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Dr. Narindar N Kathuria received his Ph.D. from University of North Carolina, Chapel Hill, USA. He is currently the Managing Director of Actuate Business Consulting in India. Dr. Kathuria has provided consulting services in the field of operations management to many multinational corporations for over thirty years. His work has been published in refereed journals including the *International Journal of Operations & Production Management*.

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Competitive Priorities and Strategic Consensus in Emerging Economies: Evidence from India

ABSTRACT

With rapid industrialization around the globe, manufacturers in developing economies are gaining expertise in producing high quality items at a low cost. The need to understand the manufacturing practices in emerging economies is paramount due to potential competition from those countries. Different nations—developed, developing, or undeveloped—possess different competitive advantages due to their country-specific determinants and underlying cultural values. Further, rapid growth in emerging world markets offers an opportunity for companies in the developed countries to extend their operations globally. The focus of this study is India, which is emerging as a major player in global manufacturing and will be a part of a new competitive landscape. As Foreign Direct Investment (FDI) continues to flow into India, and the middle class of this vast country continues to grow, India will play an increasingly prominent role in global business and trade. The purpose of this study is to gain insight into the manufacturing strategy of Indian firms and strategic consensus among managers in India. Contrary to our expectations, differences in competitive priorities exist across managerial levels in India despite the high power distance and low individualism.

Key words: Manufacturing strategy, Competitive priorities, Strategic consensus, India.

INTRODUCTION

Though manufacturing strategy has been the focus of academics and a top ranked issue for manufacturing managers, research in the area has focused mainly on manufacturers and their strategies in the developed economies, such as the United States (cf., Wood, Ritzman, and Sharma, 1990; Miller and Roth, 1994; Kim, 1996; Boyer and Lewis, 2002; Joshi, Kathuria and Porth, 2003; Swink, Narasimhan and Kim, 2005), Japan (cf., Nakane, 1986; Kim, 1996), Europe (cf., Ferdows and De Meyer, 1990; Kim, 1996; Rosenzweig and Roth, 2004), and Pan Pacific region (cf., Vastag and Whybark, 1993; Narasimhan and Jayaram, 1998; Voss and Blackmon, 1998; Flynn and Flynn, 2004). Some notable exceptions are the studies by Nagabhushana and Shah (1999) and Dangayach and Deshmukh (2005) in India, and Amoako-Gyampah and Meredith (2007) in Ghana.

With rapid industrialization around the globe, manufacturers in developing economies have become capable of producing high quality standardized items at a low cost. The need to understand the manufacturing practices in emerging economies is critical due to potential competition from those countries. Different nations—developed, developing, or undeveloped—possess different competitive advantages due to their country-specific determinants and external variables, including various roles of government (Porter, 1990). Further, rapid growth in emerging world markets offers an opportunity for companies in the developed countries to extend their operations globally.

India is a particularly appropriate country to begin to include in studies of manufacturing. With a population of 1.17 billion, India is the world's largest democracy and second most populous country, representing over 15% of the global population. Furthermore, the booming Indian economy is in a state of transformation. FDI in India skyrocketed from $155 million in

1991 to $6.6 billion in 2005. India's economy is the tenth-largest in the world measured in nominal U.S. dollars and is growing rapidly. Real GDP growth in India from 2001 through 2005 averaged 6.8% and reached 9.2% in 2006. Business processing, information technology, telecoms, and manufacturing have boomed in recent years. Manufacturing now represents 15.1% of India's GDP. Principal exports in 2005 were engineering goods ($20.9 billion), textiles and clothing ($15.6 billion), and gems and jewelry ($15.1 billion). The conglomerate of EU nations is India's largest trading partner, accounting for more than 20% of India's imports and exports. The United States is India's primary single country export destination, accounting for 19.1% of total exports, followed by China which represents 9.4% of exports (*The Economist.com*, 2007). With the opening up of the Indian economy to foreign investment and competition, the manufacturing sector in India has tremendous potential for manufacturers worldwide, in terms of the opportunities for outsourcing to/from India, or establishing production facilities (Vachani, 2008).

As mentioned earlier, the priorities and practices of U.S. manufacturers have been documented in the literature and compared with European countries, Latin America and Japan based on large scale survey efforts, such as the Global Manufacturing Research Group (GMRG), Manufacturing Futures Project, Vision in World Class Manufacturing Project (VWCM), and World Class Manufacturing Project (Roth et al., 1997). Two of these projects, GMRG and VWCM, intended to cover India, but little research has been published about manufacturing practices in India.

Dangayach and Deshmukh are a notable exception as they have published papers on manufacturing strategy practices in India based on case studies as well as survey data. For example, in a case study of three Indian organizations, Dangayach and Deshmukh (2000)

observed their order winners and order qualifiers, and classified them as either "internally/externally neutral" or "internally/externally supportive." Based on a sample of 25 Indian process companies and three case studies, Dangayach and Deshmukh (2001a) examined competitive priorities, order winners, and the extent of use of various 'activities of improvement,' such as advanced manufacturing technology, integrated information systems, and advanced management systems. They published a similar study (Dangayach and Deshmukh, 2001b) using another sample of 27 automobile companies and five case studies. In yet another study, based on a sample of 122 companies from four industry sectors—automobile, electronics, machinery and process—they assessed the extent of use of certain advanced manufacturing technologies along with their competitive priorities (Dangayach and Deshmukh, 2005). In all of their studies, they have used single respondents from participating companies.

In the present study, we first examine the competitive priorities of manufacturing companies in India as perceived by two respondents from each participating company—the manufacturing managers and senior executives. In addition, we examine the level of agreement or strategic consensus between senior executives and manufacturing managers on manufacturing competitive priorities in India. The need for strategic consensus or alignment of competitive priorities throughout the manufacturing organization has been emphasized since the pioneering work of Skinner (1974). Strategic consensus is achieved when various levels of employees within an organization agree on what is most important for the organization to succeed (Boyer and McDermott, 1999; Kathuria et al., 1999). . For example, agreement within an organization regarding the relative importance of cost, quality, delivery and flexibility to the organization's operational goals underscores strategic consensus. In theory, lower levels of strategy are consistent with higher levels of strategy so as to foster their successful accomplishment

(Kathuria et al., 1999). Robinson & Stern (1998), however, suggest that strategic consensus is achieved when the interests and actions of all company employees are focused on a company's key goals.

Alignment is important not only in developing strategies but also in their implementation (Joshi et al. 2003). Implementation is fostered by aligning key decisions within the firm, including organizational objectives and priorities (Galbraith & Nathanson, 1978). The lack of strategic consensus within an organization may send mixed signals to the employees resulting in failure to accomplish the organizational objectives. Consider, for example, the general manager of a company wants to compete on the basis of a variety of product offerings and frequent design changes. The manufacturing manager on the shop floor, however, considers running equipment at peak efficiency and having long, uninterrupted production runs to be of paramount importance. This company is clearly a victim of lack of strategic consensus as the general manager is emphasizing flexibility whereas the manufacturing manager is focusing on low cost. No matter what the reason for such a lack of consensus, the company's priorities get undermined due to lack of agreement between the two levels of managers. In this study, we advance and test hypotheses, founded on the prevailing cultural norms, with regard to the lack of consensus in India.

THEORY AND HYPOTHESES

Competitive Priorities in India

India had been working in a protected market up until 1991. Since the economic reforms initiated in 1991, Indian firms have been increasingly exposed to international competitive practices through imports and multinational companies in the domestic market. Indian

manufacturing industry is also under constant pressure to improve manufacturing by making it more proactive and responsive (Chandra and Sastry, 1998). Based on a survey of 38 discrete manufacturing units from a diverse group of industries in India, Nagabhushana and Shah (1999) reported the top three objectives as: a) reduce unit cost, b) improve performance of the product, and c) increase delivery speed. They also observed that the three objectives represented the competitive priorities of cost, quality and delivery respectively. The objectives relating to flexibility were at the bottom of the list. The differences in scores of the top three objectives were not statistically significant from one another, but the scores for the top two items representing cost and quality respectively were significantly different from scores for dimensions relating to flexibility. They also noted that since India had been working in a protected market before 1991, Indian senior executives, their survey respondents, were pursuing cost reduction as one of the top three manufacturing objectives. They, however, expected quality and delivery to take priority over cost in the minds of Indian managers with the passage of time.

We expect the competitive priorities of Indian companies to have shifted since the Nagabhushana and Shah (1999) study. According to Dangayach and Deshmukh, "The new competition is in terms of reduced cost, improved quality, products with higher performance, a wider range of products, and better service, all delivered simultaneously" (2000; p. 136). Based on an in-depth study of three Indian manufacturing firms, Dangayach and Deshmukh (2000) observed that quality appeared among the top competitive priorities for all three firms, cost and delivery for two of the three firms, and product flexibility for only one of the three firms. Based on a broader sample, Dangayach and Deshmukh (2005) confirmed that the Indian companies in their sample were placing the most importance on quality and the least importance on flexibility.

As noted earlier, the FDI in India has increased rapidly over the years. The location of manufacturing facilities is chosen not only to save costs (lower wages, access to needed materials, tax considerations) but also assuming that the facility can compete in the global economy on the basis of quality. While cost is an important strategic priority in any manufacturing environment, products that fail to meet quality requirements do not sell, regardless of their cost/price. Achieving quality standards is a necessary condition for competing in the global economy, and therefore is the most important competitive priority. Hill (1994), among others, has noted the importance of quality as a prerequisite to compete in a global market. Thus, we expect Indian plants to place a high degree of emphasis on quality as well as cost. Further, since the Indian economic reforms in 1991, Indian manufacturers have been subject to global competitive pressures. Hence, we expect that delivery speed and delivery reliability are now quite important for Indian manufacturers, and so is the ability to customize products and handle changes in the product mix quickly. Thus,

H1. Managers in India place equally high emphasis on quality, cost, delivery, and flexibility.

Strategic Consensus in India

Strategic consensus is defined as the shared understanding of strategic priorities among managers at different levels of the organization (Kellermanns et al., 2006). Skinner (1974), the pioneer of manufacturing strategy, conceptualized the need for strategic consensus or alignment of priorities across hierarchical levels—corporate, business, and functional. Strategic consensus is believed to occur when employees at different hierarchical levels within an organization agree on the relative importance of competitive priorities, such as cost, delivery, quality and flexibility (Boyer and McDermott, 1999; Joshi et al., 2003). Theoretically speaking, if there is perfect communication among managers at various levels across the organization, there should be no

difference in their perception of the importance attached to various competitive priorities in their organization. However, within an organization, differences have been observed between managers at different hierarchical levels in the relative importance attached to a competitive priority.

These observations, however, have been confined to the developed nations, mainly USA. Strategic consensus on manufacturing competitive priorities is an under researched theme (Sarmiento et al., 2008). Some studies in the Operations Management area (e.g., Hayes and Wheelwright, 1984; Youndt et al., 1996; Papke-Shields and Malhotra, 2001) have focused on the notion of strategic consensus or alignment, but few, as discussed below, have addressed the issue of consensus using multiple respondents. Based on a study conducted on thirty-five manufacturers in the machinery and machine tool industries in the U.S., Swamidass (1986) found a lack of consensus between CEOs and manufacturing managers in that, while chief executives emphasized quality and technology, manufacturing managers stressed cost and the keeping of delivery promises. Kathuria et al. (1999) also noted a lack of consensus on manufacturing competitive priorities between two levels of managers in the U.S. Boyer and McDermott (1999) deployed the multiple-respondent approach to elicit strategic consensus from seven plants in the U.S. They also observed a statistically significant difference between managers and operators on the importance attached to some competitive priorities.

Based on the above findings of researchers in the operations strategy field one might be tempted to generalize the lack of strategic consensus as a universal phenomenon. Lindberg, Voss and Blackmon (1998), however, note that “Every country and region represents a different context for manufacturing strategy. The local context…will also include the social and cultural aspects of the country and region that impact manufacturing” (p. 4). They further add, “Thus,

culture will have a profound impact on the decisions made in organisations, and thereby also on the strategies that evolve over time" (p. 7). We agree and thus contend that strategic consensus is influenced by the national culture. In general, we expect the lack of consensus between manufacturing managers and senior executives in India to be virtually non-existent. These expectations are based on the research of Hofstede (1983, 1993) who has completed a series of studies on the impact of national cultural on the practice of management. Hofstede has identified five dimensions of national culture that help to explain the differences in how management is practiced around the world. Two of his cultural dimensions are of particular relevance in this study—power distance and individualism.

Power Distance is defined as the degree of inequality among people that the population of a country considers as normal, which ranges from relatively equal (low power distance) to extremely unequal (high power distance). All societies are unequal, but some are more unequal than others. Individualism is the degree to which people in a country prefer to act as individuals rather than as members of a collective group (Hofstede, 1993, p 89). Based on Hofstede's findings, India scores high on power distance—a score of 77 that put India in the top third among 50 countries in his sample. To put things in perspective, the U.S. was ranked in the bottom third on power distance. This concept reflects the extent to which differences in power and decision-making authority exist within organizations in a particular culture. The data suggests that power is not equally shared in Indian companies and that decision-making is more centralized in India than in the U.S. This is one reason we expect to find consensus among manufacturing managers and senior executives in India.

According to Hofstede's data, the people of India are generally more accepting of authority based on age, experience, qualification, etc. This may be a function of the prevalent

value system in India that indirectly promotes respect for rank. The revered scriptures of India, such as the *Bhagavad-Gita,* also teach respect for rank and authority based on the four divisions of the social order—the intelligent class, administrative class, mercantile class, and laborer class (Prabhupada, 2008). Though India is a secular country, with representations from all major religions of the world, such values are ingrained in the Indian culture that manifest as high power distance.

A second key cultural difference between countries according to the work of Hofstede is with respect to individualism versus collectivism. The data suggests that Indians are much more likely to prefer to act as members of a group. India ranked in the middle third with a score of 48 on individualism. To put it in perspective, it may be noted that of the 50 countries studied by Hofstede none ranked higher than the U.S. on the dimension of individualism. This suggests that American managers are more likely to act on their own and more willing to act independently of the group, which might manifest in the form of lack of strategic consensus as has been observed in the U.S. (cf., Boyer and McDermott, 1999; Joshi et al., 2003). In contrast, we contend that Indians will feel a stronger pull to be loyal to the group. The corollary in a business context is that Indian managers will exhibit more alignment with the corporate structure. Thus, we expect to see a lack of misalignment of competitive priorities in India since research on cultural dimensions suggests that decision-making is more likely to be centralized among more senior managers in India. Competitive priorities in manufacturing will be determined at higher levels of the organization and communicated to manufacturing managers, who would prefer to align with their superiors.

> *H2. The emphasis on competitive priorities by senior executives and manufacturing managers in India does not differ.*

RESEARCH METHODOLOGY

Sample and Data Collection

The unit of analysis for this study was a manufacturing unit. For each unit in the sample, data for the study were collected from two levels of managers in India. The Manufacturing Manager's survey, shown in the Appendix, was completed by the individual responsible for managing the manufacturing function of the organization. The titles of manufacturing managers who responded to the surveys included Operations Manager, Director of Operations, and Manufacturing Manager. The Senior Executive Survey, also shown in the Appendix, was completed by the supervisor of the manufacturing manager who responded to the manufacturing manager's survey.

Letters requesting participation of Indian managers were jointly signed by researchers in the U.S. as well as in India. Follow-up letters were also signed by researchers from the two countries, but respondents were asked to return the questionnaires to our associates' office in India. After two follow-ups, the response rate from India was about thirty percent, with 156 usable responses received from 78 manufacturing units. The sample from India is a national sample. The sampling frame in India comprised of the SIC codes 20-39. The frequency distribution of participating industries in the sample is presented in Table 1.

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Insert Table 1 about here
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Measures

The term "competitive priorities" is used to describe manufacturers' choice of planned or intended strengths in terms of low cost, flexibility, quality, and delivery (Ward, et al., 1998; Kathuria, 2000; Boyer and Lewis, 2002; Rosenzweig and Roth, 2004; Swink et al., 2005). Given the multi-dimensional nature of these priorities, multiple items were used to capture a

manufacturer's emphasis on each competitive priority. The managers rated all items on a five-point Likert type scale with values ranging from 1 to 5, with 5 being extremely important. The items in the questionnaire, furnished in the Appendix, were arranged in a random order to elicit accurate information from respondents.

Reliability and Validity of Scales

The potential problem of common methods variance (CMV) due to mono-respondent bias was countered by getting data on the competitive priorities from two high-ranking respondents from each participating unit. The manufacturing managers and senior executives of the participating units were asked to rate the importance of the competitive priorities on a five-point Likert type scale. Data from the two levels of managers was used to test Hypothesis H1 and the matched-pair response from each participating unit was used to test Hypothesis H2. High ranking respondents—manufacturing managers and senior executives—used in the study also helped to minimize the potential problem of CMV, since they are considered to be more reliable sources of information (Miller and Roth, 1994; Kathuria, 2000).

Another common criticism of such measures is the lack of variability since, according to Boyer and Pagell (2000), no company would want to say that they don't emphasize certain priorities. In this study, however, responses for several items ranged between 1 and 5 for the competitive priorities. Next, the potential problem of common methods variance due to the use of perceptual measures was tested using the Harman (1967) one-factor test. The same test has been used in similar studies in the Operations Management literature (e.g., Bozarth and Edwards, 1997; Kathuria, 2000). If the measures were to be affected by CMV, then they would tend to load on a single factor. The factor analysis resulted in several factors for both surveys, with the highest factor loadings spread across the factors. Hence, CMV does not appear to be a problem

in this study.

The competitive priority measures used in the study are grounded in operations strategy literature (Hayes and Wheelwright, 1984; Ward et al., 1998; Kathuria, 2000; Joshi et al., 2003), which attests to their content validity. We verified the internal reliability of these scales using Cronbach's alpha coefficients. The alpha coefficients for the flexibility, delivery and quality-of-conformance scales ranged from 0.64-0.77, but alpha for the cost scale for manufacturing managers was 0.55. The quality-of-design scale had a low alpha on both the surveys and hence dropped from further analysis. Since one of the two quality scales were retained, quality-of-conformance will be, hereafter, called quality. This definition of quality is consistent with the one used by Ferdows and De Meyer (1990) and bears considerable similarity with the one used by Boyer and Lewis (2002). The cost scale on the senior executive survey was comprised of only two items, hence the reliability coefficient for that scale was not computed as is customary in the literature (e.g., Boyer and Lewis, 2002; Joshi et al., 2003). Finally, the scores for each scale were determined by adding up the individual scores for the corresponding measures and then dividing by the number of measures.

Similar to the arguments used by Gro¨ssler and Gru¨bner (2006) and Amoako-Gyampah and Meredith (2007), since companies can emphasize multiple competitive priorities, we expected to see significant correlations between the different competitive priority constructs. The constructs should, however, be sufficiently dissimilar for discriminant validity to be present. All significant but moderate (less than 0.7) correlations between the constructs provided further support for discriminant validity; that is, the scales seem to be measuring distinct constructs.

RESULTS

The study hypotheses were tested using the *paired samples t-tests* and Multivariate Analysis of Variance (MANOVA). The multivariate approach (MANOVA) was preferred over separate univariate analyses of variance (ANOVA) for the following reasons: a) to control the overall Type I error, b) to evaluate the mean differences on all four competitive priorities simultaneously, while controlling for the intercorrelations among them, c) to provide for a more powerful test—increased probability of rejecting a false null hypothesis—by examining all four competitive priorities simultaneously, d) enhanced interpretation of results by considering criterion variables simultaneously (Bray and Maxwell, 1985). After performing overall MANOVA, subsequent comparisons on individual competitive priorities were performed using Bonferroni adjustment of the alpha level (Type I error, i.e., probability of rejecting a true null hypothesis).

The use of MANOVA requires that the following key assumptions are met: 1) normality of dependent variables, 2) homogeneity of variances and covariances, and 3) independence of observations (Hair, Anderson, Tatham, and Black, 1998). Using the Kolmogorov-Smirnov test, we found that all four dependent variables meet the assumption of normality at $p < 0.0001$ for the two levels of managers, which was also confirmed by the Normal Q-Q plots. Homogeneity of error variances was tested using the Levene's test for the null hypothesis that the error variance of the dependent variables is equal across groups. Two variables, quality and delivery, show equality of variances across groups ($p = 0.24$ and 0.42) whereas the other two, cost and flexibility, do not ($p < 0.05$). Box's M test did not support the equality of covariance matrices of the dependent variables. MANOVA is, however, considered robust to the violation of equality of variances and covariances when the groups are of equal or near-equal size, and such violations

are not uncommon (cf., Liu, Shah, and Schroeder, 2006). In our case, the number of manufacturing managers equals the number of senior executives. The last assumption of independence of observations is supported as the plants in the sample are independent of one another. Independence is further assured as the data are collected from two executives at different hierarchical levels in each participating unit. MANOVA also requires the number of observations in each group to be more than 20 or at least greater than the number of dependent variables included in the model (Hair et al., 1998). Our sample exceeds the thresholds for group sizes, which are large enough for conducting MANOVA.

Competitive Priorities in India

The overall hypothesis that Indian executives place an equally high degree of emphasis on all four competitive priorities was not supported. Contrary to our expectations, the average emphasis by senior executives on the four competitive priorities ranged from 3.162 for cost to 4.584 for quality. As shown in Table 2, top panel, all paired comparisons are significantly different at $p<0.0001$ except for the cost-flexibility pair, which also has the lowest emphasis of all. Such a low emphasis on cost is surprising.

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Insert Table 2 about here
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The results based on the manufacturing managers' data are similar in that five of the six paired comparisons are significant at $p<0.0001$ (Table 2, bottom panel). Manufacturing managers, however, seem to place the same degree of emphasis on cost and delivery, with flexibility still at the bottom of the pile as in the case of senior executives. The rankings of priorities for the two levels of managers based on the significance of paired differences, or lack thereof, are also presented in Table 2. It is apparent that managers at both levels give utmost

priority to quality and least to flexibility. This finding is consistent with that of Dangayach and Deshmukh (2005). Further, delivery ranks the second for both groups. Manufacturing managers however, place high emphasis on cost (=4.038).

Strategic Consensus in India

Hypotheses H2 regarding equal emphases of the two levels of managers in India on the four competitive priorities was also not supported using MANOVA. Based on the results in Panel A of Table 3 (Wilks' Lambda = 0.549, F = 30.865, $p < 0.000$), we reject the overall hypothesis of no differences in perceived importance of competitive priorities based on respondents' position, which explains 45 percent of the variance in differences (Partial Eta squared = 0.451). Subsequent analyses by competitive priority in Panel B reveal that manufacturing managers disagree with senior executives on the degree of emphasis placed on all four priorities. The follow-up pairwise comparisons with Bonferroni adjustment conducted to understand the direction of difference indicate that senior executives in India place greater emphasis, than the manufacturing managers, on quality and delivery. Further, manufacturing managers tend to emphasize the other two priorities—cost and flexibility—more than the senior executives. This finding is discussed further in the next section.

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Insert Table 3 about here

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DISCUSSION

A relatively high emphasis by both levels of managers on quality, compared to the other three competitive priorities, is noteworthy and consistent with the global trends. The emphasis on delivery is a close second, which is also a good sign. This high emphasis may be a function of the relative importance of quality and delivery in the changing global environment. Quality, as mentioned before, is becoming an order qualifier. The International Standards Organization and

the institution of quality awards in various countries, for example the Malcom Baldridge Award, seemed to have helped raise quality awareness around the globe.

Further, given the globalization trend, more and more countries/firms buy materials or components from around the globe. A Wall Street Journal article reports that automobile manufacturers such as Ford, Honda, Suzuki, and Hyundai have all increased manufacturing and investment in India to not only serve growing demand in the Indian market but as an export base to serve markets in Eastern Europe, Latin America and Africa (Solomon, 2003). In addition, auto parts manufacturers in India are now suppliers to almost all the major U.S. and Japanese auto makers, including Ford, General Motors, and Toyota. And Indian officials predict that exports from India of auto parts could reach $10 billion by 2010, making India one of the world's major suppliers (Solomon, 2003). This globalization trend in India seems to have raised the awareness and need for delivery speed and reliability in India.

Another significant finding from this study, though contrary to our expectations, is that differences in competitive priorities exist across managerial levels in India despite the high power distance and low individualism. Senior executives place a higher emphasis on quality and delivery while manufacturing managers emphasize flexibility and cost more so than their superiors. These differences between manufacturing managers and senior executives are consistent with those observed in the developed economies, such as USA. This similarity between India and USA might be because “India has well trained and westernized managers” (Vachani, 2008). The differences might be explained in part by the differing responsibilities and perspectives of the two levels of managers as also noted by Joshi et al., 2003. Senior executives tend to stress outward-looking competitive priorities while manufacturing managers are more internally-focused. That is, with respect to manufacturing strategy, senior executives are inclined

to emphasize externally-focused priorities such as meeting customer demands and overcoming competitive challenges. Manufacturing managers see manufacturing priorities as more internally-focused, on cost control and manufacturing flexibility with regard to adjusting capacity rapidly, handling changes in product mix quickly, and introducing new products into production quickly, for example.

The differences in managerial priorities are, however, a source of great concern. It is plausible that the two levels of managers might be pulling their manufacturing firms in different directions, thus inhibiting their competitive potential and growth. These manufacturing firms in India might be faced with the risk that the plant level decisions made by the manufacturing managers are not consistent with, or supportive of, the strategic business level decisions made by the general managers. Such a lack of synergy in competitive priorities at the two management levels could be detrimental to organizational success in the long run.

CONCLUSIONS, LIMITATIONS, AND IMPLICATIONS

This study adds to the research by examining manufacturing practices in a rapidly emerging economy of India. Specifically, it provides insights into the manufacturing priorities of senior executives and manufacturing managers in that country. One implication of this study for Indian managers is the reassurance of knowing that their emphasis on quality and delivery is in line with the expectations in a global economy. The emphasis on flexibility, however, is not as high as quality and delivery. From the competitive progression theory perspective (Rosenzweig and Roth, 2004), the relatively low emphasis on flexibility by both levels of managers in India might suggest that the companies, on average, are still in the early stages of competitive progression and far from the apex. For Indian managers these results appear to suggest a good

start, but to compete globally the focus will need to shift to flexibility, after the initial hurdles of quality, and speed/reliability of delivery have been passed.

In the Indian context, this is the first study that deployed multiple respondents to understand the manufacturing competitive priorities, and also the first to examine strategic consensus in operations strategy. Contrary to our expectations, senior executives and manufacturing managers in India tend to disagree on the relative importance of priorities as has been noted in other parts of the world. The need for senior executives and manufacturing managers to work together to create alignment of manufacturing priorities is an important implication of this study. The observed lack of strategic consensus between the two levels of managers can impede the efforts of an organization to achieve its goals and hence compromise its ability to be competitive. The managers in India need to take note of prevailing differences in managerial priorities, which could impair their ability to successfully compete in a global market place. Special efforts need to be made to facilitate discussions between the levels of management so that priorities are aligned and manufacturing strategy may be unified and coordinated. The top and middle management in India should focus more attention on effective communication of goals throughout the organization.

This study contributes to the literature by examining manufacturing priorities in an important emerging economy, India. As FDI continues to flow into India, and the middle class of this vast country continues to grow (estimated now at 300 million people), India will play an increasingly prominent role in global business and economics. This study should help researchers and practitioners alike to better understand competitive priorities and strategic consensus in the Indian market. This study informs global managers and firms seeking to outsource to, or invest in, India that the Indian managers place significantly high emphasis on

quality and delivery. They should also take note that the managers in India are not placing a high degree of emphasis on product variety or ability to make frequent changes to product design and production volume. Such information should benefit those desiring to conduct business with the Indian firms. One should also note that to get an accurate assessment of an organization's priorities, one would not rely on the information provided by either the senior (general) manager or the manufacturing manager alone, but both. More studies of India will be needed in the future to refine and extend the findings of this study.

In light of the difficulty of obtaining data from Indian companies by researchers from outside of the country as noted by some multi-country study groups, this study seems to have broken the ground. There is, however, room for further refinement by informing future research designs as follows. First, it is plausible that the competitive priorities of Indian firms may be influenced by their ownership structures, such as wholly-owned domestic firms, foreign subsidiaries, or joint ventures, etc., and whether a firm is a supplier to a multinational company. In this study, we examined the effect of ownership as private or public company and found no significant differences, but we could not collect data on the ownership structure. Second, the competitive priorities may also be influenced by the process structure(s) of the participating firms, such as job, batch, line or continuous, as documented in some U.S. based studies (cf., Safizadeh et al., 2000). It may be noted that a majority of the manufacturing companies in this study came from three industries—Chemicals, Fabricated Metals, and Electronic & Electrical Equipment—and, hence, the findings of the study might have been unduly influenced by the prevalent practices in these industries.

We were unable to establish the existence of a complete lack of disagreement (i.e., strategic consensus) between the two levels of managers in India, but it is plausible that countries

with cultures that cultivate collectivism and show high tolerance for inequality among people are more likely to show a higher degree of consensus between managers at different levels in the organization. Future research may attempt to study this phenomenon in two or more dissimilar cultures. It is also conceivable that environmental factors specific to the country of study, other than the national culture, may also affect competitive priorities and the related notion of strategic consensus. Future research may attempt to incorporate factors such as labor availability, competitive hostility, and market dynamism as in Ward et al. (1995). This study also underscores the need for deploying multiple respondents to get an accurate assessment of a company's goals and priorities. The findings of extant studies that relied on a single respondent to assess a firm's competitive priorities are subject to potential biases due that respondent.

India is emerging as a major player in global manufacturing, and will be a part of a new competitive landscape. The results of this study shed light on the competitive priorities of Indian manufacturers and the level of (dis)agreement on those priorities between manufacturing managers and their superiors, and should facilitate future research to understand this and other emerging economies.

Appendix

I. Manufacturing Manager's Survey.

Competitive Priorities**:** Measured by the importance given to each item in *a manufacturing unit*. (1 - Not at all Important --to-- 5 - Extremely Important)

Item #	Underlying construct/measures	Cronbach's alpha
	Flexibility	**0.66**
M4.	Introducing new designs or new products into production quickly	
M6.	Adjusting capacity rapidly within a short period	
M7.	Handling variations in customer delivery schedule	
M2.	Handling changes in the product mix quickly	
M16.	Customizing product to customer specifications	
	Cost	**0.55**
M1.	Controlling production costs	
M3.	Improving labor productivity	
M9.	Running equipment at peak efficiency	
	Quality-of-conformance	**0.77**
M8.	Ensuring conformance of final product to design specifications	
M10.	Ensuring accuracy in manufacturing	
M12.	Ensuring consistency in manufacturing	
	Quality-of-design	**0.39**
		Scale dropped due low alpha.
M5.	Manufacturing durable and reliable products	
M13.	Making design changes in the product as desired by customer	
M15.	Meeting and exceeding customer needs and preferences	
	Delivery	**0.64**
M14.	Reducing manufacturing lead time	
M11.	Meeting delivery dates	
M17.	Making fast deliveries	

II. Senior Executive Survey.

Competitive Priorities: Measured by the importance given to each item for competing in an industry. (1 - Not at all Important --to-- 5 - Extremely Important)

Item #	Underlying construct/measures	Cronbach's alpha
	Flexibility	**.73**
G12.	Frequent design changes or new product introductions	
G14.	Product variety	
G15.	Rapid volume changes	
G17.	Speed in product changeover	
	Cost	**n/a**
G1.	Low price	
G5.	A standard, no-frills product	
	Quality-of-Conformance	**.68**
G7.	Consistent quality,	
G9.	Conformance to product specifications	
G16.	Accuracy in manufacturing	
	Quality-of-Design	**.59**
	(**Scale dropped due to low alpha on corresponding scale in the MM's survey**)	
G2.	High product performance	
G3.	Customized product	
G4.	Large number of product features or options	
G11.	High durability (long life) of product	
	Delivery	**.77**
G6.	Short delivery time	
G8.	Dependable delivery promises	
G10.	Delivery on due date (ship on time)	
G13.	Fast delivery	

n/a – Alphas for a two-item scale are not valid, hence not reported.

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Table 1. Frequency Distribution of Industries by SIC Code

Industry	SIC Code	# Plants	Percentage
Food	20	5	6.4
Tobacco	21	0	0.0
Textile	22	4	5.1
Apparel	23	1	1.3
Lumber	24	0	0.0
Furniture	25	0	0.0
Paper	26	1	1.3
Printing and publishing	27	1	1.3
Chemicals	28	10	12.8
Petroleum refining	29	0	0.0
Rubber	30	1	1.3
Leather	31	1	1.3
Stone, Clay, Glass	32	3	3.8
Primary metals	33	2	2.6
Fabricated metals	34	17	21.8
Industrial and computer eqpt.	35	6	7.7
Electronic and electrical eqpt.	36	13	16.7
Transportation eqpt.	37	3	3.8
Instruments	38	3	3.8
Misc. mfg. industries	39	4	5.1
Total		75*	**100.0**

*SIC code information was missing for three plants in our sample.

Table 2. Emphasis on Competitive Priorities

Senior Executives'

Competitive Priority	Mean Emphasis	Std. Error	Significantly Different from*	Rank
Cost (C)	3.162	0.098	Q, D	III
Flexibility (F)	3.199	0.086	Q, D	III
Quality of Conformance (Q)	4.584	0.056	C, F, D	I
Delivery (D)	4.214	0.069	C, F, Q	II

Manufacturing Managers'

Competitive Priority	Mean Emphasis	Std. Error	Significantly Different from*	Rank
Cost (C)	4.038	0.073	F, Q	II
Flexibility (F)	3.670	0.071	C, D, Q	III
Quality of Conformance (Q)	4.421	0.063	C, D, F	I
Delivery (D)	3.991	0.080	F, Q	II

* at p-value < 0.0001

Table 3. Strategic Consensus in India: Differences due to Respondents' Position

A. Overall Position Effects

Effect	Multivariate Statistic	Degrees of Freedom	F (Significance)	Partial Eta Squared	Observed Power$
Position	Wilks' Lambda = 0.549	4, 150	30.865 (0.000)	0.451	1.000

B. Between-Positions Effects by Competitive Priority

Dependent Variable	Type III Sum of Squares	Degrees of Freedom	F (Significance)	Partial Eta Squared	Observed Power$
Cost	29.743	1, 153	52.011 (0.000)	0.254	1.000
Flexibility	8.586	1, 153	17.907 (0.000)	0.105	0.988
Quality of Conformance	1.036	1, 153	3.751 (0.055)	0.024	0.486
Delivery	1.924	1, 153	4.433 (0.037)	0.028	0.553

C. Pairwise Comparisons by Competitive Priority with Bonferroni Adjustment for Multiple Comparisons

Dependent Variable	Group	Mean	Std. Error	Mean Difference: MM - SE (Std. Error)	Significance One-tailed
Cost	MM	4.038	0.073	0.876 (0.121)	0.000
	SE	3.162	0.098		
Flexibility	MM	3.670	0.071	0.471 (0.111)	0.000
	SE	3.199	0.086		
Quality of Conformance	MM	4.421	0.063	-0.163 (0.084)	0.027
	SE	4.584	0.056		
Delivery	MM	3.991	0.080	-0.223 (0.106)	0.018
	SE	4.214	0.069		

Legend: MM – Manufacturing Manager; SE – Senior Executive; $ Computed using alpha = 0.05