially, the need for learning was not strongly perceived by South African firms in general. They were used to benchmark against competitors in sub-Saharan countries and felt that the lead in these regional markets was a sign of competitiveness. Increasingly, however, firms have recognized the need for adjustment but found little or no guidance in the transformation process. In fact, most successful cases of industrial restructuring have taken place within MNC subsidiaries, but with spillover effects on local suppliers and customers. Existing competence within the MNCs was sometimes brought in from abroad for the readjustment, but in most cases it was based on the local capability of the South African plant. That is, unless the competence "platform" was sufficient at the outset, the change process could not have been carried out successfully in just 2-3 years. Thus, a prerequisite for the local subsidiary to succeed in upgrading its internal capability is the parent company's capability and its vision of the South African market, but also the establishment of efficient supplier networks.

As there is no means in itself to purchase locally, as seen from an MNC's point of view, local sourcing policies and practices have been reviewed in the search for competitiveness. While some firms are striving for maximum local sourcing, e.g. in order to avoid high costs for importing (bulky and/or unsophisticated products) from abroad, others prefer, for quality and/or cost reasons, to import more technically advanced products. In order to develop the capability of local suppliers (or distributors/customers), some firms have tried to establish long-term cooperative relationships. However, this has often proved to be difficult. One explanation, it is believed, is that there exists an inherent (possibly culturally based) mistrust between buyers and sellers in the South African market. Another reason is the widespread reluctance of SMEs to make investments, which in turn depends on the scarcity of finance and the lack of belief in the future.

This additional caveat draws on the capital requirements for technology upgrading that have to be weighed against future earnings. The perceived uncertainty with regard to the future of the South African economy is a prime barrier to capability improvements by delaying needed technology investments. Short-term considerations prevail which may lead to an even further lagging behind process in industry. A related issue is the emphasis on growth rather than technology accumulation often pursued by South African firms.

A further observation is that, so far, the South African industry has been dominated by big business. In order to create a more diversified and flexible industrial structure, that can offer job opportunities to the large mass of unemployed, there is a need to develop the SME sector. The large firms (including the foreign ones) can contribute to this development by outsourcing certain activities to SMEs, run e.g. by previously disadvantaged entrepreneurs. Some large firms have in fact adopted a strategy to source more from black empowered companies. A major problem, however, is that such suppliers do not always exist or, if they do, often have inadequate capabilities to meet customer demands. To remedy this, some of the investigated companies (e.g., ABB and Ericsson) have contributed to the development of the local industry by spinning off activities or entering into joint ventures with black enterprises.

A rampant problem is the situation in the SME sector itself, in South Africa characterized by low technology capability business (most black SMEs supplying to MNCs are basically in

the service sector). The SMEs often lack the confidence to sell services and products to large MNCs and seldom know the requirements set by the latter's purchasing departments. This is currently being addressed, among others, by BON in Cape Town that help small businesses tendering to large firms.

Concluding remarks

This paper comprises an effort to start understanding the preconditions for inter-firm learning in South African industry, in particular learning processes taking place between MNCs and their local suppliers and customers. Apart from the empirical observations mentioned above, there are a few general lessons for policy to be learned.

A first lesson is the effect of the trade policies favoring the shift towards a "market economy" with less tariff protection and domestic price control. A key consequence of the economic transformation is the restructuring taking place in the industrial networks. The process was started in the mid-1990s after the new regime was in place and has affected large MNCs as well as local small businesses. The opening up of borders has entailed an abrupt awakening of the South African industry that for many years had been protected from foreign competition. The MNCs have responded swiftly by either turning their South African operations into world-class units or closing them down.

A second lesson is the political influence on this transformation process by the government's introduction of policies promoting previously disadvantaged groups. The black empowerment policies affect small as well as large businesses, but have so far had little influence on the industrial restructuring. The issue at stake has been 'ownership' rather than competence and capability, which seems to have had negative repercussions on the development process.

In conclusion, the two prime "policy problems" draw on ownership and market related issues. Thus, there has been little in the policy set up that acknowledges the phenomenon of inter-firm learning as a 'policy problem'. Few resources have been allocated to the creation of networks, which therefore has become an intra-industrial concern (apart from the BEE initiative[8]). Drawing on our preliminary results three network-related policy problems can be identified. The first one is the existing division of labor among firms that determines the opportunity for learning from others. Obliviously, highly integrated firms will not be exposed to suppliers' or customers' pools of knowledge and therefore being confined to in-house competence. Currently, the MNCs operate under the most efficient division of labor as perceived by the MNCs themselves, i.e., not from a South African or BEE perspective. A second policy problem is local suppliers' competence. In order to remain in the buying MNC's network, the local suppliers must qualify according to global requirements or benchmarks. A third policy problem has to do with the 'lock-in' effect of networks implying that once an operational network is in place, there is inertia in terms of entry as long as the principles (conducts) of business is adhered to. Thus, firms not being part of the MNC's sourcing network find it difficult to 'break in' due to technological requirements and specifications set by the global production network.

One tentative conclusion emerges from the preceding analysis. To trigger inter-firm learning, in the absence of conditions that provide opportunities to link firms' pool of resources, is problematic. Network creation by MNCs draws partly on global policies but is primarily shaped by the local context. Purchasing strategies and business practices affect the

[8] BEE stands for Black Empowered Enterprises.

character of local networks. Thus, the experience and capability of the local subsidiaries constitute key determinants for setting the conditions for inter-firm learning. Although much institutional support is lacking in the South African industrial environment, the initiatives taken by individual firms do lead to enhanced learning among local suppliers and customers.

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