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Table of Contents

Business Incubator Explanations: Networking and Gender Differences

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ABSTRACT

Research investigating gender differences in small business performance has frequently shown women-owned businesses to be smaller in terms of sales, profits and number of employees (Cooper, Gimeno-Dascon, & Woo, 1994; Kalleberg & Leicht, 1991; Loscocco & Leicht, 1993; Watson & Robinson, 2003). One reason for this may be social networks that are not as diverse and useful as men's networks, making it more difficult for women to access external business resources. Business incubators attempt to enhance tenants' networks, and thus increase access to needed resources. In this theoretical paper, it is argued that even though all incubatees are likely to benefit from networking assistance, it may be especially useful for women with less

diverse networks. Suggestions for future research based on this conceptual framework are also presented.

INTRODUCTION

In many countries, the vast majority of businesses are small or medium enterprises (OECD, 2003; Reijonen & Komppula, 2007). Many, however, fail to thrive or cease operations completely within the first few years (Monk, 2005). Just being small is a disadvantage given that firm size is associated with performance. Larger businesses tend to reap higher sales and profits (Alowaihan, 2004; Kalleberg & Leicht, 1991; Loscocco, Robinson, Hall, & Allen, 1991) as well as achieving higher growth in assets (Glancey, 1998). A variety of studies (Alowaihan, 2004; Cooper et al., 1994; Kalleberg & Leicht, 1991; Loscocco & Leicht, 1993; Morris, Miyasaki, Watters & Coombes, 2006; Watson & Robinson, 2003) have shown that women-owned businesses in particular tend to be smaller, earning lower sales and profits than men-owned businesses.

Although new small firms usually have very limited resources, contact with the right people can lead to additional resources and thus improve a company's chances of success in terms of survival and sales (Aldrich & Zimmer, 1986, 1987; Baum, Calabrese, & Silverman, 2000; Bruderl, Preisenorfer & Ziegler, 1992; Brush & Chaganti, 1999; Chandler & Hanks, 1998; Cooper, 2001; Dubini & Aldrich, 1991; Lerner, Brush, & Hisrich, 1997; Miller & Besser, 2005). Men have traditionally enjoyed stronger networking positions, thus putting women at a relative disadvantage and possibly leading to gender-based differences in business establishment and performance (Aldrich, 1989; Burke, Rothstein, & Bristor, 1995; Ibarra, 1993). Indeed, the period during which an entrepreneur starts a new business is a difficult time.

Business incubators have been given this title because they help start-ups with the process of growing a new-born business. Bergek and Norrman (2008) have categorized the services into three related resources: infrastructure, business support, and mediation. Infrastructure includes physical business facilities, office equipment, and other tangible items new business need, but cannot necessarily to buy on their own. Business support refers to the intangible resource of managerial advice and education that are equally essential to success. Mediation, which is assistance with networking, contributes to the other two resources as tenants are introduced to others outside the incubator who can provide physical resources or services. For example, if an incubator cannot provide specialized accounting advice, tenants can be introduced to outside accountants with the needed knowledge. According to an incubator manager in Pennsylvania, USA, an appointment with a popular service provider may take weeks to get, but he may be able to arrange a same day meeting because of his network ties to local professionals.

As business incubators help entrepreneurs of both genders access resources, make decisions, and develop strong networks (through mediation), gender differences in network quality and other problems may be reduced or even minimized. This paper therefore argues that incubators may be especially useful in assisting women entrepreneurs because incubators provide help in improving business networks and thus increasing chances of success. The following sections present an examination of the role of networking in small business performance, women's networking disadvantages, and how business incubators seek to improve the chances that start-ups will survive and thrive.

THE IMPORTANCE OF NETWORKING FOR NEW FIRMS

Networks are becoming increasingly important as they provide firms with access to markets, information, technology, and other resources

(Farr-Wharton & Brunetto, 2007; Greve, 1995; Gulati, Nohria & Zaheer, 2000; Hoang & Antoncic, 2003). Start-ups are especially dependent on their networks of personal relationships when making decisions and solving problems (Taylor & Thorpe, 2004). Successfully accessing and integrating external resources may thus create value for the firm (Achrol, 1997). New firms can increase their chances of survival and performance by establishing alliances and developing them into an effective network (Baum et al., 2000; Bruderl & Preisendorfer, 1998).

One result of networking can be the development of social capital, which essentially consists of the "resources individuals obtain from knowing others, being part of a network with them, or merely being known to them and having a good reputation" (Nahapiet & Ghoshal, 1998, p. 107). Networks thus provide not only access to the resources of direct contacts, but also indirect access to third parties and their resources. In certain industries, such as creative and professional business services, networks and contacts have been found to provide an indication of an entrepreneur's standing and reputation (Silversides, 2001). The people in a network and the relationships among them can therefore be very important to entrepreneurs, as shown in the following section.

Network Structure and Quality

Two primary characteristics of a network are its structure, meaning the people in the network, and its quality, which pertains to the strength of the relationships among the people in the network (Galunic & Moran, 1999; Granovetter, 1992; Hoang & Antoncic, 2003; Johannisson, 1987; Rindfleish & Moorman, 2002; Rothaermel, 2001; Zhao & Aram, 1995). Strong relationships are important to entrepreneurs because "higher levels of relational embeddedness facilitate the utilization of information" (Rindfleish & Moorman, 2002, p. 5). Other advantages such as increased trust and cooperation also

flow from high quality networks (Larson, 1992; Zhao & Aram, 1995). People tend to meet more often and for longer periods of time with the people with whom they have strong ties. The frequency of contact between two people in a network has therefore been used as a measure of network strength because relationships develop over time with more frequent contact (Dyer & Singh 1998; Granovetter, 1992; Marsden & Campbell, 1984; Nahapiet & Ghoshal, 1998; Rindfleisch & Moorman, 2001, p. 3; Tsai & Sumantra, 1998; Uzzi, 1997; Zhao & Aram 1995). In his seminal work, Granovetter (1973) classified network ties as either weak or strong based on the frequency of contact because he determined that friendship and reciprocity were associated with how often people meet. Relationships with friends and family were thus categorized as strong ties because of frequent contact and emotional closeness. In contrast, ties among business associates, consultants, and other such contacts were classified as weak ties because of less frequent contact. However, Granovetter (1973, p. 106) contended that "the strength of weak ties" was very important in that "individuals with few weak ties will be deprived of information from distant parts of the social system and will be confined to the provincial news and views of their close friends." It is therefore important for small business owners to have contact with a diverse group of formal sources such as marketers, bankers, etc., in order to access information they cannot normally gain from informal sources such as friends and family.

Using data from a survey conducted by the Australian government, Watson (2007) organized relationships into categories based on formal sources (banks, business consultants, external accountants, industry associations, Small Business Development Corporation, solicitors/ lawyers, the tax office) and informal sources (family and friends, local businesses, others in the industry) of information. In Watson's study, bankers and accountants were the most common sources of information. However, others (Robinson & Stubberud, 2009; Smeltzer, Fann & Nikolesean, 1988) have shown that small business owners

were more likely to use informal sources of advice such as family, friends, and professional acquaintances.

Small business owners who have networks with a variety of different types of contacts can more easily gain information to solve business development problems, thus increasing their prospects for survival and growth (Aldrich, 1989; Burt, 1982; Renzulli, Aldrich & Moody, 2000; Smeltzer, Van Hook & Hutt, 1991; Zhao & Aram, 1995). A large network does not necessarily ensure a broad range of contacts, but network size has been found to positively influence both business founding and young firm performance in that a higher number of contacts will likely to lead to more information (Aldrich, Reese & Dubini, 1989; Baum et al., 2001; Galunic & Moran, 1999; Greve, 1995; Rothaermel, 2001). Greve and Salaff (2003, p. 14) found that "the discussion networks with a large percentage of family members are significantly smaller." This would also indicate a low level of diversity.

There is, however, a practical limit to the size of a network that is useful. Deeds and Hill (1996) found a curvilinear relationship between network size and performance, suggesting that too many contacts is as bad as too few. Similarly, Watson (2007, p. 870) determined that to a certain extent, a greater number of contacts was beneficial, but that "accessing more than six networks during a year is likely to be counter-productive," as would "accessing any individual network on more than three occasions during a year." In the aforementioned study, Greve ad Salaff (2003, p. 14) also found that the percentage of family in the discussion network "had a significant negative relationship with the time spend on developing contacts." This is logical because family members are likely to be more readily accessible, thus requiring less time to contact them.

The size of a network, the diversity of network actors, and strength of relationships are all important, but still only show part of the overall picture. Although frequency of contact has often been used as an indicator of relationship strength, others (Frenzen & Nakamoto,

1993, p. 369; Zhao & Aram, 1995) contend that it is not sufficient as the sole measure of network quality because the opportunity to interact does not in itself guarantee the exchange of *useful* information. For example, a strong tie with a friend with whom an entrepreneur interacts frequently is not necessarily helpful in a business setting, whereas a weak tie with business consultant would be expected to yield more valuable information. Relationships among businesses, customers, suppliers, creditors, friends, family, and others parties will therefore have varying tie strengths depending not only upon the frequency level of contact, but also upon the reciprocity of the exchange (Aldrich & Zimmer, 1986; Zhao & Aram, 1995). Zhao and Aram (1995) therefore examined relationships according to the "amount of resources obtained" as well as frequency of contact.

Nebus (2006) contends that the most favorable situation is one in which social contacts such as friends and family also happen to be experts because although social contacts are easier to access and communicate with, experts are more likely to have valuable information. There is therefore a trade-off to be made between the quality of information and the cost (including time) of obtaining it (Haas & Hansen, 2005). Women have been found to network more (Rosa & Hamilton, 1994), but given that women tend to use their family and friends as their primary advisors, the information derived from their contacts may not be as useful in business settings as that yielded by men's networks, as will be addressed in the following section (Brush, 1997; Robinson & Stubberud, 2009).

Networking for Women and Men

In comparison to women, men have traditionally enjoyed stronger networking positions that are more beneficial to starting and management a new business (Aldrich, 1989; Burke et al., 1995; Ibarra, 1993). Most entrepreneurs start their businesses after they have worked for several years. This means that previous jobs and

experiences influence network structure, especially in occupations still dominated by one sex (Aldrich, 1989).

Given that both men and women tend to interact with people of the similar gender (Brass, 1985; Burke et al., 1995; Sandberg, 2003), it is not surprising that female entrepreneurs typically have more females in their networks than do male entrepreneurs (Klyver & Terjesen, 2007; Renzulli et al., 2000), which can be a disadvantage given that people in positions to help small business are more often men (Aldrich, 1989; Renzulli et al., 2000; Smeltzer & Fann, 1989). Informal social networks (including volunteer associations) also often lead to business contacts and advisors, but are also often dominated by a single sex, thus limiting women's access to these networks (Aldrich, 1989; Brush, 1997; Fielden, Davidson, Dawe & Makin, 2003; McPherson & Smith-Lovin, 1986). The result is that "division and barriers within these spheres significantly limit the reach and diversity of women's networks" (Aldrich, 1989, p. 125).

Women tend to be especially adept at building informal networks with other women (Brass, 1985; Burke et al., 1995; Sandberg, 2003), but a lack of gender-diversity in social networks is more disadvantageous to women than to men because the people with important information, such as bankers, lawyers, and accountants, tend to be men (Aldrich, 1989; Renzulli et al., 2000; Smeltzer & Fann, 1989). Hisrich and Brush (1986) found that men claimed advisors such as lawyers and accountants among their most important supporters, with spouses second. In contrast, women reported that their spouses were their most important supporters, followed by close friends. In a related study (Smeltzer & Fann, 1989), women were more likely to use other women than other men as information sources. In a study of successful European business owners, Robinson and Stubberud (2009) found that women most often used friends and family as their primary source of advice, whereas men were more likely to use professional acquaintances as a source of advice. These results were similar to

those of an American study (Renzulli et al., 2000). Considering the research on men's and women's networks, it is possible that the women business owners did not have as many professional acquaintances who could provide useful business advice, so they relied on friends and family members. Business incubators not only provide valuable business advice to their tenants, but also attempt to help them develop their social networks. While both men and women entrepreneurs can benefit from this mediation process, given the above disadvantages women face, women business owners are likely to benefit most from this service.

Business Incubators as a Networking Aid

Business incubators provide start-ups a nurturing environment, hands-on assistance, and a variety of other services during their first years of development. Incubators have been given this title because they foster the development of new companies, helping them survive the start-up period, when they are most vulnerable, and grow more quickly into successful firms (Finer & Holberton, 2002). While the primary purpose of an incubator is to help establish and accelerate the successful development of new businesses in a community (Finer & Holberton, 2002; Sherman & Chappell, 1998), incubators and their tenants can also create jobs and commercialize new technology, thus creating wealth and tax revenue while simultaneously revitalizing neighborhoods and empowering women, minorities, and low-income individuals to develop better lives for themselves (Boyd, 2006, p. 3). The following section provides additional background on business incubators, especially their role in improving tenants' networks and overall social capital.

Incubator Services

Bergek and Norrman (2008) categorized incubator services into three categories that include infrastructure, business support, and

mediation. As the term suggests, mediation involves connecting incubator tenants with external resources such as lawyers, accountants, marketing professionals, bankers and investors (Bergek & Norrman, 2998). Infrastructure consists of the physical facilities and general administrative services. To many people, these facilities "are" the incubator, but the intangible services are highly important as they increase the probability of survival and improved entrepreneurial performance (Bollingtoft & Ulhoi, 2005; Hansen, Chesbrough, Nohria, & Sull, 2000; Lee, Lee & Pennings, 2001; Peters, Rice, & Sundararajan, 2004; Smilor, 1987). Past studies have concluded that 90% of business failure in the United States could be attributed to a lack of experience and management skills (Humphreys & McClung, 1991; Schwartz, 1976). The business support (managerial counseling) provided by incubators can substitute for direct experience and help business owners acquire useful knowledge and overcome deficiencies (Aldrich et al., 1989; Miller, Besser & Riibe, 2006/2007). In fact, Peters et al. (2004) state that the success of incubators relates mostly to the presence or absence of coaching and access to networks. However, because this is a personal, social process, a firm's network development will be influenced by the entrepreneur's own personality, traits, and attitudes, as network embeddedness does not simply occur naturally, but must be developed (Johannisson, 1987).

Networking in Incubators

Incubators "serve as a network node point for relationships with important external consultants such as tax accountants, patent and other lawyers, business consultants, marketing and public relation firms" (Lender, 2003, p. 6). Through this networking assistance, incubators provide access to critical resources such as knowledge, technology, financial capital, and both human and market resources, providing faster and better decision-making (Bergek & Norrman, 2008, p. 24; Hansen et al., 2000). Lender (2003) states that incubators embed

start-up companies in networks much more quickly than would occur otherwise, which then allows new ventures to further develop their own set of relationships. With physical facilities and vital networks in place (or more easily developed), entrepreneurs can concentrate on growing their businesses.

Shahidi (in Lewis, 2001, p. 15) found that technology incubator tenants had more opportunities for networking than did similar non-incubated firms. These network ties were related to improved chances for obtaining equity capital, grants, and seed money. Likewise, Lichenstein (in Lewis, 2001, p. 14) found that the relationships that tenants developed because of their incubator residence led to increased sales, lower costs, enhanced capabilities, and overall reduced risk. On a similar note, the most frequently named benefit of incubator tenancy was the moral and psychological support incubatees received. Incubatees considered the relationships with other tenants as well as with the incubator manager and other individuals associated with the incubator to be highly valuable benefits.

Indeed, external networks are not the only ones that are useful to incubatees, as tenants share a unique relationship (Bollingtoft & Ulhoi, 2005; Brooks, 1986; McAdam & McAdam, 2006, Miller & Besser, 2005; Neck, Meyer, Coben, & Corbett, 2004). Sherman and Chappell (1998) found that almost one-fourth of incubated firms in their study had developed a subcontract or other arrangement with a fellow tenant, and one-sixth had collaborated with another company in the incubator. These relationships facilitate the move of knowledge and expertise between small start-ups, thereby stimulating fruitful relationships (Hansen et al, 2000). Information and resources exchanged among network members influence the firm's business strategy and actions, strengthening or enhancing the firm's effectiveness (Butler & Hansen, 1991). In fact, most small businesses responding to a small business survey (National Federation for Independent Business, 2003) indicated that they initially patterned themselves after other businesses.

Incubator tenants observe each other and pick up strategies that generate success (Sevon, 1996). Network ties, therefore, seem to play a key role in facilitating the design and implementation of firm growth strategies and entrepreneurial performance (McAdam & McAdam 2006).

Issues in Incubator Networking

Although the potential benefits of networking are clear, they are not automatically guaranteed by simply being located in an incubator (Johannison, 1987). Hansen et al. (2000, p. 75) state that without a focus on networking, an incubator is "little more than a place to set up shop." Entrepreneurs may hold the attitude that they are in the incubator to run their own businesses and are too busy working to socialize with other tenants. This may be related to the layout and operation of some incubators. Rather than promoting networking, some layouts encourage entrepreneurs to hide in their offices rather than to interact with other incubatees. Johannisson (1987) showed that incubator tenants can be slow to share ideas and there are often no mechanisms to encourage interaction. If the incubator itself does not promote it, incubatees themselves must take a proactive stance toward networking due to the fact that all entrepreneurs are busy and time is a crucial resource for everyone.

Given the potential, but not necessarily realized, benefits of being in an incubator, Hansen et al. (2000) state that incubator tenancy is not right for everyone. Entrepreneurs who already have "strong personal connections to the right industry players" or do not need to move quickly may not need the services of a networked incubator (Hansen et al., 2000, p. 81). Women, however, are less likely than men to have these strong personal connections (Aldrich, 1989; Brush, 1997). For them, incubator tenancy may be particularly effective because an incubator can link them with lawyers, accountants, and other formal sources of information, thus increasing the diversity of their networks.

This is particularly important for women, whose networks are less likely to be diverse (Aldrich, 1989; Brush, 1997), consisting more of personal contacts such as friends and family rather than formal sources. Lower quality networks with less varied structure can make it more difficult for them to access business advisors (Aldrich, 1989; Carter & Shaw, 2006; Carter, Williams, & Reynolds, 1997; Miller et al., 2006/2007). With the help of an incubator, women's networks may become as diverse as men's, equalizing this disparity. In the following section, five propositions based on this theoretical framework are presented.

PROPOSITIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Based upon the previously presented theory, networks are considered an important factor in small business performance because they provide access to external resources (Granovetter, 1973; Hoang & Antoncic, 2003; Jarillo, 1988). However, due to factors such as sex-segregation in jobs, formal associations, and informal networks, women are often at a disadvantage when it comes to the range (diversity) of contacts within in their networks and the quality of their networks based on usefulness to starting a business (Aldrich, 1989; Hisrich & Brush, 1986; McPherson & Smith-Lovin, 1986). This leads to the proposition:

P1a: Organizational networks of men-owned businesses that have not received incubator support will have greater diversity than those of women-owned businesses that have not been incubated.

P1b: Organizational networks of men-owned businesses that have not received incubator support will be of higher quality than those of women-owned businesses that have not been incubated.

Business incubators are in themselves a special kind of network in that they link tenants with useful resources, advisors, etc. This can help incubatees increase the diversity of people in their networks. It is therefore expected that the networks of entrepreneurs that are/were in incubators will have a greater diversity and be of higher quality than those that have not benefited from this type of support. It is proposed that this will be especially true for women, resulting in a minimization, if not complete elimination, of gender differences in network range among incubator tenants. Therefore, the following propositions are presented:

P2a: Organizational networks of women-owned businesses that have received incubator support will have greater diversity than those of women-owned businesses that have not been incubated.

P2b: Organizational networks of women-owned businesses that have received incubator support will be of higher quality than those of women-owned businesses that have not been incubated.

P3a: Organizational networks of men-owned businesses that have received incubator support will have greater diversity than those of men-owned businesses that have not been incubated.

P3b: Organizational networks of men-owned businesses that have received incubator support will be of higher quality than those of men-owned businesses that have not been incubated.

P4a: There will be no significant difference in the organizational network diversity of women- and men-owned firms that have received incubator support.

P4b: There will be no significant difference in the organizational network quality of women- and men-owned firms that have received incubator support.

Following the work of Zhao and Aram (1995), it can be further expected that greater network diversity will be associated with higher performance, leading to the proposition:

P5a: Organizational network diversity will be positively correlated with business performance.

P5b: Organizational network quality will be positively correlated with business performance.

Based on the literature, we propose that differences in women's business performance may be due, at least in part, to less-useful social networks. As business incubators help women develop better social networks and management skills, their business performance will be more similar to men's. Thus, business incubators can act as an equalizer.

CONCLUSION

Entrepreneurship is important to the economy and society, but the road to small business success is not an easy one. Under the best conditions, new entrepreneurs are likely to find the process difficult, challenging, and consuming of time and energy, and many new small businesses fail to survive and thrive (Cooper et al., 1994; Kalleberg & Leicht, 1991; Loscocco & Leicht, 1993; Watson & Robinson, 2003). In addition to the set-up costs for physical resources, vital intangible resources can also be expensive, if they can be obtained at all. For those who do not have their own knowledge base and experience to

draw from, external sources of knowledge are crucial. Worldwide, approximately one-third of all entrepreneurs are women (www. go4funding.com). The Norwegian government, among others, has established a goal that women will represent at least 40% of all entrepreneurs by 2013 (Handlingsplan for meir entrepreneørskap blant kvinner). However, many women may refrain from starting their own businesses because they do not have diverse, high quality (useful) networks that can help them in the difficult process of establishing a new firm.

Business incubators attempt to increase the chances that new small firms survive the birth stage and grow into self-sustaining businesses that contribute to their local communities. Incubator support can therefore be an important tool to encourage women to start businesses and improve performance of small businesses. This paper has shown, through a theoretical approach, which both women and men entrepreneurs whose start-ups receive incubator support are expected to reap better performance from their businesses than those that have not been incubated. It is further proposed that women in particular will benefit from this type of support as incubators equalize the diversity of networks of women- and men-owned businesses, thus minimizing or eliminating this gender-based difference. Considering the value placed on gender equality, as well as the economic importance of small business, it is imperative to determine if, and in what way, business incubators help entrepreneurs (especially women) solve the problems they face in developing their businesses and thus improve their performance.

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Effects of Partner Characteristic, Partnership Quality, and Partnership Closeness on Cooperative Performance: A Study of Supply Chains in High-tech Industry

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ABSTRACT

Owing to the rapid development of information technology, change of supply chain structures, trend of globalization, and intense competition

in the business environment, almost all enterprises have been confronted with unprecedented challenges in recent years. As a coping strategy, many of them have gradually viewed suppliers as "cooperative partners". They drop the conventional strategy of cooperating with numerous suppliers and build close partnerships with only a small number of selected suppliers. This paper aims to explore partnerships between manufacturers and suppliers in Taiwan's high-tech industry. Through a review of literature, four constructs, including partner characteristic, partnership quality, partnership closeness, and cooperative performance are extracted to be the basis of the research framework, hypotheses, and questionnaire. The questionnaire is administered to staff of the purchasing and quality control departments in some high-tech companies in Taiwan. The proposed hypotheses are later empirically validated using confirmatory factor analysis (CFA) and structural equation modeling (SEM). This paper expects to provide substantial suggestions to enterprises in the high-tech industry and help them develop mutually beneficial partnerships.

Keywords: *partner characteristic, partnership quality, partnership closeness, cooperative performance*

INTRODUCTION

In Taiwan's current business environment, the information technology industry is an industry with the highest business performance and has been considered as the main economic support for local manufacturers. In the present, it is holding certain advantages for future development. However, it has been confronted with numerous challenges in the operation of global logistic management and an increased demand for

research and development (R&D) capacity. In addition to advancement in R&D and processing techniques, entering the global market and cooperating with partners has been more and more emphasized. From the general perspective of supply chains, increase of efficiency in supply chain management, which covers supply chain planning, purchasing, production, delivery, and maintenance, as well as decrease of supply chain management cost are the keys to surviving corporate competitions. Supply chain management is no longer an instrument that facilitates transactions. It has been viewed by many international enterprises as the core of all competitive strategies.

In the past, enterprises tended to cooperate with multiple suppliers to minimize costs and avoid risk concentration. With the change of the environment and industries, many enterprises in nowadays have gradually viewed suppliers as "partners" for the sake of long-term cooperation. They drop the conventional method of cooperating with multiple suppliers and seek closer partnerships with only a small number of them. Therefore, in the current business environment where competitions are intense, how to achieve integration of supply chains is strongly emphasized.

For corporate management, partnership has become particularly important. Before establishing a partnership, enterprises will first evaluate the characteristic and fit of this new partner. The partnership quality influences the closeness of their cooperation (partnership), and such closeness of cooperation (partnership) has potential impact on their cooperative performance. Through an overview of previous studies, we have found that most of them are focused on front-end customer relationship management to help enterprises create customer value and solicit orders. An integrated model has seldom been adopted to explore partnerships between manufacturers and suppliers in back-end supply chain integration.

This paper is then designed to explore the relationship among partner characteristic, partnership quality, partnership closeness, and cooperative performance and construct a research model based on these four constructs. The research focus is placed on high-tech companies (dedicated to R&D or manufacturing of IC, computer peripherals, communications, optoelectronics, and biological technologies) in Taiwan Hsinchu Science Park. A questionnaire survey is conducted on staff of purchasing and quality control departments in these companies. Through this survey, we expect to empirically explore the cooperative relationships between manufacturers and suppliers and provide some substantial implications for the current high-tech industry in Taiwan.

LITERATURE REVIEW

Technology advances at all times. The trends of shortening product life cycles and forming global economic systems have made it difficult for traditional corporate entities to quickly adapt to the ever-changing environment. Those used to fighting alone can hardly survive in the present. Thus, many enterprises have realized the importance of partnership. Instead of cooperating with multiple suppliers, they now try to form close partnerships with only a small number of suppliers to access important resources and seek organizational growth. The following is a review of literature associated with the four constructs adopted in this research, namely partner characteristic, partnership quality, partnership closeness, and cooperative performance.

Partner Characteristic

In the formation of a strategic alliance, partner characteristic is one of the important factors that enterprises consider (Pelton et al., 2001). However, the strategy of forming partnerships is not an elixir and may entail certain risks. A bad partnership may result in a waste

of resources and opportunity costs. Studies have shown that failure of a strategic alliance is partly attributed to a wrong decision made in the choice of partners (Hitt et al., 2000). Besides, lack of strategic and operational fitness between partners may also lead to conflicts, which cause obstruction in information sharing, distortion of truth (Bennet and John, 2001), and even termination of a partnership in the worst case (Serapio and Cascio, 1996). Only careful application of partnership can help enterprises create values. Thus, selecting a right partner is a strategic decision that all enterprises should carefully make when forming a new partnership. The overall fitness between the two parties has significant influence on the performance of the formed alliance. This reveals that partner characteristic is positively correlated with the success of a strategic alliance (Saxton, 1997).

Partnership Quality

According to Crosby et al. (1990), relationship quality is an overall assessment of the strength of a relationship and the extent to which it meets the needs and expectations of the two parties based on a history of successful or unsuccessful encounters or events. Williamson (1979) mentioned that relationship quality can maintain a long-term relationship between buyers and suppliers. It allows buyers to reduce transaction costs and uncertainty over future profits by making long-term commitments to suppliers. Morgan and Hunt (1994) proposed that success of a long-term partnership is built on mutual trust and commitment. More trust means more assurance, while commitment means that a certain amount of resources will be persistently invested, and both parties are willing to maintain the cooperation. For enterprises, building trust and commitment in advance can reduce opportunistic behaviors of their partners and the risk of being used (Hill and Johns, 1995). It can be discovered that a higher level of trust and commitment between partners can reduce uncertainties in future

cooperation, enhance fit of partners, and raise both parties' intention to cooperate.

Partnership Closeness

Kanter (1988) argued that intensive cooperation between two partners may gradually turn a pure trading relationship into a close partnership. Spekman et al. (1998) indicated that in traditional supply chain management, most manufacturers tend to choose their suppliers on the basis of price. They share only minimal cost information and engage in pure market trading and short-term contracts. In today's supply chain management, many traditional concepts have been revolutionized. Share information with partners to jointly enhance their capabilities is now considered a must. By doing so, a win-win situation can be ultimately created, with the profits of both sides be maximized. In a study of the automobile industry, Perez and Sanchez (2001) proposed that the relationship between suppliers and customers in this industry is unique from those in other industries. For some suppliers, their relationship with customers is more like a strategic partnership. For others, it is more like a market exchange. The difference between the two models lies in transfer of information and technology, long-term trust and commitment, and supplier's involvement in product development.

Cooperative Performance

In this paper, cooperative performance is a measure of cooperative relationship between manufacturers and suppliers. Previous studies on strategic alliance performance are employed as a basis of this measure. There are generally two approaches to evaluating the performance of a strategic alliance, and these two approaches are respectively based on subjective performance and objective performance. Both approaches are commonly adopted in the academic arena. The approach based on objective performance measures the performance of an alliance by

sales growth and market share (Aulake et al., 1996). The approach based on subject performance takes into account satisfaction of members in the alliance, expected return, degree of harmony and mutual trust, perceived managing capability of the alliance, sustainability of the alliance (Beamish, 1984; Yan and Gray, 1994). Chakravarthy (1986) mentioned that performance of an alliance cannot be measured simply by profitability of a company, satisfaction of interested parties and quality of transformations should also be considered. Each alliance may have a different goal, and the effect or value of an alliance can hardly be quantified. As a result, these objective indexes are not completely suitable for evaluation of alliance performance (Anderson, 1990). According to Chiang (1998), performance cannot be measured by only financial outcomes, and changes of behaviors of partners that take place during cooperation should be included in the evaluation. As harmony and efficiency are stressed in partnerships, operational procedures between partners may be constantly modified, thus causing variation of borders between organizations.

Through a review of the above literature, the research framework is developed to explore the relationships among partner characteristic, partnership quality, partnership closeness, and cooperative performance in Taiwan's high-tech industry. It is expected that the research results can be contributive to the development of the current high-tech industry.

HYPOTHESES

The theoretic foundation of this paper is the above-mentioned literature. The research by Wu et al. (2008) is extended in this study to explore the relationships among the four constructs of partnership between manufacturers and suppliers, namely partner characteristic,

partnership quality, partnership closeness, and cooperative performance. Hypotheses proposed in this paper are as follows:

H1:"Partner characteristic" has positive influence on "partnership quality".

A partnership is aimed at building long-term cooperation. In the consideration of partners, enterprises will evaluate whether their partners and they can reach a certain consensus in terms of strategic goal, interval value, and commercial activity, so as to increase tolerance in cooperation, flexibility in operation, and minimize obstacles in cooperation. Therefore, partner characteristic is influential to partnership quality (Madhok, 1995; Angeles and Nath, 2001; Bennet and John, 2001).

H2: "Partner characteristic" has positive influence on "partnership closeness".

From the traditional point of view, manufacturers and suppliers are in an antagonist and competitive relationship. In nowadays, such relationship has evolved into partnership that requires close interactions and profound mutual understanding for the purpose of building long-term cooperation. However, if the two parties of a partnership have compatible goals, it means that they have reached a certain consensus in terms of strategic goal, internal value, and commercial activity. They will be motivated to form a closer relationship. Compatible goals not only make it easier for them to communicate and negotiate with each other but also reduce opportunistic behaviors of any party and increase information sharing; all of which can help maintain long-term cooperation (Niederkofler, 1991; Anand and Khanna, 2000).

In terms of cultural compatibility, compatible organizational cultures help enterprises build a solid partnership (Klepper, 1995). A higher similarity between two cultures has positive effect on mutual learning and knowledge transfer (Simonin, 1999; Kale et al., 2000) and will increase partners' intention to engage in more exclusive investment and establish connections in operational activities. Regarding supplementary resources and capabilities, we all know that enterprises usually seek resources absent in themselves by forming partnerships. For particular techniques, knowledge, and strategies, they form close relationships with particular partners (Coulson, 2000; Inkpen, 2001). In the present, they need close interactions with and in-depth mutual understanding of their partners to form long-term cooperation and jointly create values.

H3: "Partner characteristic" has positive influence on "cooperative performance".

Brouther et al. (1995) argued that conflicting goals in an alliance may lead to unsatisfactory alliance performance or confine its development, thus giving opportunities to competitors to lead in the competition. It can be inferred that partner characteristic has a significant influence on cooperative performance. Shamdasani and Sheth (1995) mentioned that the better that the two parties can match in terms of capabilities, and the more goals that they can jointly achieve in technology development, product development, increase of market share, and increase of competitive status, the more successful that their cooperative relationship can be. Besides, a partnership built on long-term cooperation requires consensuses between two parties over strategic goal, interval value, and commercial activity. It can not only increase tolerance in cooperation, flexibility in operation, but also minimize resistance in cooperation (Madhok, 1995; Angeles and Nath, 2001; Bennet and John, 2001).

H4: "Partnership quality" has positive influence on "partnership closeness".

A good cooperative relationship is built upon trust and commitment of the both parties of a partnership. Mutual trust is an important factor affecting the success of long-term cooperation (Frank and Richard, 2000). Commitment indicates the importance of a partnership and is an important variable that can be used to measure future relationship (Wilson, 1995). Besides, trust is a key factor affecting partner satisfaction and success of an alliance (Inkpen and Currall, 1997), and mutual trust of partners is likely to foster a close relationship (Frank and Richard,2000; Daniel, 2001).

H5: "Partnership quality" has positive influence on "cooperative performance".

Morgan and Hunt (1994) mentioned that every trust behavior is a commitment to building a partnership. If any party in a cooperative relationship lacks trust behaviors, the other parties will immediately realize that there will not be return on their commitment. This phenomenon will culminate in termination of relationship, a continuous vicious cycle, deteriorating performance, and dissatisfaction (Gundlach et al., 1995). It has been pointed out that trust has significant influence on market performance and efficiency (Aulakh et al., 1996). Trust also affects efficiency. Partners having mutual trust can reduce cost of supervision and are capable of effectively integrating the tacit knowledge and supplementary capabilities of both parties. Therefore, integrating capabilities of partners is characterized by its effects on reducing costs and amplifying values (Madhok, 1995; Dyer and Singh, 1998). As to commitment, Parkhe (1993) pointed out that commitment to investment with no return has an absolute association

with performance. In a partnership, whether one can provide resources and techniques necessary to the other and whether both can develop mutual trust and commitment all have significant impact on cooperative performance (Lewis, 1990).

H6: "Partnership closeness" has positive influence on "cooperative performance".

According to Ellram and Edis (1996), building partnerships with front-end retailers helps manufacturers increase their market share, trading opportunities, and competitiveness in the market, while building close relationships with back-end suppliers helps them reduce production preparation time, enhance product quality, reduce cost of raw materials, and jointly solve problems with suppliers. If enterprises are allowed to persistently obtain adequate and instant information from their partners, they can optimize internal operations and also adjust themselves according to external market situations (Aulakh et al., 1996). Bensaou (1999) empirically discovered that developing close partnerships can facilitate the increase of supply chain management performance.

Gold et al. (2001) mentioned that acquisition of sharing tacit knowledge helps increase the closeness of a cooperative relationship. Thus, frequent information exchanges between partners can help members of a partnership accurately respond to the others' needs, obtain better cooperative performance, and also lead them to improve their operational models (Hitt et al., 2001).

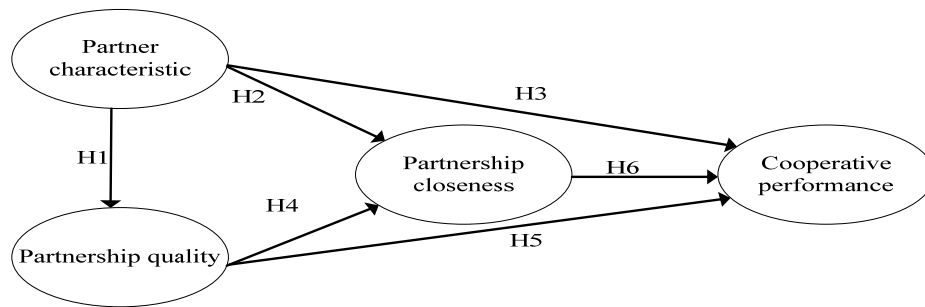The above hypotheses can be organized into a framework as shown in Figure 1.

Figure 1 Research Framework.

DATA ANALYSIS AND RESULTS

In this study, the subjects were executives and general staff of purchasing and quality control departments in Taiwan's high-tech companies. With professional experience and insights about the cooperation between their companies and their suppliers, these employees could provide accurate, reliable, and comprehensive data for our research. A questionnaire designed using Likert's five-point scale was developed and administered to managers of purchasing and quality control departments in selected companies and some experts in related areas for a pre-test first. After the pre-test, the draft was modified to produce a formal questionnaire. The formal questionnaire was distributed over a period of five months. A total of 1218 copies were issued, with 255 copies returned. Of these returned copies, 224 were valid. The valid response rate was 18.39%.

Basic Analysis of the Sample

As shown in Table 1, those working in the communication companies made up the largest proportion (29.3%). In terms of history of establishment, an even distribution was obtained. The majority of the surveyed companies had a history of more than 15 years (about

38.8%). In the aspect of capital, the highest ratio was contributed by those having a capital of more than NT$5 billion (26.3%). This affirms that the high-tech industry is really a locomotive of all industries.

Table 1 Basic Data of the Sample Companies

Item	Categories	Percentage (%)	Item	Categories	Percentage (%)
Industry	Communication	29.3	Number of staffs in the purchasing department	No such department	4.5
	Computer peripheral	24.1		No more than 5 persons	32.1
	Integrated circuits (IC)	14.7		5-10 persons	15.6
	Others (optoelectronics, precision machinery, bio-tech)	31.9		Over 10 persons	47.8
History of establishment	No more than 5 years	23.7	Number of cooperative suppliers	1-2	1.3
	6-10 years	18.3		3-5	10.3
	11-15 years	19.2		5-8	9.8
	More than 15 years	38.8		More than 8	78.6
Capital	No more than NT$500 million	25.9	History of cooperation with suppliers	2-3 years	12.5
	NT$500 million – NT$3 billion	24.6		3-5 years	26.8
	NT$3 – 5 billion	23.2		6-10 years	34.4
	More than NT$5 billion	26.3		More than 10 years	26.3
Number of employees	No more than 100 persons	21.0	Source of supplier information	Report presented by suppliers in the company	38.5
	100-500 persons	23.2		Internet	31.4
	500-1000 persons	6.7		Opto-electronics exhibitions	10.6
	Over 1000 persons	49.1		Others (including electronic journals and semi-conductor exhibitions)	19.5

However, about 1/4 of the companies were established during the past five years with a capital of less than NT$500 million. These

companies were also important and should not be neglected. As to the number of employees, most of the companies had more than 1,000 employees (49.1%) and deployed more than 10 employees in the purchasing department (47.8%). In terms of the number of suppliers, the majority cooperated with more than 8 suppliers (78.6%), indicating that local high-tech companies still tended to cooperate with multiple suppliers to reduce cost or enhance self-competitiveness through comparison of multiple suppliers. Besides, most of the respondents (38.5%) said that they acquired supplier information mainly from reports presented by suppliers in their companies. The valid sample consisted of female and male respondents in equal proportions (see Table 2). Most of them were aged between 26-35 years old and have received a university degree (57.6%). In terms of position in their companies, most of them were in middle-ranking positions (including management personnel, engineers, and basic-level employees) (63.8%). Of those working in purchasing and quality control departments, most had a seniority of no more than five years.

Table 2 Basic Data of the Respondents

Item	Categories	Percentage (%)	Item	Categories	Percentage (%)
Gender	Male	47.3		Manager, vice manager	13.4
	Female	52.7		Section chief, specialist	22.8
			Position	Others (management personnel, engineer, basic-level employees)	63.8
Age	Under 25	7.6			
	26-35	65.2		No more than 5 years	63.4
	Above 35	27.2	Length of employment	6-10 years	27.7
	MA	20.1		More than 10 years	8.9
	BA	57.6		No more than 5 years	75.9
Education background	College	17.4		6-10 years	19.6
	Senior high school (vocational high school)	4.9	Seniority in purchasing	More than 10 years	4.5

Reliability Analysis

Reliability is a measure of trustworthiness. The level of reliability is reflected upon the consistency and stability of a measurement instrument. Determined mainly by the error of measurement, reliability indicates the level to which a measurement instrument or procedure can be trusted. However, any measurement entails error, and error is dominated by probability. In other words, it is random error. Smaller error leads to higher reliability, while greater error leads to lower reliability. Therefore, reliability can be viewed as the degree to which the test result is affected by probability. In this study, reliability was measured by the equation proposed by Cronbach (1951) as shown in Equation (1).

$$\text{Cronbach's } \alpha = \frac{k}{k-1}\left(1 - \frac{\sum s_i^2}{s^2}\right) \qquad (1)$$

where,

K =number of items
S^2 =total variance
S_i^2 =variance of item i

According to Tan and Teo (2000), Cronbach's α between 0.5~0.6 is an acceptable level of reliability. For empirical studies, they suggested that Cronbach's α be above 0.7.In this paper, the reliability coefficients of the four constructs were as follows: partner characteristic=0.9159, partnership quality=0.8428, partnership closeness=0.8667 and cooperative performance=0.9184. All the above values were greater than 0.8, indicating the derived results had good internal consistency.

Content Validity

Chang (2001) pointed out that content validity refers to the extent or level to which a measure represents all facets of a concept. It

indicates the representativeness of the test content, sampling adequacy, and whether the content of the questionnaire represents all constructs of the measurement. In this study, the questionnaire was developed on the basis of domestic and foreign literatures and modified through a pre-test on experts and managers of purchasing departments in several high-tech companies. Therefore, the questionnaire used in this study had an acceptable level of content validity.

Structural Equation Modeling (SEM)

Structural equation modeling (SEM) is generally used to analyze a set of mutually dependent equations, especially those involving casual relationships. Combining factor analysis and path analysis, SEM can be used to analyze the causal relationships among variables. It not only makes up the drawback of factor analysis but also solves the constraint of path analysis by including error in the analysis. This method features both universality and practicality. Compared with general path analysis, it is more capable of anatomizing complicated phenomena and constructs. Besides, it can measure unknown coefficients involved in a linear structural model, so it is viewed as an important instrument in the research of behavior science and social science (Bagozzi and Yi, 1988). Wu (2006) pointed out that SEM is a mathematic model that yields objective results. It has been mainly applied to test the hypothesized relationships between observed variables and latent variables as well as the overall model fit. Confirmatory Factor Analysis (CFA) adopted in SEM, compared with the conventional Exploratory Factor Analysis (EFA), is also more meaningful. EFA is dominated by mainly instinct and informal rules, so it will be more appropriate to evaluate intensity of relationships between factors and their variables using CFA.

In SEM, difference between theoretic data and actually observed data should be evaluated from multiple perspectives. The purpose of

evaluating overall model fit is to assess whether the theoretic model can effectively explain the observed data. In other words, it is to assess the gap between theoretic model and actually obtained data.

Bagozzi and Yi (1988) mentioned that a complete SEM should involve measurement in three aspects, including Preliminary Fit Criteria, Overall Model Fit Criteria, and Fit of Internal Structure of Model Criteria. The purposes of these criteria are explained as follows: Preliminary Fit measures the error term of the model. Overall Model Fit tests the fit between the overall model and data, i.e. the external quality of the model. Fit of Internal Structure of Model assesses the significance level of the estimated parameters and reliability of each index and latent variable. In other words, it measures the internal quality of the model.

In LISREL analysis, for sample size of 100-150 samples, Maximum Likelihood Estimation (MLE) is suggested (Ding et al., 1995). Chiou (2003) pointed out that in SEM, the sample size should exceed 200. Unless the covariance matrix coefficients are ideal, analysis with fewer than 200 samples may derive instable results. To sum up, CFA was adopted in this study to test the theoretic model. In the assessment of overall model fit, we used MLE and set the significance level at 0.05 to test the fit of the theoretic model. The fit indexes proposed by Bagozzi and Yi (1988) were employed to evaluate the fit of the proposed model. In this study, a total of 224 valid responses were collected, so the sample size satisfied the above-mentioned requirement. The results of related tests are shown as follows:

Model-Fit Evaluation

In terms of preliminary fit criteria, all factor loadings were between 0.58-0.79, and all error variances were non-negative and reached the significance level. Regarding fit of internal structure of

model, the composite reliability (CR) of the four constructs was computed using Equation (2).

Bagozzi and Yi (1988) suggested that CR be greater than 0.6. In this study, all CR values were between 0.7-0.9, indicating good reliability. The average variance extracted (AVE) of latent variables can be used to explore the average explanatory power of all variables for a particular latent variable. A higher AVE value (AVE>0.5) indicates higher reliability and convergent validity of the latent variable. In this study, all latent variables had a nearly acceptable AVE value. Thus, it could be ensured that these variables had a certain level of reliability and convergent validity.

$$\rho_c = \frac{\left(\sum \lambda\right)^2}{\left[\left(\sum \lambda\right)^2 + \sum(\theta)\right]}$$

(2)

where,

ρ_c = Composite reliability (CR)

λ = Standard factor loadings

Θ = Measurement error variances

Table 3 Items Tested for Overall Model Fit

Item	Ideal results	Results
χ^2 (Chi-square)	Smaller the better	801.48
χ^2/d.f.(normed Chi-square) (.d.f.=586)	<3	1.3667
NFI(Normed fit index)	>0.9	0.97
NNFI(Non-normed fit index)	>0.9	0.99
CFI(Comparative fit index)	>0.9	0.99
GFI(Goodness of fit index)	>0.9	0.84
AGFI(Adjusted goodness of fit index)	>0.9	0.80
RMR(Root mean square residual)	<0.05	0.033
RMSEA(Root mean square error of approximation)	<0.05	0.041

Table 3 shows the results of the overall model fit. As shown in this table, GFI and AGFI values were under the ideal value of 0.9. However, according to Bagozzi and Yi (1988), GFI and AGFI above 0.8 can be considered as acceptable. Thus, all test results were within their acceptable ranges, respectively.

Discriminant validity

Discriminant validity is intended to ensure that items of different concepts should not be highly correlated with each other. As pointed out by Hatcher (1994) and Ahire et al. (1996), discriminant validity can be measured by testing if χ^2 difference between paired variables in the nested CFA model is significant. In this study, there were four latent variables, and a total of 6 pairs of variables could be formed. As shown in Table 4, all the $\Delta\chi^2$ values (difference betweenχ^2 in nonrestrictive model and restrictive model) reached the significance level P-value<0.001 (degree of freedom=1 and p-value=0.001, χ^2 =10.827). The nonrestrictive model had better fit and supported discriminant validity. Thus, the variables adopted in this study featured good discriminant validity.

Table 4 Test of Discriminant Validity

Paired variables	Nonrestrictive χ^2	df	Restrictive χ^2	df	$\Delta\chi^2$	Δdf	P-value
A-B	554.17	134	808.18	135	254.01	1	P<0.001
A-C	794.32	188	1034.45	189	240.13	1	P<0.001
A-D	810.74	188	1886.33	189	1075.59	1	P<0.001
B-C	377.4	118	445.86	119	68.46	1	P<0.001
B-D	428.68	118	613.8	119	185.12	1	P<0.001
C-D	668.57	169	1290.97	170	622.4	1	P<0.001

Notes: A=Partner characteristic; B=Partnership quality; C=Partnership closeness; D=Cooperative performance

SEM Analysis

Through LISREL test of the theoretic model, six hypotheses were proposed. The path coefficient and t-value of each hypothesis are shown in Figure 2. As presented in Table 5, four of the six proposed hypotheses were supported (H1, H2, H4, and H5), and two were not supported (H3 and H6).
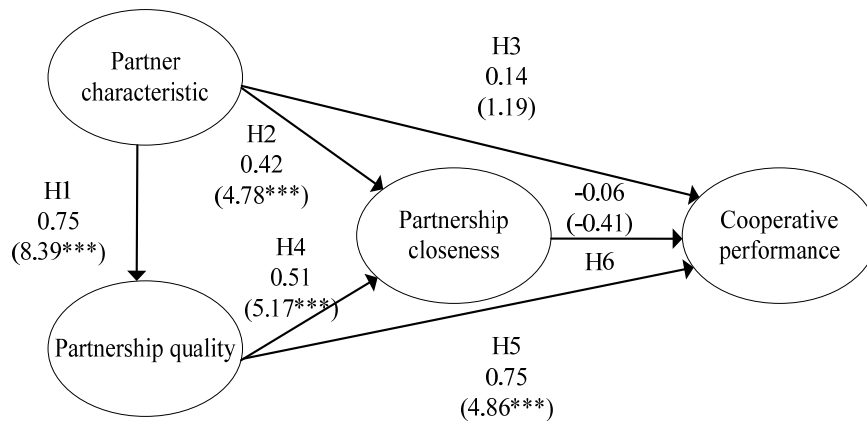

Figure 2 Path Coefficient and Relationship of Variables

Notes: The numerical figure is path coefficient, and the parenthesized value is t-value.
denotes t–value>1.96, p < 0.05; ** denotes t–value>2.58, p < 0.01; *** denotes t–value>3.29, p < 0.001.

This study was designed to explore the relationships among partner characteristic, partnership quality, partnership closeness, and cooperative performance. The results shown in Figure 2 and Table 5 are respectively explained as follows:

A. The influence of "partner characteristic" on "partnership quality", "partnership closeness", and "cooperative performance

Table 5 Test of Relationships between Constructs

	Hypotheses	Estimated values	Test results
H1	"Partner characteristic" has positive influence on "partnership quality"	0.75(8.39***)	Supported
H2	"Partner characteristic" has positive influence on "partnership closeness"	0.42(4.78***)	Supported
H3	"Partner characteristic" has positive influence on "cooperative performance"	0.14(1.19)	Unsupported
H4	"Partnership quality" has positive influence on "partnership closeness"	0.51(5.17***)	Supported
H5	"Partnership quality" has positive influence on "cooperative performance"	0.75(4.86***)	Supported
H6	"Partnership closeness" has positive influence on "cooperative performance"	-0.06(-0.41)	Unsupported

H1: "Partner characteristic" has positive influence on "partnership quality"

This hypothesis is "supported". This indicates that manufacturers consider conditions of their partners as influential to their trust on cooperation and also commitment. "Partner characteristic" is an important element that maintains cooperation between two parties.

H2: "Partner characteristic" has positive influence on "partnership closeness"

This hypothesis is "supported". If manufacturers and suppliers have compatible goals, they can form a certain level of consensus over strategic goal, internal value, and commercial activity. Such consensus will increase both parties' intention to form a closer relationship and engage in long-term investment or resource integration.

H3: "Partner characteristic" has positive influence on "cooperative performance"

This hypothesis is "unsupported". The path coefficient indicates that the relationship is positive as hypothesized, but the direct effects are not significant. The empirical results indicate that "partner characteristic" influences "cooperative performance" only through "partnership quality".

B. The influence of "partner quality" on "partnership closeness" and "cooperative performance

H4: "Partnership quality" has positive influence on "partnership closeness"

This hypothesis is "supported". It can be inferred that trust and commitment are important factors affecting information sharing and long-term cooperation between partners. Only when mutual trust and cooperation are in place will both parties be willing to invest more resources on the cooperative relationship and strengthen such partnership.

H5: "Partnership quality" has positive influence on "cooperative performance"

This hypothesis is "supported". With mutual trust, enterprises can effectively integrate tacit knowledge and supplementary capabilities of their partners to further increase cooperative performance and their business performance.

C. The influence of "partnership closeness" on "cooperative performance

H6: "Partnership closeness" has positive influence on "cooperative performance"

This hypothesis is "unsupported". This indicates that there is a negative relationship between the two constructs. However, this finding is inconsistent with conclusions of most of the previous studies. According to Gulati and Singh (1998), having excessively close connections with partners may result in low performance. High interdependence between partners may increase coordination cost. Under the stress of rapid response and conflict, cooperative performance may be reduced.

CONCLUSION

In this study, linear structural modeling was adopted to empirically test the correlations in partnership and interactions between the proposed constructs. The results could be a reference for high-tech companies when establishing partnerships. From the research results, the following conclusions were derived.

In the aspect of cooperative performance, many scholars have proposed that partner characteristic and partnership closeness have direct influence on cooperative performance. However, results showed that cooperative performance is only indirectly influenced by partnership quality and partner characteristic. Hence, enterprises should pay attention to the cooperation process so as to effectively enhance cooperative performance.

In the aspect of partnership closeness, most of the previous studies indicated that close partnership has positive influence on cooperative performance. However, a negative relationship between the two constructs was observed in our study. This is a noteworthy finding for the practical arena. For some industries, it may be appropriate to evaluate partnership closeness by the amount of exclusive investment or intensity of knowledge sharing. For others, good cooperative performance can be achieved even in the absence of a very close partnership. Boyd and Mason (1999) pointed out that a higher

complexity of products means that more product information will be demanded, and a higher demand for product information requires a closer partnership.

On the contrary, if the demand for product information is lower, the demand for a close partnership will also be lower. Therefore, partnership closeness is not necessarily beneficial to cooperative performance. In this study, a negative relationship was observed but not to a significance extent. Steensma and Corley (2000) also mentioned that partnership closeness is affected by uniqueness of technology. Hence, more factors should be considered in the study of the effect of partnership closeness on cooperative performance. The above findings could be a reference for high-tech industry when building partnerships.

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Integration Relationship between SCM & SAOI, Its Effect on Selecting & Developing Competitive Strategy

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ABSTRACT

Recently, there are many studies concerned in discussion of Strategic Cost Management (SCM), but most of these studies did not have the Framework and/or tools, as an important scientific aspect, and also the mechanism of how to apply the (SCM) as an important applied aspect. Hence, this study is concerned with providing or establishing the scientific base for the framework, tools and mechanisms of how to deploy and develop strategic cost Management, in addition to highlight ing the integration and interrelation levels between these frames, tools, and mechanisms. Eventually, the study concludes by introducing the s trategic accounting models, that may be useful for Strategic Analysis of Operating Income (SAOI), to measure the success of selection, management and development of general competitive strategy/ strategies.

Keywords: Strategic Cost Management, Strategic Analysis, Operating Income, Competitive Strategy, Integrated Relations

INTRODUCTION

After the emergence of many modern concepts, approaches, and tools in the nineties of the past century, and after, many of such concepts, approaches, and tools have settled, through number of studies with the different temporal and spatial roots of each, there had become a scientific desire for uncovering the reality of entangled relationships between such concepts, approaches and tools.
The role and effectiveness of Cost management system differs with the differentiation of the strategy used in competition. So, in firms adopting the cost leadership strategy as general strategy in competition, it would be adequate to use the product target cost approach as a tool of control on strategy. Whereas, in case of the firm pursuance of product differentiation strategy cost management concept had developed so that it became called the comprehensive cost management, which in its implicit is the use of technical and professional tools supported with specialized expertise, for accomplishing integration between both of required resource costing, planning, and achieving control over them, in a way that would contribute effectively to profit analysis, and judgment of the side risk levels.

Despite the agreement upon the importance of strategic cost management, but there is no an agreement whether among researchers, authorities, organizations, or specialized professional and consulting centers about its axes and tools, hence, it has to be subject to study to know the most important axes composing strategic cost management sides (Shank, 2002) and also the importance of recognizing the potentials of each of the tools that had proved their effectiveness through practical practices. The organization competitive position analysis is regarded as one of the most prominent aspects relevant with strategic cost management (Scheidt & Thipadoux, 2005] but it had not received the sufficient attention whether on the side of

identifying the role relationship with strategic cost management or on what and how such analysis is undertaken. Such study aims at uncovering the relationship between one of the recent approaches in the costing science, that is strategic cost management (SCM), and one of the recent approaches in strategic accounting analysis of strategic operation income.

PRVIOUS STUDIES IN THE FIELD OF INTELLECTUAL DEVELOPMENT OF SCM.

The subject of cost management is one of the most prominent subjects of which accounting thought had paid much attention. the researcher has tackled on all what could be reached of studies over the period from 1990 to 2005. In a study of Seed (1990) regards that the comparison of inbound and outbound cash flows (realized) in the plan, would not provide a complete image of the mistakes and what to be done. Then the study indicated at that it is with the modern technology projects, of which the most important to distinguish is the decline of the life cycle, it is adequate to use the modern concept of accounting on cost based on the product Life-Cycle Costing. Foster & Gupta (1994) indicate that Marketing costs were connected with cost management system, and the management accounting role in developing measurements of evaluation of marketing function costing efficiency and effectiveness (Balachandram & Srinidhi, 1996). The study concerned with addressing the relation between perceived costs and compliance with levels of quality; as such relation has been divided into three sub-relations successively. In the first stage comprehensive quality cost begins at high level to decline with time till it reaches a given level of quality compatibility called "Accepted quality level" (AQL). In the second stage, quality costs increase in a declining rate with quality compatibility proportion till it reaches the conversion point, after which third stage begins, as quality costs would decrease

till it reaches point at which percentage of compatibility would become 100%, and production would be zero defect. The study of Gaiser study (1997a) addresses cost management systems in German context at both academic and applied levels, as the study had concluded at that in the sixties and seventies of the past century two essential concepts have appeared. First one is "Eingelkostenrechnung", meaning charging all direct costs upon cost objects. The second one was "Grenzplankostemrechnung" which is still implemented in German firms so far .While the Gaiser (1997b) study of It had addressed the subject of target cost as one of cost management system tools, and the accounting requirements and practices in Germany against those exercised in Japan. The most important problems have been observed are the difficulty of German product access to new markets on one hand, and loss of market share due to reduction of the capacity of meeting the needs and desires of clientele on another hand. Agrawall's study (1998) It addresses CMS from perspective of operating performance of the organization, as the study had manifested a model of cost management system depending on three supports as following: First support – Self-Perpetuating System of Improvement Second support – Top Management Commitment Third Support – Worker involvement Freeman Study, (1998), suggested an executive framework of cost management system, for realizing a competitive advantage in world markets at four layers / levels, They are: market/client strategy, product /service, operations and inputs. The study holds the view that accounting data flow (inside to outside) take an opposite path to market data flow (outside to inside) in the referred to framework. The study had proffered a three level conception of value chain (product innovation – production size – client acceptance).

The study of Kauffman (1999) researches the establishment policies in regard of procurement and purchase chain analysis and how such policies would adapt, in short term, with strategic methodologies, most important of which, cost management strategic perspective, and

efforts of purchasing costs reduction. Shank (1999) had reinterpreted the data of one case that had been addressed by Shillinglaw in 1967, when he analyzed the costs of offering a product/new meal in ALS Dansk Minox for readymade meals, to show how to analyze costs under price imposed by market upon the wholesale dealer, retailer, and then the firm. Cooper (2000) had showed that the work force had shifted from being interchangeable and of low value, to being a valuable asset in need of care and encouragement of modern cost management. Nicolaou study (2001) had explained the scope of using cost management systems as a system for strategic and operational decision support. Nicolaou study, (2002) had tested three hypotheses. Through a field study involved 341 establishments, the study proved the importance of CMS in believed interaction with modern techniques, whether technical, such as (EDI) or operational, such as (JIT). Ward's study (2002) suggests that establishment should conduct strategic situation Analysis for revenues identification at the level of products, markets and strengths and weaknesses, as well as analyzing the competition environment internally and universally for identification of its impact on the establishment customer, suppliers and competitors and evaluating future needs. The study of Metrus Group (2003) addresses the need of various firms in the United States to turn towards cost cutting. Therefore, the study had offered the idea "Smart cost cutting" as such idea was crystallized through identification of six opportunities/ reduction areas. Watson (2003) proffered an engines action framework covering five aspects represented in evaluating cost engines in(drivers) medicines sector in general and evaluating alternative strategies for describing such drives and evaluating the influence of proprietors and the political circumstances and identifying the cost of execution of the strategy adapted. Finally, evaluating the financial benefits expected of the chosen strategy. Blyth (2004) proffered seven learned lessons from cost management, for strategic success accomplishment. The study holds the view that the road map

of such success, represented in pursuing such lessons. The study of Christopher & Thor (2004) addresses the performance evaluation model in the long run; as such performance would be measured by the result of subtraction of product life cycle revenues by life cycle costs. Neuman's study (2004) had proffered a chart of work and activity units, cost drivers and how to assign cost, using ABC in information technology establishments. Peacock (2005) confirms the consideration of the impact of accepting orders, hence the establishment profit level, upon cost engine and assemblies, levels and costs of quality, potential processes of reoperation, operation inside/ outside establishment and analysis of such operation costs. In the light of the above, it is possible to conclude a number of findings, First, many studies are predominated with the lack of interest in study of integration between tools though which could be possible to accomplish an active management and a strategy of cost. Second, there is a belief – based on perspective unity – that it is possible to fulfill success in business environment by reliance on implementing one of the approaches/ methods only, such as target cost, improved cost, product life cycle, or accounting of cost based on characteristics, processes, or specifications. Third, focusing on target cost in many studies as it deemed a tool had been capable of achieving great successes in Japanese environment and elsewhere of application environments. More attention needed to be paid to it. Fourth, lack of attention to analysis of the strategic position is as one of SCM axes except the two studies of Riley & Cleary (1998) and Ward (2002).

Fifth, most of studies have not shown the separation boundaries between cost management, total cost management, and strategic cost management. Sixth, The deficiency of all studies, the researcher had arrived at, is in placing down axes, frameworks or a methodology of interaction between the principle and auxiliary tools necessary for building a clear structure of strategic cost management. That may be

the launching point towards the chain of thoughts, the researcher would attempt to address by study.

SCM AND ITS ROLE IN COMPETITIVE ENVIRONMENT.

Cost management contribution from a strategic perspective in cost analysis field is represented in supporting the firm in selecting the study of competition suitable for it in the market (Horngren 2006). In other words, performing a cost analysis in a way to contribute in selection and development of general strategies the firm adopts as a principle in competition whether was cost leadership or product differentiation strategy. Different strategies demand different cost analysis perspectives which means that there is deviation analysis for each strategy separately and then there musts be resuming up of deviations in a way that manifests the extent of success in selection and execution of the chosen competitive strategy. In few words, it is possible to formulate the objective associated to each of the concepts of cost management, in accordance with the development it has gone through (Shank & Foster, 1999), through the following table 1.

Table 1. Development of Cost Management Concept

Development Stages of Concept	General Objective
1- Cost management	Cost reduction by focusing on current and prospective product costs.
2-Comprehensive cost management	Seeking cost reduction in purpose of profitability and risk analysis.
3- Strategic cost management	Realizing competitive advantage for the establishment through rationing the selection and implementation of the adequate competitive strategy.

Cost management on a strategic perspective or strategic cost management, is the managerial exploitation of cost information, effectively and directly in one, some, or all stages of management of general firm strategy/strategies (Shank, 2002). The principle axes of cost management are represented, on a strategic perspective, in three axes: cost drivers analysis, value chain analysis, and strategic firm position analysis.

Strategic cost management is governed by a number of principles that can be summed up in the following (Trussel & Bitner, 1998):

1- Understanding how value is realized, and setting up the specific firm targets.
2- Understanding the customer profitability and the engines realizing value for it.
3- Relative comparison between resources have been employed and activities adding value and understanding the competitive process in the light of what is taking place of operations.
4- Determining the efficiency in resource employment under comprehensive assessment of opportunities and priorities.
5- Analysis and assessment of data explaining events and results.

Recently a more developed and comprehensive concept of cost management had emerged and is represented in interorganizational cost management (Cooper & Slagmuler, 2003), which is a way/method of increasing profitability through cost management and reduction using two essential dimensions. These are coordination and cooperation among the organizations connected with a supplying network, as it is possible to fulfill the objective of cost reduction, hence, increasing profitability through a coordinating and cooperative work team, based on application of interorganizational cost management through cost reduction on a total perspective and profitability increasing on total perspective. To achieve cooperation, which means conductive, would be necessary between organizations so that such

cooperation would realize lean supplier network that has many characteristics, presented in mutual dependence, mutual trust and comprehensive participation in available information. Whereas isolation means non-conductive, based on individual cost reduction, and keeping away from dealing with team work mentality. That would lead into adversarial relationships, as every firm for itself (Cooper & Slagmuler, 2002).

There are two ways that may be compared between, for concurrent cost management techniques (Cooper & Slagmuler, 2003). Synchronous cost management methods realize a number of advantages could be stated in the following:

1- Provide suppliers with enough time for designing their products and with greater opportunities for cost reduction.
2- Enable suppliers of development of new generations of their independent products with integrated designs.
3- Quick product offer, because development processes within the chain of organizations take place simultaneously.
4- Reduction of total costs by allowing the supplier to transfer costs across products to all customers. However, there is a criticism directed at such ways, in that they deprive the buyer "customer" much of his ability of distinction of products, based on technological comparison used in the principle function the product performs (Heffes, 2004). But inter-management of application is characterized by continuous development of product design, great deal of comprehensive improvement of industrial process efficiency and improving the efficiency of seller/buyer exchange.

SCM AXES AND TOOLS.

First axis: Cost Drivers Analysis

Such axis is considered as one of the most important axes that many studies have been giving a special importance. For more details, see Searcy, 2004; Briver, et al., 2003; Player, 1998, Forster & Swenson, 1997; Ruhl, 1995. Considering that cost engines represent vectors driving cost toward the levels the organization would stand, hence, influence, greatly, the extent of organization success in executing its strategy, even at the level of operational processes. Such engines may be classified on activity types perspective as follows, For example, You & Lung, 2003).

First: Organizational Activities:

They are such general activities forming a reflection of the organization mission, vision and strategy directly or indirectly and classifying the organizational activities into structural activities and procedural activities as follows: *Organizational Cost Drivers:* They are structural or procedural factors determining cost structure in the long run. Thus they play an important role under cost reduction strategy. Organizational activities and its drivers could be classified into "structural" and "procedural".

Second: Operational Activities:

They are the daily activities resulting in the organization structure and operations. *Operational Cost Drivers:* They are the factors influencing the moving of operational activity costs. Such activities may be divided into operation activities leading to three levels at the unit level, group level, and product level. Now a question would emerge about the impact of variety in production line products upon cost engines and the systems suitable for measurement and assessment. To answer such question, it could be said that in respect of firms proffering many products through certain production line, they have to compare between value of variety in the market on one hand and the cost of variety in the factory and channels of distribution on

another hand. That would require precise measurement and assessment of production line costs due to the effect they have on the success or failure of the competitive strategy.

The researcher would confirm that the variety in production line products would require selection of adequate methodologies of cost accounting such as ABC accounting, PCB accounting, ABC-II accounting, FBC accounting, and throughput costing accounting.

It is worth remarking that ABC methodology represents a strategic tool, not just an accounting system. However, that cost engines analysis on a strategic perspective is governed by a number of limitations, most prominent of which are represented (Briner, 2003):

    1- Difficulty of determining and measuring the effect of all engines relevant to particular product, or a particular business unit, specially when they participate in influence.

    2- Relationship between cost engines is a strong engagement relationship, to be expressed in an exponential multiplicative form. Hence, it is necessary to formulate cost planning equation in a logarithmic form.

    3- The validity of correlation relations in the multiple slope model is within strategically relevant ranges of each of cost engines.

The researcher suggests that the challenge imposes itself during the following years is looking for new ways of measuring the impact of structural and executive cost engines whether individually or integrally among the engines. In a study of the American cement center, it has been arrived at that dealing with costing engines from a strategic perspective a number of considerations could be summarized in the following (Cement, American, 2002)

    1- Costing situation should be explained based on the establishment competitive position not based on the size of outcomes, through both of Structural choices Executive skills.

2- Differentiation of the relative importance of strategic engines across time.

3- Multiplication of cost analysis frame works in proportion of the different engines of costing engines.

Second Axis: Value Chain Analysis.

Value chain represents "the set of activities linked together, contributing in value creation, starting with the means of obtaining resources, until final consumer gets rid of the product" (14 Cast, 2003). From a strategic perspective, value chain concept differs from the added value concepts in that the later faces two problems; they are (Ellran, 2002): First, Added value concept starts too late as it is not concerned with value analysis but with the commencement of the process of production. Second: Such concept stops too soon, as it is stopped on cost analysis as soon as product is sold. The value chain concept faces such two problems through providing two very important concepts for facing the two problems respectively, they are Supply chain cost analysis in purpose of analysis and evaluation of the opportunities that may be exploited through communication with suppliers and Life cycle costing analysis, in purpose of analysis, development and then making use of the opportunities provided by understanding and investing correlation relationships with clients, in what results in increasing the firm's profitability. There are a set of methodological steps for building and using the value chain in enhancing the strategic cost management, they are Definition of value chain, in respect of costs, revenues, assets and activities of value fulfillment. Diagnosing costing engines of each activity is inside value chain. Development of the style of enhancing the competitive advantage through one of the following two alternatives: Observing costing engines better than the competitors through all or some of the following: Reduction of activity cost, under the stability of the value (revenue), Increasing the value (revenue) under the stability of cost,

Reduction of the assets necessary for performing the activity under the stability of both cost and revenues, and Re-designing the form of value chain, through study and analysis of redesign of the relationships within work units, between work units within the establishment, between the establishment and suppliers, or between establishment and clients represented in the following (Ellram, 2000). Value chain concept might be concerned with four areas for improving the firms' profitability. Such areas are: Relationships with suppliers, Relationships with clients, Internal links between activities with business unit, and Internal links between business units within the establishment.

Third Axis: Analysis of The Firm Competitive Position

Despite of the extreme and remarked attention that had been given to both of costing engine analysis, and value chain analysis as two essential axes for strategic cost management, as dozens of theoretical and applied researches and studies have addressed these two axes, the organization competitive position Analysis had not acquired the adequate deal whether theoretically or practically. Studies have pointed at the organization profitability analysis from a strategic, or even competitive prescription had been scarce (Schiedt & Thibadoux, 2005; Cooper & Slagmulder, 1999), as most of the signals were weak and not in depth and did not belong to a clear framework, identifying the site of such analysis within the theoretical framework of the strategic cost management. That may be attributed to the non availability of analysis tools and application mechanisms.

Main Tools of Strategic Cost Management.

First: Target Cost

Toyota Co. had presented target cost in the sixties of the twentieth century. Since then, its use became greatly common among Japanese

companies, but American companies were to the contrary, more adhered to traditional practices of cost measurement and control, and have accepted the implementation of target cost at narrow scope and in slow pace [For more details: Pierce, 2002, pp. 30-32].

Perhaps it is among the most precise target cost definitions that "it is a process of confirmation of that the products desired to be manufactured under particular specifications and functions and specific prices, could be manufactured in a cost susceptible of achieving the desired level of profitability, as well as entirely insuring meeting of client needs and desires" (Smith & Lockamy III, 2000). Cooper considers that target cost varies in its way of implementation, but has one general structure (Cooper, 2003); as it may be said that general steps to measure target cost would be represented in four main steps, could be demonstrated briefly as follows:

1- Deciding target price, in light of local and regional or international competition according to organization work circumstances:
2- Setting up and deciding target cost under technical and administrative circumstances intent to carry out.
3- Determining the undesired cost gap between target cost and current cost.
4- Redesign products and for operations and or procedures for realizing the target reduction in cost according to the nature of each product and circumstances of its production and marketing.

Second: Kaizen (improved) cost

Monden defines kaizen cost, in a study he prepared to the industrial & financial systems, as "the process of enhancement of estimations accompanying the product when in production stage and forms together with target cost system the accounting system of product life cycle cost," (IFSR & D, 2001). Edwards (2001) defines

kaizen cost as " the process of periodic maintenance of the level of cost of the product in its sage of production, through the organization efforts for realization of the desired level of cost." Implementing kaizen cost system should be through two types of efforts. First, the efforts accompanying the stage of acquiring the assets and setting them down in organization, with what that implicates of events of which various types of cost are generated. Second, the efforts related to the product and activities presumed to add value to the product, which necessitates such value analysis. Because 80% of total costing of the product takes place before commencing in its production, then, what could be counted on upon developed cost system in reducing total cost often, would not exceed 5% of total cost (Edwards, 2001).

Recently, a tool known as inter-organization Kaizen costing had emerged; as such system depends on the presence of a strong correlation between suppliers. The applied stages of kaizen costing commence from the buyer or supplier and each party has to understand the benefits that could be fulfilled from investment by the other party. There are two approaches, one of them may be the appropriate approach for the buyer to start inter organizational development or improvement. Such two approaches are (Cooper, 2003): First: Supplier Instruction Such approach aims at redesigning a certain part of the product and/or technical process to make it more appropriate to the production system the supplier follows. Second: Assisting Supplier In Realizing Savings. Such approach would allow reaching saving realization through two methods A- single – supplier Approach as the least one of high costing sources in regards of items and kinds the supplier uses to reduced, then to head to the next source and so on. B- Multiple – supplier Approach as many advantages are obtained by purchasing through the establishment from the supplier in certain size at the least level of costing. Both methods depend on the purchaser. So, the starting point in improvement or development is

through supplier; as it determines the new methods of design that realize the least costing under certain level of quality.

Third: Product Life Cycle:

The need to measure costing during product life cycle had emerged. As various studies that direct toward the study and analysis of such cycle had appeared (Shields & Young, 1999). The concept of costing measuring through product life cycle is represented in the attitude towards comprehensive product cost measurement through different stages of value realization, since the starting of thinking in it going through conducting preliminary studies of idea execution, preliminary research in design stage, and then all production stages, going through marketing and selling activities and what is relevant with them and what follows of activities of technical and credit support, and all services required by the continuity of client loyalty until getting rid of the product.

Researcher regards that the attention on product life cycle measurement has been urged by a number of reasons that could be summarized in the following:

- Relative change in cost structure through the stages product goes through, hence, variation of methods of enumerating analysis assigning, and benefiting of costing information at each stage.
- Declining and shortening of most product lifecycles.
- Escalation of competition edge, whether through technical ideas and characteristics, competitive advantages, prices, or accompanied services.
- Increasing the limit of technological prescription impact of a number of capital and consumer products, regardless of the entry/ non entry of the product at the economic prescription stage.

- Desire in defining the proper price covering product cost, in light of technical and marketing changes, and after, that take place upon product.

Auxiliary Tools of Strategic Cost Management

o Value Engineering

o Simultaneous Approach in Development:

o Functional Analysis Approach:

o Costing Tables

o Reengineering Processes

o Continuous Improvement

o Benchmarking

o Back- Flash Costing

o Throughput Accounting

o JIT Manufacturing

o JIJ Purchasing

o Strategic Quality Management

o Theory of Constrains (TOR)

o 14-Atlribute Based Costing (ABCII)

o Process Based Costing (PBC)

Such an approach represents a development of *ABC* approach. It is based on interpretation of the requirements of application of strategy of differentiation of the product subject of concern which is the required process/ processes; hence, there is a difference in pursuing costing at process level than activity level.

MODELS OF SAOI AND ITS ROLE IN ASSESSMENT OF COMPETITION STRATEGIES.

The overlapping and variation of impacts make a scientific necessity and practical need towards the analysis of such impacts, whether those are relevant with expected natural reasons, or with tactical or strategic reasons particular of managerial and competitive performance of the

organization. If the operation revenue represents of many of interactions, and in which many of the secondary results are summarized then, it should be subjected to strategic accounting analysis in purpose of judging the extent of success in execution of the strategy or strategies that have been taken as a basis of competition.

Strategic Analysis Approaches of The Firm Profitability

There have been approaches or rather, attempts in the field of the firm profitability analysis of which may be the most prominent (Cooper & Slagmulder, 2000, Clinton & Graves, 1999, Hall et al, 1997).

Annual Report Approach

Such analysis heads towards the comparison of the actual performance with the planned performance (income balance), as the comparison of percentage of actual performance with the percentages of planned performance at the level of operational revenues and also the production, marketing, managerial and financial cost elements for discovering the positive and negative aspects particular of such activities. But there are many aspects directed toward such approach such aspects are represented in the following: a) Ignoring the approach for measuring and assessing the extent of the sale performance quality, b) Ignoring he assessment of the extent of industrial process quality, and c) Planning the cost of research and development activities, marketing and management, as a percentage of sales. Therefore, there is no major scientific importance or great benefit out of resorting to application of such approach.

Management Attitude Approach

Such approach is based on understanding a set of methodical steps as follows: a) Identifying the basic and environmental factors influencing profits, b) Attempting to get rid of deviations in profits through dealing with such factors, c) Concentrating on study of the

impact of deviations in profits upon each factor, d) Attempting of computing the certain effect of each factor separately, through identifying and studying the effective factor with fixing the remaining factors, e) Study of the effect of adding the surrounding circumstances and complications in order of the importance, and f) Stopping the analyses processes, when adding circumstances and complications become unfeasible. Such approach is exposed to a criticism that is represented in that there is no direct link or connection between performance assessment – in light of such methodical steps and strategic attitude of the establishment.

Strategic Framework Approach

Such approach is based on identification of two dimensions: a) Clear definition of firm mission and b) correct definition of strategy/ strategies liable of realizing the competitive advantage. The most important distinctive of such approach from the first and second approaches may be its focus on connecting the analysis with ways and methods that develop the firm business units performance, so that the strategic objectives of such units would be fulfilled, and all business units efforts should come together in a way that accomplish the firm strategic objectives, as long as the later are derived from the firm mission (First dimension) and its general strategy (Second dimension).

Research regards that such approach – despite its importance – had not proffered the applied tools through which it could be possible to arrive at an analysis of deviations interpreting the extent of success or failure in execution of strategy selected as a basis in competition. The market on one hand, and how adequate such strategy to the internal circumstances or external events in different competition environment/environments on another hand. Therefore, deviation analysis– from a strategic perspective – represents the essential communication tool for connection between control operations and tools the management uses. The main steps of such analysis have been recently

presented by Horngren et al., as two steps are undertaken as follows (Horngren et al., 2006): *First Step:* Total profit analysis using relevant main and secondary factors. *Second Step:* Summing up such deviations presenting significant explanations. The methodology of strategic change analysis may be summarized through the following accounting models:

$$ROG = \Delta(S_{xn}\text{-}S_{xo}) * P_{xo} \tag{1}$$

Where ROG indicates: magnitude of variance in growth component that is attributed to revenue impact.

SXn: represent the actual amount of sales in the comparison year.

SXo: represent the actual amount of sales in the basic year.

PXo: represents the actual sale price of unit product in the basic year.

$$COG = [\sum NI_{xn} t_{xo}) - (\sum NI_{xo})] * PNI_{xo} \tag{2}$$

Where COG indicates: magnitude of variance in growth component that is attributed to cost impact.

$\sum NI_{xn}t_{xo}$: input elements that could be used in producing comparison year outputs, with the same production relationship and prevailing circumstances in basic year.

$\sum NI_{xo}$ Actual input elements that have been used in producing the outputs in basic year.

PNI_{xo}prices of input elements prevailed in basic year.

$$FOG = ROG - COG \tag{3}$$

Where FOG indicates: the net impact of growth component on the change in operation revenue, that is attributed to the interaction between revenues impact are costing impact that have reached in the previous models 1 and 2.

$$ROV = \Delta (P_{xn}\text{-}P_{xo})*S_{xn} \tag{4}$$

Where ROV indicate: the magnitude of variance in price coverage component that in attributed to revenues impact: Pxn represents actual sale price of product unit in comparison year.

$$COV = \Delta(PNIxn\text{-} PNIxo) * \sum NI_{xn}/t_{x0} \tag{5}$$

Hence $FOV = ROV - COV$ (6)

Where FOV indicates: the net impact of price coverage component on the change in operation revenue, attributed to interaction between revenue impact on price coverage and cost impact on price coverage and cost impact on price coverage that later impact does not differ from impact of cost on growth.

$PRO = [(\sum NI_{xn}) - (\sum NI_{xn}/t_{xo})] * PNI_{xn}$ (7)

Where PRO indicates: the change in operation revenue that is attributed to productivity component: prices of the element of the inputs prevailed in comparison year.

$\Delta (I_{nx} - I_{xo}) = FOG + FOV + PRO$ (8)

Where $\Delta (I_{xn} - I_{xo})$: indicates the change in operation revenue between

To measure the impact of each strategy -in separate- on operation revenue based on the relationship the above diagram shows- of the taking into consideration the impact of natural growth in market size- expressing that growth in market size – expressing that would be possible through the following accounting models:

$CLSOI = PRO + [SDOI_{p} + GOM_{p})]$ (9)

Where CLSOI indicates: the impact of cost leadership on operation revenue

$SDOI_{P}$: represents the change in operation revenue that is attributed to strategic decisions of reduction in the product unit price. Such change could be

Computed through the following model.

$SDOI_{p} = S_{xn} * \Delta (r - rs_{d})/ r$ (10)

Where Sxn indicates: Actual sales in comparison year.: $\Delta(r - rs_{d})$ represents change taking place in product unit sale price (r) and the new sale price representing the price under strategic reduction decisions based on productivity improving.

Whereas GOM_{P} in model 9 indicates the change in operation revenue that is attributed to the growth in the size of market share resulting

from productivity improvement. Such change could be computed through the following model:

$$GOM_P = FOG * [\Delta M_P / \Delta M] \tag{11}$$

Where ΔM_P indicates: the magnitude of change in the market share size resulting from improvement in productivity.

And ΔM: represents the change in sales size in between basic and comparison years.

$$PDSOI = COV + SDOI_E \tag{12}$$

Where PDSOI indicates: the impact of product differentiation on operation revenue.

Where $SDOI_E$: represents the change in operation revenue that is attributed to decisions of reduction in product unit price based on industrial and practical expertise. Such change could be computed through the following model.

$$SDOI_E = S_{xn} * [\Delta(r\text{-}rs_E)/r] \tag{13}$$

Where $\Delta(r\text{-}rs_E)$ indicates: the change taking place in product unit sale price (r) and sale price under strategic reduction decisions, based on industrial and practical expertise .

Hence $(r\text{-}rsd),(r\text{-}rs_E)$ form together the total magnitude of reduction taking place in product unit sale price. On another hand $(SDOI_P),(SDOI_E)$ form together total actual value of sales of comparison year.

$$GOM_L = FOG * [\Delta M_L / \Delta M] \tag{14}$$

Where GOM_L indicates: the change in operation revenue of growth component, resulting from natural development in market size and economical circumstances. ΔM_L represents: the magnitude of change in the market share resulting from the natural development in market price and economical circumstances, hence (GOM_P), (GOM_L) form together a final resultant of the growth component (FO6)

LEVELS OF INTEGRAL RELATIONSHIP BETWEEN SCM AND SAOI

There are many relationships of intermingled and integral levels. These can be stated in four levels.

First Level: Strategic Cost Management Axes Level.

Success in understanding and creating integration between such axes would insure at the lowest – non failure in implementation of the organization general strategy/ strategies. The integral relationship at such level could be stated, through formulation of three auxiliary relationships as follows.

Relationship of cost drivers with value series

Such relationship represents close shape of the relationship between activities, operations and products, as the general strategy of competition, whether cost leadership or product differentiation will impose, at various degrees, cost management from a strategic perspective based on value realized from each activity and operation. ….. Also analysis of the product/ products value for the group of clients, hence the necessity of comprehending the cost vectors and its relationship with the value realized from the performance of the civilities is considered an extremely important matter for the success of the strategic cost management. The form of the relationship should extend between cost engines and value series to shoot outside the boundaries of the organization, to reach the activities and value series by the suppliers, and activities and value series by the distribution outlets; thus the client value develops (Cooper & Slagmulder, 2003).

Relationship of cost engines and the competitive position analysis.

Particularly cost leadership strategy (expressed in model No 9 in the fourth section). No doubt that assessing such strategy will urge the

research and analysis of cost engines, whether were structural executive, or operational. Also, benefiting from the competitive position analysis, in taking the suitable decisions toward product pricing, the expression in the production size, or expansion in penetrating the current market or new markets. Models No (10, 11, 13, 14) contribute in such decisions.

Relationship of value series and competitive position analysis.

It is necessary to conduct forward integration with dealers and clients, and backward one with suppliers in the single industry, because that what create big autonomies capable of competition whether in he local, regional, or world markets, Hence, that would urge not only industrial or internal value activities, but also the study of the activity performance problems at the forward and back ward value series. It is also seek the common solution of what may exist of problems that would be the way towards enhancing the competitive position, in what would strongly insure the series activity cost management professionally that guarantee success at long run, and maximize the value that would be fulfilled for the end consumer, and consequently, increases its connectedness with the product and its loyalty to the series that had offered it such product.

Second Level: Level of Strategic Cost Management Tools

Main Tools Level

Because the main tool in cost management from a strategic perspective represent the active mechanisms toward accomplishing the cost leadership or presenting products of distinguished characteristics proportionate with clients and consumer needs and desires. Thus such tools have between each others relationships featured with clarity and importance to great deal. Such level relationships could be

expressed through four relationships as follows: [Figure 1] indicate the relationship between main tools of SCM

Relationship between target cost approach and kaizen cost

The origin of the integral relationship between such approaches is that they represent two consequent tools in application as the target cost approach represents management accountant tool in the product design stage to arrive at the target level of cost before commencement of the production process, whereas, during such process in case of that operational, technical, or even external circumstances had occurred, that had led to the necessity of interfering with modification or development, meaning the necessity of using the kaizen cost approach as a complementary tool to arrive with cost level or quality level at the required level.

Relationship between target cost approach and approach of accounting of product life cycle cost

Such relationship represents the relationship of the part with the whole, as during the product design stage, a comprehensive conception of the product cost through its life cycle should be set up regardless of the view angle to such cycle (production - marketing - consumer).

 Naturally, life cycle cost may need redesigning for regulating cost through some stages so that it become adequate to the firm production and competitive circumstances in each stage in need to that, which create a necessity for implementing the target cost approach integrally to life cycle cost approach, till strategic cost management perspective and implementation are accomplished.

Relationship between kaizen cost approach and approach of accounting of product life cycle cost

Based on the same sense, it is possible to say that through product cost planning stage during its life cycle, it is necessary to set up the

potential scenarios through the stages of product, presentation, growth, maturity and descending, whether on the technical or marketing side.

No doubt that development scenario, when set up through the product cost planning stage for its life cycle, are better than being imposed on the organization through on or more of its operation stages. Hence, success in implementing the kaizen cost approach critically depends upon the scientific and integral planning of product cost through all stages it goes through till the stage of its disposal.

Relationship between the target cost, Kaizen approaches, and approach of the accounting of product life cycle cost

Such relationship represents the comprehensive perspective of the relationship of the main tools of SCM with each others, as the previous three relationships- at such level – gives a comprehensive conception, that makes the management in charge of selection, execution and development the competitive strategy/ strategies of a great deal of apprehension of the extent of sound selection , execution difficulties, problem encounter scenarios and the tools of remedy of such problems, whether were administrative, accounting, or technical tools and in which stage one, some, or all such tools are being used. No doubt that success in designing the relationship between the three tools is a success in management of the competitive strategy through its execution terms and development stages.

Auxiliary Tools Level

As the researcher regards the possibility of such relationship through two aspects as follows: (1) the relationship of auxiliary tools with main tools and (2) Relationship of auxiliary tools with each others It is wrong to deal with the auxiliary tools in cost management separately, because many of the applied studies that have proved the failure of some tools in problem solving – in the researcher opinion – is attributed to the belief in that implementing one tool, concept.

Figure 1: Relationship between main tools of SCM
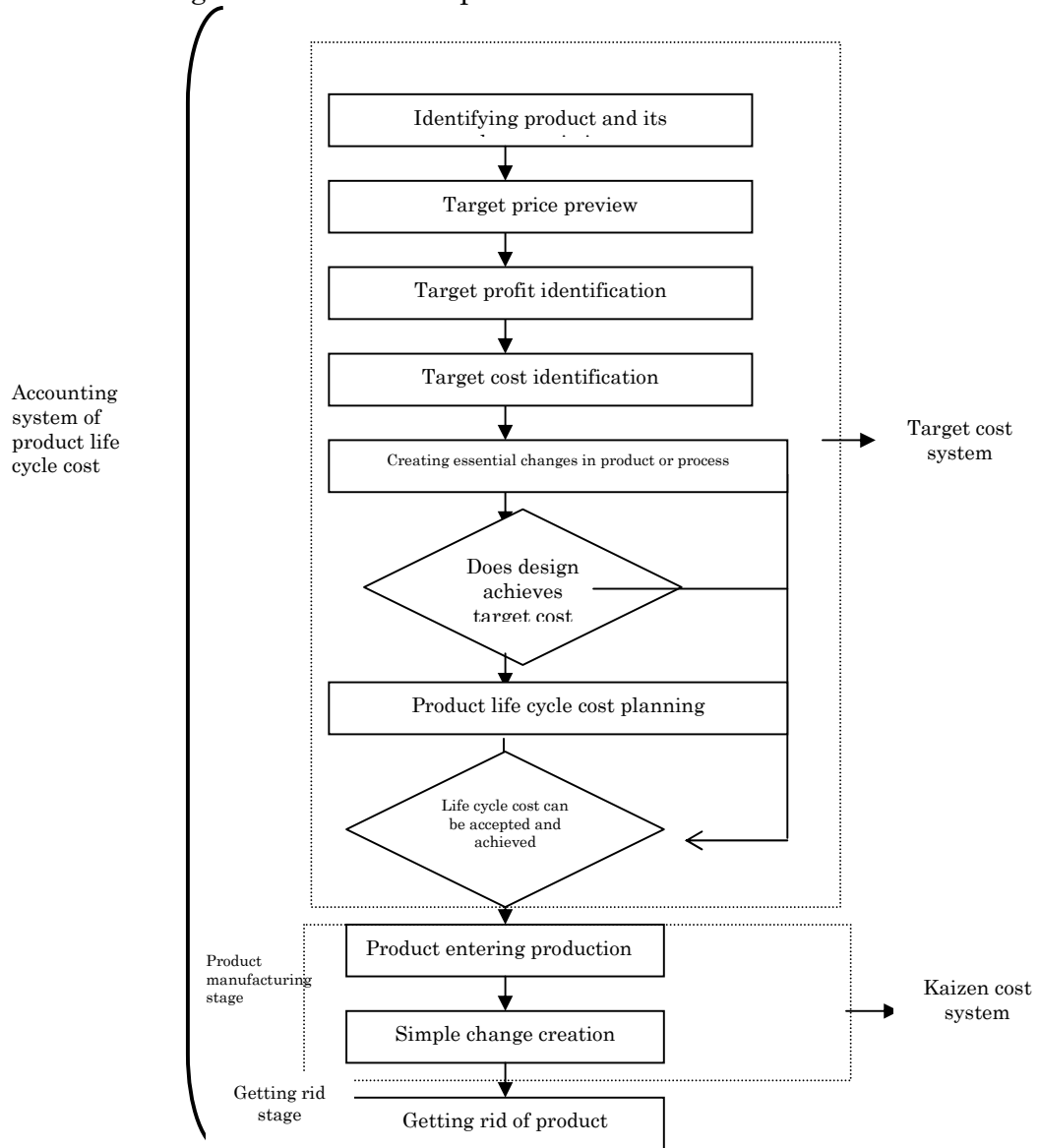
Or approach is enough for the organization to reach all objectives it desires and when that does not happen, point of views would emerge suggesting the unfeasibility, or at least limitedness of implementation of some tools. The researcher regards that the effective program of SCM must address organically integrated and correlated axes, tools and stages and can be stated in light of what had been stated previously of relationship through (see figure2).

Third Level: Level of SAOI Analysis

To include many integral relationships that the researcher would attempt to display in five auxiliary levels, may be stated as follows: a) main components level; b) level of the auxiliary analyses included in accounting models; c) level of the component significant to the general strategy success; d) level of explained analyses of price changes; and e) level of explained analyses of quantitative.

Fourth Level: level of the relationship between SCM and strategic analysis of operation revenue

The researcher regards that at such level many relationships exist that may be addressed through two dimensions as follows: a) the influence dimension of SCM axes and tools on selection, management and development of general strategy /strategies in competition, and b) Integral dimension between strategic analysis of operation revenue and strategic cost management axes.

RESULTS

First: the researcher had presented almost twenty studies, addressing the intellectual development and scientific and practical efforts the researcher exerted in the field of strategic cost management, whether were theoretical frameworks, approaches and ideas, or practical of what had been reached of studies inferred Lack of interest in study of

integral relationships between strategic cost management axes and tools and depending on the perspective unity in adoption of some tools as an approach in achieving the strategic success.

Figure 2 integral relationships between SCM axes and tools
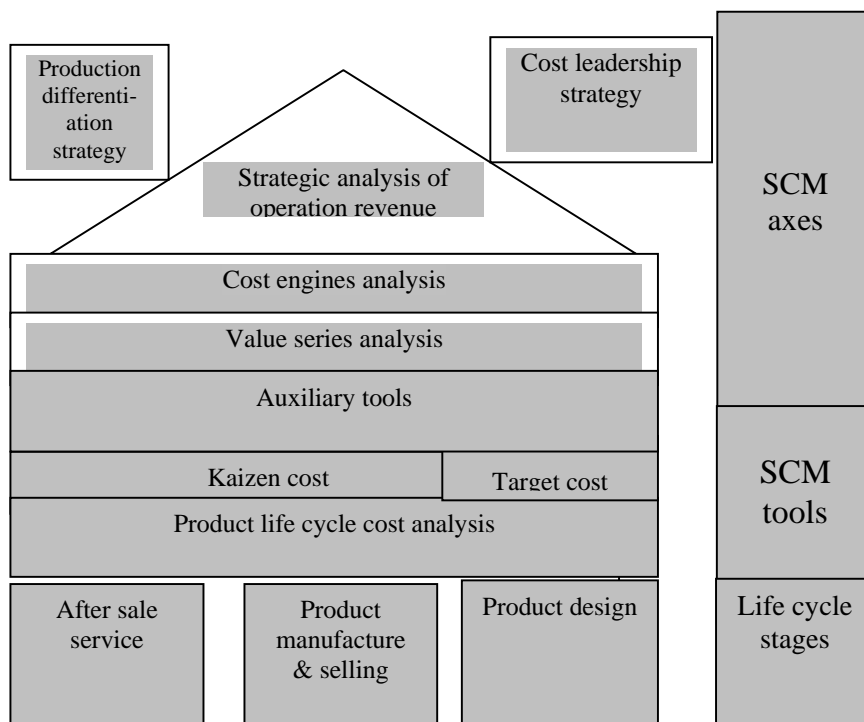
Success of target cost approach as one of cost management tools in the practical status and many of competitive environments and not just confining to the Japanese environment in actual life. Lack of

interest in measurement and assessment the competitive position, or providing tools expressive of the extent of success in competitive strategy management, the researcher outweighs that the reason in that is the delay in emergence of the strategic analysis approach of operation revenue. Second: Strategic cost analysis is distinguished and so is strategic cost management, from traditional cost analysis with that the later does not pay attention to the organization view and strategy, as the researcher had explained through a set of comparison tables the major differences between, the two traditional and strategic analyses of cost, and the aspects of disagreement between the two strategies of cost leadership and product differentiation from cost management perspective and also the essential disagreements between the of cost the stages of development in the general objective accompanying the development in cost management concept, the researcher had also presented the cost management axes in between the organizations as a modern strategic perspective of the relationship between business organizations. Third: the researcher had arrived at that strategic cost management must have defined axes forming the main sides of all efforts that could be exerted for success in management, control and reduction, or influencing cost adjustment accompanying the competitive strategy and also the effective tools that make the strategic cost management an approach applicable in the practical life.

Fourth: the researcher tried to present a set of accounting models through which strategic analysis may be made, that would detect the extent of success realized in the competitive position of the organization, depending on comparison between operation results realized between the basic year and comparison year, as fourteen models have been formulated that detect the reasons/ components of change in operation revenue, as it was differentiated between three components. They are growth, price coverage component, productivity component and also were differentiated between revenue impact and

cost impact on growth and price coverage components, and then it was differentiated between a set of variance through which the extent of success in selection and execution of the cost leadership and product differentiation strategies may be judged out. Then lastly price changes impact and market share change impact upon assessment of success in competitive strategy / strategies management were expressed. Fifth: After acquaintance with scientific and practical basis of both of strategic cost management, and strategic analysis of operation revenue, it became possible manifesting the integral relationship levels between each others.

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Strategic Framework for Supply Chain Management

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ABSTRACT

The relevance of Supply Chain Management (SCM) strategies is much more in this competitive world, where there is fluctuating market. The theme is given by a structured model frame work. There are different types of strategies in supply chain management. Some of them are sourcing strategy, inventory strategy, warehousing strategy, transport strategy, customer satisfaction strategy etc. The Strategic decisions are very crucial for an organization. Here different types of supply chain strategies are discussed.

Key Words: Supply chain management, Strategies, Uncertainty

INTRODUCTION

The role of marketing can not be ignored in successful supply chain implementation. Min and Mentzer (2000) exclusively studied the role of the marketing in effective supply chain management, marketing concept, marketing orientation, relationship marketing and its impact on supply chain implementation. They hypothesized that marketing

function promote individual firms' coordinated activities inside and outside the firm to achieve customer satisfaction. Effective supply chain management requires partners to build and maintain close long term relationship. Ellram and Cooper (1990) asserted that a successful business rely on farming strategic partnership a long lasting inter firm relationship with trading partner. Better relationship helps in inventory and cost reduction and joint planning to impart agility and success to the supply as a whole. Marketing plays an important role in implementation and success of supply chain at strategic and tactical level. It provides valuable market information and success of supply chain at strategic and tactical level. It provides valuable market information about customers, competitors, potential channel partners, and emerging business avenues and information is the key in managing supply chain agent. The management consulting industry contributes with new buzz words to stimulate and sustain interest. "Supply chain thinking" is a better characterization. It infers a gradual infusion of new mindset and methods into traditional task. Supply chain thinking brings a new perspective for managers to deal with the issues relating to products, markets, people and skills, operations and finance.

Supply Chain Management (SCM) is an integrative business philosophy and implementation action to manage materials information and cash flows from raw material excavation to ultimate end use. The objective of implementing Supply chain management is to reduce inventory level, increase customer satisfaction and build competitive advantage to create customer value. Supply chain management presents an integrated approach to resolve issues in sourcing, customer service, demand flows and distribution.

The results derived by applying SCM are as follows:
1. Reduced operational cost.
2. Improved flow of supplies.

3. Reduction in delays in distribution and increased customer satisfaction

RELTAIONSHIP STRATEGIES IN SUPPLY CHAIN MANAGEMENT

In the present scenario of globalization, customer service and supply chain management is becoming significant to the corporate world. Companies are dealing with consumer through suppliers, distributors, and retailers. They want to deal with their customers directly. On the other hand consumers' demands are increasing. So companies must acquire suitable strategies for immediate flow of product and information through out their supply chain network. The main theme is to manage customer service in order to attract, enhance and retain customer. It acts as an antidote for building long term relationship with potential customer. Customer relations help to operate the front office functions of sales, marketing and customer services. Customer relations are marketing function and target the profitable customer (Sheth and Parvatiyar, 1995). Marien (2000) lays out the four key enablers like organizational infrastructure, technology, strategic alliances and human resource management which are the key aspect of supply chain management effectiveness. Customer Relationship is technology driven. The main components include ways of customer contact like telephone, mail, personal selling, after sales service etc, call centers, automatic complaint handling, electronic point of sales and integrated information system for digital world. The major thing is to gather and segment information in order to develop customer insight for effective business. The objective of supply chain management and customer relations is not different. The purpose of implementing supply chain management is to ascertain higher customer satisfaction, increasing profit, expanding revenue base, reducing inventory, lowering product cost and increasing reliability of products. This trend confirms the finding at global level by many

scholars (Cooper et al. 1997, Lambert & Pagh, 1998; Bowersox & closs, 1989). The main objective of SCM is to fulfill the demand at a right place at the right time with right quality at the lowest possible cost. The movement of materials, intermediates and the final product from the producer to the consumer is called logistics. Logistics is an integral part of SCM. The relationship between supplier and company on the basis of cost, quality, speed and flexibility is given in (Table-1).

MANAGING SUPPLY CHAIN TO CUSTOMER NEEDS

Customer oriented companies need to build leading edge supply chain management system. For this five areas must be addressed.
(i) Understanding customer service need
- Which customer-servicing elements are important to customer?
- What performance levels are acceptable?
- What value added capability can give the company a distinctive edge?
(ii) Structure and operating policies
- How many distribution centers should a company have? Where should the location be?
- What are the costs and customer service implications of supply chain network design?
- What types of supply chain network configuration make the best strategic sense:
   Hence Integrated supply chain management requires careful design of three elements. They are organization structure, customer need and culture of each company.

SUPPLY CHAIN REDISGN STRATEGIES

In today's uncertain environment new products are launched and

businesses are born everyday. Customers are increasingly difficult to keep and costly to replace. Companies face intense competition from traditional powerhouses and new players and must continue to find new opportunities and increase efficiencies. The effect of September 11 2001 has made the global market environment even more volatile, with added security concern for global travel and logistics. So Companies increasingly focus themselves as a part of supply chain rather then a single firm competing against other individual firms (Christopher, 1998). This holds true especially in food supply chain because of self-life constraints of food products and increased customer attention for safe and environmental friendly production methods (Boehlje et al; 1995). Recent event have increased interest in supply chain management (SCM) as a means of improving the strength of supply chain. The development of SCM appears to start along the line of physical distribution and transport (Croon et al. 2000), based on the theory of industrial Dynamics, and derived from the work of Forrester (1961). The term Supply Chain Management was originally introduced by consultants in the early 1980s and has subsequently gained tremendous attention (La Londe 1998). A typical supply chain is a network of information's, materials and services possessing link with the characteristics of supply, transformation and demand.

More over Supply Chain Management (SCM) is the integration of activities relating to supply chain and management of supply chain organization and activities through co-operative organizational relationships, effective business processes and high levels of information sharing to create high performing value systems that provide member organizations a sustainable competitive advantage. The beginning of a supply chain can be traced back to "Mother Earth", that is the ultimate original source of all materials that flow through the chain (eg. iron ore, coal petroleum, wood etc). Supply chains are essentially a series of linked suppliers and customers; every customer

is in term, a supplier to the next down stream organizations until a finished product reaches the end user.

Since 1980s, literature on SCM has emphasized the need for collaboration among successive actors from primary producers to final consumer to satisfy consumer demand at lower costs. As defined by the Global Supply Chain Forum, SCM integrates business processes from end user to original suppliers; and it provides products, services and information that add value for customers and stakeholders (Lambert et al. 1998). A driving force behind SCM is to optimize its own results rather than optimize the performance of the chain by integrating its goals and activities with other organizations. Now SCM is the planning, co-ordination, and control of all business process in an integrated way in order to deliver superior customer value at minimum cost to the end customer keeping in view of other stakeholders (Cooper et al. 1997).

The following questions among many others were identified by Lambert and Cooper as potential research opportunities:

- How should a firm decide which internal process to link with which customers and suppliers?
- How should a firm analyze the network to determine if there is a better configuration?
- What decision criteria determine whose internal business processes prevail across all or part of the supply chain?
- What are the barriers to implement and how should they be overcome?

Academics first described SCM from a theoretical stand point to clarify how it differed from more traditional approaches to manage the flow of materials and the associated flow of information (Ellram & Cooper, 1990). According to Bechtel & Jayaram (1997), the emphasis was on facilitating product movement and coordinating supply and demand between a supplier and buyer. Competitive advantage can be

derived through the management of materials through inbound and outbound channels. SCM literature provides little information on how to redesign supply chains and evaluate these designs qualitatively and quantitatively (Beamon, 1998).

STRATEGIC ROLE AND RESPONSIBILITIES

In a stable environment each function manages independently. In an uncertain or dynamic environment a close working relationship among functions is needed and operated in an integrated way.

Performance measure: Performance is measured according to desired result. It is determined taking into consideration several inputs and its outputs.

Information System: Three aspects of this system are important.

- Timely and accurate information.
- Integrated applications software with full functionality.
- Advanced decision support system which allow a "what if "simulation of the cost and customer service.

Channel Integration: The efficiency will increase by integrating the supply chain management system with the suppliers and customers.

Creating the perfect order: The perfect order is designed to measure the effectiveness of a defined function. It measures the percentage of orders that proceed through every step of order management process without any fault. Each step must go smoothly for the order to consider as a perfect one.

These steps are as follows:

- Order entry
- Credit clearance

- Inventory availability
- Accurate picking
- On time deliver
- Correct invoicing

DECISION POLICY AND COMPLEXITY

Decision policies applied in a supply chain may result in bad performances. In the supply chain for fresh fruits and vegetables, the purchasing department of the exporting firm aggregated customers' orders over time to be able to buy large batches, thus reducing responsiveness. Furthermore, customers demand on different products in one delivery but each product may have a different lead-time. Hence decision complexity is a major source of supply chain uncertainty.

Supply chain Information system

Timely data and applicable data are prerequisite when exchanging information. In information is not up to date and will managed in order to provide current information on stock levels and stock availability, the total time frame of considerations i.e. Order forecast horizon becomes larger.

Supply Chain organization structure

The final sources of uncertainty were identified in the company culture and division of responsibilities and authority. Specific human behaviour in decision-making processes resulted in different outcomes because of cognitive or political influences.

STRATEGIC SUPPLY CHAIN PERFORMANCE

Integrated SCM will only increase the importance of logistic activities. SCM provides supply chain members with the opportunity to optimize logistical performance at the inter-organizational level. This represents a major departure from current logistic practices that are often characterized by independent efforts with limited co-ordination with organizations. Logistic professional will continue to be challenged to manage the movement of product across the supply chain in a timely and cost effective manner that meet customers' required service levels. In order to meet this challenge, a supply chain wide logistics strategy is required which will be the primary driver for the specific logistics strategy with in each supply chain member organizations. Distribution networks, transportation modes, carrier management, inventory management, warehouse. The scope of the logistic strategies is now the entire supply chain. It is no longer necessary for each supply chain member organizational to manage its logistic activities on an independent basis

CONCLUSION

Supply Chain Management is an integrated concept. Traditional approaches to maximize efficiency, utilization and productivity and to minimize costs and wastages are not adequate. Today's world of competitive environment requires focus on customer. It requires perfect alignment between the business strategy and the supply chain strategy. So decision-makers must realize the importance of arranging inputs to manufacturing. Vendor relations must be improved for better management. Logistics problems require multiple solutions depending on the industry. So only joint efforts can solve the supply chain related problems. Results of transformation are encouraging and the can look

forward to sustain growth in future. For this the company has to develop new strategies as new challenges come up.

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