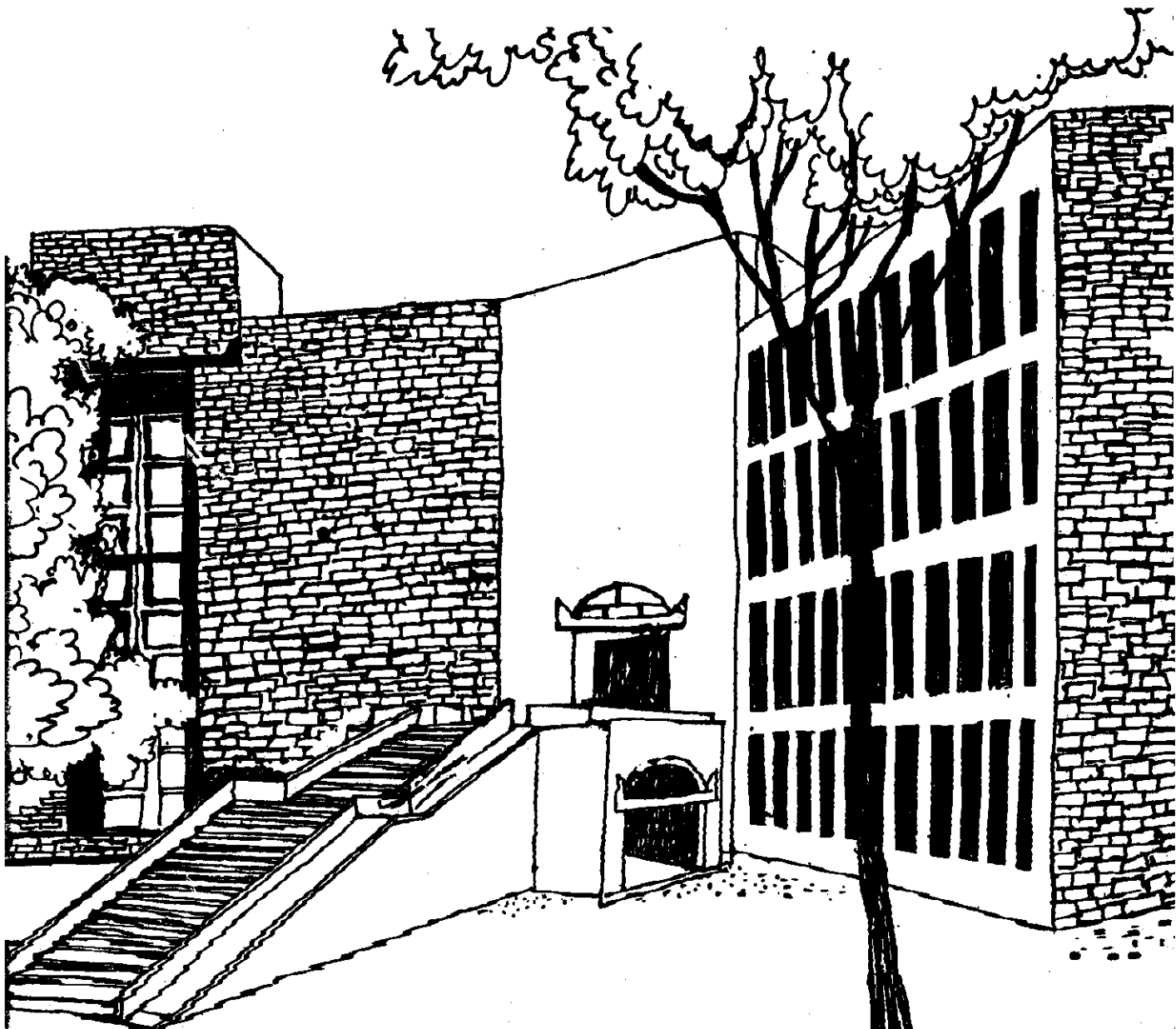


Working Paper



GENERATORS OF PIONEERING-INNOVATIVE
MANAGEMENT : SOME INDIAN EVIDENCE

BY

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GENERATORS OF PIONEERING - INNOVATIVE MANAGEMENT :
SOME INDIAN EVIDENCE

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GENERATORS OF PIONEERING - INNOVATIVE
MANAGEMENT : SOME INDIAN EVIDENCE

Abstract

Based on questionnaire data on a sample of Indian organizations, the paper identifies some of the internal and environmental generators of a vigorous mode of management labelled the pioneering-innovative (PI) mode. The internal generators - top management goals and policies - appear to be stronger shapers of PI than environmental variables. The primary generators appear to be management commitment to attracting talented, creative staff; operating autonomy for managers; striving for greater efficiency; opportunistic diversification; and preference for marketing novel products/services. An opportunity-rich environment, a strong stakeholder orientation, commitment to the organization operating in frontier areas, and a mixture of organic and professionalist administrative policies seem to be significant secondary generators of PI. Several implications of the findings for socially engineering PI are developed, and several hypotheses are stated to stimulate further research.

Vigorous Management

In the context of economic stagnation in the developed countries and the grim struggle for economic growth and social change in the developing world, there has been growing interest in modes of vigorous, innovative, entrepreneurial management. In the midst of the Great Depression, Schumpeter argued that the innovative entrepreneur was a stimulator of economic growth (Schumpeter, 1934). Later, he viewed entrepreneurship as that function that results in a new and effective combination of factors of production (Schumpeter, 1950). A number of studies of vigorous management have appeared in recent years, coinciding with the slowdown in economic growth in the Western world. Peterson and Berger (1971) examined entrepreneurship in the U.S. pop music industry. Mintzberg (1973) described the entrepreneurial mode of strategy making, characterised by a charismatic person at the top of the organization, and bold, risky, growth - oriented decision making. Khandwalla (1976-77), in a study of Canadian firms, identified a risk-taking style of top management, with a preference for high risk high return investments, aggressive stance towards rival organizations, leveraging, emphasis on R and D and technological innovation, fast organizational growth, etc. Miles and Snow identified the prospector - type of business strategy, characterised by wanting to be first in new product market areas and quick, proactive responses to early signals concerning areas of opportunity (Miles and Snow, 1978; Snow and Hrebiniak, 1980). Peterson (1981) described the entrepreneurial organization, and Peters and Waterman (1982) identified a form of management excellence in the U.S., one of whose chief features was commitment to innovation and dynamic growth. More recently, Khandwalla (1985) has identified the pioneering-innovative (PI) mode of management in a study of Indian organizations.

Evidence suggests a link between management vigour and superior organizational performance. Khandwalla (1976-77), in his study of 103 Canadian companies, found a significant association between the use of the risk-taking style of management and the growth rate of the organization. He found a similar association in his study of the PI mode of management in Indian organizations (Khandwalla, 1985). Snow and Hrebiniak (1980) found that the prospector firms, along with the analyzer and defender firms, outperformed the reactor firms on an indicator of corporate performance. Peters and Waterman's "excellent" firms (1982) were chosen on the basis of their superior performance over a twenty year period. Both, therefore, from macro-social considerations (promotion of economic growth in the developed and the developing worlds) and organization - level considerations (improvement of organizational performance), a further study of vigorous modes of management may have high social relevance.

Generative Conditions for Vigorous Management

A major gap in the research on vigorous modes of management has been with respect to the latter's generative conditions. What external and internal conditions nurture or stimulate vigorous management? With respect to entrepreneurship, it has been argued that the supply of entrepreneurship in a society is a function of the demand for it (Kilby, 1971). In other words, if social institutions need entrepreneurial managers, there is always available a ready pool to recruit from. This may also be true of industries (Peterson and Berger, 1971). As against this the work of McClelland (1961) suggests that entrepreneurs, and by extension vigorous managers, need to be (and can be) trained, especially in cultures where the need for achievement is weak. When it comes to vigorous management (as distinct from entrepreneurs), the evidence is even thinner. Peterson (1981) has argued that industries undergo periods of ossification and

regeneration, and that conditions in ossified industries get ripe for a burst of regeneration spearheaded by vigorous, entrepreneurial management. His evidence comes from the popular music industry in the U.S. (Peterson and Berger, 1971). Khandwalla (1976-77), in his study of Canadian companies, found a significant positive association between environmental turbulence and a risk-taking mode of management, and a negative one between risk taking and organization's age. None of the other significant empirical studies of vigorous management (Miles and Snow, 1978; Snow and Hrebaniak, 1980; Peters and Waterman, 1982) have identified external generative conditions.

Besides external generative conditions, there may also be internal generative conditions for vigorous management. The literature on successful turnaround management suggests that poor organizational performance often leads to changes in top management, and a new vigorous and dynamic top management engineers successful organizational recovery (Bibeault, 1982; Khandwalla, 1983-84; Slatter, 1984). To the extent a mode of management is a means for attaining organizational goals (Simon, 1964), high performance aspirations vis-a-vis many goals may impel management to boldness and innovation (Khandwalla, 1977 : ch.10). Longitudinal studies of enterprises and business groups suggest that a sequence of policy choices vis-a-vis diversification, expansion, modernisation, managerial recruitment, product positioning, leverage, etc., may eventually induct into the organization a full-fledged vigorous management (Chandler, 1962; Tripathi and Mehta, 1981).

In the context of poor societies like India's, struggling to modernise and grow rapidly, the identification of generative conditions for the pioneering-innovative form of vigorous management (Khandwalla, 1985)

may be particularly useful. A couple of published Indian cases indicate nicely the broad range of potential generative conditions for pioneering management in a developing country. In the case of Chhabrias, a business group manufacturing cables, it took nearly thirty years for the management to venture into pioneering new products and technologies (Chandra, 1984). The group began humbly in the early fifties as cloth hawkers. A chance necessity of recovering a loan by disposing off electrical switches landed the group into trading in electricals. Shortage of copper conductor wires during the Korean war induced the Chhabrias to set up a cottage cable industry. The Chhabrias expanded their product range, and discovered that a key to success was stringent quality control. Though they did no formal R and D, they discovered the virtues of in-house experimentation, and visits to factories abroad, sometimes under assumed names, to bootleg foreign designs and processes. They also discovered the virtues of discipline oriented paternalism in a low technology operation. However, it was only in the eighties that the group felt confident enough to go for sophisticated technologies and products (XLPE and jelly-filled cables) involving foreign technical collaboration. The group has grown rapidly, and its 1983 turnover of Rs.450 millions (about \$40 m.) was expected to double by 1985.

The history of another business group, the Walchand group (Behara, 1983), indicates fascinating changes in the group's pioneering - innovative orientation over a sixty year period. Walchand Hirachand was a foremost Indian pioneering entrepreneur. Well before India's independence, either on his own or in collaboration with other business groups, he pioneered into the country the modern shipping and ship-building industry, the heavy construction engineering industry, the air line industry, the aircraft construction industry, and the automobile industry. After

his death in the early fifties, his conservative brother took over the management of the group, and the group went into a shell during the permit-license era of controlled economy that came into being during the sixties and seventies. As a consequence, the group's relative standing among Indian business groups plummeted - from being one of the first ten in 1967 in terms of assets to not even being one of the first

twenty in

1979. Besides conservatism and a low business pragmatism, distrust of professionals seemed to be a cause of the group's decline. In the late seventies the economy began to be de-regulated. Besides, a number of sons and nephews of the head of the family took advanced degrees, were put in charge of various constituent units of the group, and began to exert pressure for decentralization, professionalization, and diversification. Professional managers were hired to improve the poor performance of several of the ailing units, and their outstanding performance led to a restoration of confidence in professional management. A takeover bid for one of the constituent companies was foiled, but it jolted the group into refurbishing its stodgy image. In the late seventies and the early eighties, a younger and much more modern generation took charge, and the group resumed its role of pioneering new, sophisticated products and technologies into the country. The total sales of the group doubled between 1979-80 and 1981-82.

These two cases indicate that a pioneering and innovating orientation is not always a simple extension of a dashing chief executive personality (although it can be, as in the case of Mr. Walchand Hirachand). Often, it is a resultant of prolonged organizational learning. A variety of conditions may generate a pioneering innovative orientation in management in a developing country. Some of these may, indeed, be personality - based, such as the pioneering temperament of such founders of

business groups as Walchand Hirachand or Jamsetji Tata (Harris, 1959). Some others may, however, be external to the organization, such as deregulation of the economy, as in the case of the Walchand group during the late seventies and eighties. Others, still, may relate to a long process of familiarisation with industrial management and its technological and other complexities, illustrated by the Chhabries learning the virtues of strict quality control and task-oriented paternalism, and the Walchand group learning, in the seventies, the virtues of professional management and decentralization. These learnings may get institutionalised as corporate policies, so that certain sorts of corporate policies may facilitate (or inhibit) the emergence of a pioneering-innovative sort of management. Salient goals, too, may nudge the management towards such a management. For instance, state-owned enterprises in India have a tendency to show a much poorer financial performance than privately owned enterprises (Sri Ram, Sarma, Nair, 1976). However, public outcries have led many of them to accord primacy to financial goals. Case studies of sick state-owned enterprises that successfully turned around (Khandwalla, 1983) indicate a distinct tendency by their managements to become far more venturesome and innovative, seeking to get out of loss making products and into high margin sophisticated technologies and products.

This paper presents the findings of an exploratory, questionnaire-based study of generative conditions of pioneering-innovative or PI management in an Indian sample of 75 predominantly corporate organizations. The concept and operational definition of PI, sample characteristics, the method for gathering data, etc., have already been reported earlier (Khandwalla, 1985). In this earlier paper, an attempt was also made to examine whether PI was linked with such common contextual conditions as the size of the organization, the type of industry, the nature

of the organization's ownership, its dominant technology, etc. The broad finding was that PI was not related to these. In other words, both PI, and its opposite, the conservative traditionalist mode of management, turned up in large as well as small organizations, government - owned as well as privately owned organizations, in each of several different industries, in organizations using custom, batch, or process technologies, etc. This paper reports the identification of several environmental, policy and goal antecedents of PI management. Before reporting the results, however, the operational meaning of PI management has been briefly expounded.

The PI Mode

Khandwalla (1985), based on policies data on 75 Indian organizations, identified a mode of management he labelled the pioneering-innovative or PI mode. Most of the organizations were corporations. The data were secured by administering questionnaires to their top level executives, who rated, on 5-point scales, their perceptions of the top management's orientation vis-a-vis 51 policy items (Khandwalla, 1985 : 179-180). Each policy scale was anchored at the two extremes by opposed policy stances, such as a policy of unrelated versus related diversification, or, in promoting managers, weight on seniority and loyalty versus demonstrated performance. Multiple responses from the same organization were averaged to derive the organization's score vis-a-vis each policy item. Data were secured for the management's policy stance "now" and "3 years back". A hierarchical factor analysis was performed on the "now" data to identify several relatively independent clusters of policy items, one of which was labelled the PI mode.

As identified, PI had the following policy constituents (Khandwalla, 1985 : 169-170).

1. Emphasis on introducing new or novel products or services (novelty orientation).
2. Emphasis on acquiring sophisticated technology (sophistication orientation).
3. Tendency to go in for high-return or high-benefit expenditures even if they involve high risks (risk taking orientation).
4. Emphasis on pioneering technologically sophisticated products or services (pioneering and sophistication orientation).
5. Emphasis on high quality of offered products or services (quality orientation).
6. Emphasis on freely adapting to changing circumstances (flexibility orientation)
7. Emphasis on innovation and experimentation (innovation orientation).
8. Emphasis on hiring creative, innovative junior level executives (innovation orientation).

As measured, PI was a continuum, low scores indicating a traditional, rigid, and conservative mode of management, and high scores indicating a policy commitment to pioneering novelties, to innovation, technological sophistication, risk taking, high product quality, and to operating flexibility. Since PI was derived from policies data, it may best be regarded as a policy framework guiding top management decision-making and strategic choices. PI was found to have reasonably good reliability and validity (Khandwalla, 1985 : 171-172).

A Search Model for PI's Generators

In the absence of sufficient prior research on the determinants of vigorous management, explicit hypotheses for testing seemed premature. Recourse instead was had to models of organizational functioning, especially of strategic management behaviour, in order to guide the search for PI's generative conditions. Many contingency theorists have argued that the organization's structure and functioning are shaped by the organization's external environment (Thompson, 1967; Lawrence, and Lorsch, 1967; Khandwalla, 1972; Shortell, 1974; Pfeffer and Salancik, 1978; etc.). Khandwalla (1976-77) found a risk-taking mode of management, sharing some similarities with PI, to be correlated with environmental turbulence. It is, therefore, likely that PI, too, may be influenced by the organization's external environment.

Several organization researchers have given primacy to organizational goals in shaping the structure and functioning of organizations (Simon, 1964; Perrow, 1970; Khandwalla, 1977 : ch.10; Hall, 1981). Salient organizational goals may be considered to be improvements desired by the management in the functioning, financial performance, growth, or other indicators of the organization's effectiveness. Such goals as rapid organizational growth may well stimulate organizational entrepreneurship (Mintzberg, 1973). Since policies are significant institutionalised means for achieving organizational goals, some of the latter could well be determinants of PI.

Policies may be thought of as institutionalised directive constraints subject to which decisions are made (Cyert and March, 1963; Clarkson, 1963; Carter, 1971). By serving as benchmarks, they tend to simplify managerial problem solving by eliminating the consideration of incongruent alternatives. Policies are commonly inductively derived, that is,

they represent organizational learning (Cyert and March, 1963). As part of the process of organizational learning, policies (like operating rules) may proliferate to form increasingly denser networks for structuring decision making. For example, a policy of decentralization may, by precipitating coordination problems, generate a policy of controlling operations through a sophisticated control and information system (Child, 1970; Khandwalla, 1977 : ch.13). The identification of those non-PI policies that stimulate the emergence of the PI policy framework could be useful for probing the poorly understood processes of policy formation. Also, organizational designers could use the information to spur PI in conservative organizations that need to be more dynamic, such as bureaucracies involved in developmental tasks.

As measured, PI is a constellation of policy commitments to pioneering novel outputs, innovating, technological sophistication, product quality, risk taking, and operating flexibility. It is unlikely, however, that all these policy commitments get simultaneously made, or once made, promote PI equally strongly. It would be of interest, both theoretically (in terms of developing models of policy evolution) and practically (in terms of identifying the strongest policy levers for generating PI) to identify which of the constituents of PI are the strongest promoters of a PI policy framework.

To summarise : the search model considered the organization's external environment, the goals of its top management, non-PI management policies, and individual constituents of PI as potentially the most important sources of generative conditions for PI.

Method

As reported earlier (Khandwalla, 1985), the ratings of top level respondents on current and 3 years prior goals, policies, perceived external environment, etc., were secured. Thus, product moment correlations not only between "current" PI and environment, goals, policy variables, but also between prior period goals, policies, environment, etc. and current PI could be computed, and thus the causal arrow could be identified more definitively. A significant correlation between the growth goal and PI may tell us little about the nature of causation (if any) between the growth goal and PI. But if the correlation between prior period growth goal and current PI is significant, the growth goal could be considered a generative condition for PI. The importance of this for theory construction as well as theory testing is obvious. Due to the subjective nature of the data, findings from this research are tentative, but they may provoke significant further theorising and research.

PI and Perceived External Environment

Ten dimensions of perceived external environment were included in a questionnaire administered to one to four top level executives of each organization in the sample (PI was similarly measured through another questionnaire). The respondents were either the chief executive and/or those directly reporting to the chief executive. The respondents rated, on 5-point scales, the current environment of their organization as well as the environment 3 years prior. The scales were anchored at the two extreme numbers into polar opposites, for example, "very stable environment, virtually no change" representing one anchor for a scale measuring the dynamism of the business environment, and "very dynamic, changing

rapidly in technical, economic and social matters", representing the other anchor. Multiple responses were averaged to secure the score for the organization on each dimension of the environment. Table 1 presents product moment correlations between the "past" dimensions of environment and "present" PI.

The correlations are small and only two, one with environmental favourableness, and the other with new product introductions rate, reach significance levels. Environmental restrictiveness seems to cramp PI, but the correlation does not reach significance levels.

(Table 1 about here)

Present PI was regressed on the ten "past" environmental variables to estimate the explanatory power of the external environment. The regression was able to explain 42% of the variance in PI (F significant at .025 level). The significant co-efficients were those of technology monopoly power (absence of competition), and cyclical fluctuation, gical sophistication, all at below 2% level, two tails, suggesting that *ceteris paribus*, in India a high barriers to entry kind of environment (Bain, 1956; Scherer, 1970) may stimulate PI. Market buoyancy and new product innovation, indicators of an opportunity rich environment, were significant only at between 10% and 15% level. Thus, *ceteris paribus*, a sheltered but technologically and operationally complex and opportunity rich environment may induce management to become more proactive, innovative, and pioneering. Quite possibly, a sheltered environment generates the slack necessary for innovation and experimentation (Cyert and March, 1963; Comanor, 1967), while the problems presented by a complex environment, and the opportunities available in an opportunity-rich environment (Scherer, 1970; 374-5) may exert a pull for pioneering and innovative management.

Organizational Goals and PI

Not being sentient, organizations cannot have goals (Simon, 1960).^{But} they often behave as purposive collectivities (March and Simon, 1958), whose purposiveness is supplied by a human agency, most notably their managements (Parrow, 1970; Khandwalla, 1977 : ch.10). Since the essence of a goal is that it is an aspired improvement in an indicator of organizational effectiveness, the questionnaire containing the list of goals requested the top level respondents filling it out to rate, vis-a-vis each goal, how committed the organization's top management was to a substantial improvement over past achievement - for example, how committed the top management was to seeking a significant increase in the sales growth rate over the achievement in the recent past. The question on goals was included in the same questionnaire as the one on the environment, and ratings were sought both for current and 3 years prior goals. The ratings were on 5-point scales in which 1 represented management opposition to the goal while 5 represented greatest importance of the goal to the top management. Multiple responses from each organization were averaged. Table 2 shows the correlations of eleven "past" goals with present PI.

(Table 2 about here)

As many as five out of 11 "past" goals were significantly correlated with present PI, suggesting that organizational goals may be important generators of PI. Desire for more fully meeting national priorities had the largest correlation, a point of interest for a developing society. This was followed by the desire for greater customer loyalty, again of interest in a largely sellers market economy; for higher operating efficiency; for a more professionalised management;

and for higher staff morale. Thus, organizations in developing countries whose managements are attuned to national developmental aspirations, professionalism, and the needs of customers and staff—in short, managements pursuing an enlightened self-interest—may gravitate to a PI policy framework.

The regression of present PI on the eleven past goals explained 37% of the variance (F significant at .025). The goals of greater customer loyalty ($P \leq .001$, 2 tails), contribution to national priorities (significant at .01 level), stabilisation of performance (negative, significant at the 10% level), and operating efficiency (also significant at the 10% level) had the significant coefficients. Thus, a practical sort of idealism and an aversion to the status quo (i.e. mere stabilisation), may be the ceteris paribus determinants of PI. This practical idealism seems to make sense in contemporary India, in view of the large facilities, financial incentives, and respite from controls provided by the government for those organizations wishing to invest in the priority sectors of the economy or in priority regions (backward districts).

Corporate Policies and PI

Data were available for 51 policy items, including the eight constituents of PI (see Khandwalla, 1985 : 179-180 for brief operational definitions of these policies). These policy items were rated on 5-point scales by top level executives. The scales were anchored at the extremes by polar opposite policy stances. Multiple responses from the same organization were averaged to secure organizational scores. / statistically significant correlations between "past" non-PI policy items and present PI are reported in Table 3.

(Table 3 about here)

A fascinating complex of policies seem to be shaping PI. A strategy of diversification into unrelated niches protected or assisted by tailor-made, more-or-less unique outputs seems to nurture PI. Thus, policies that promote operating complexity and variability seem to promote a pioneering and innovative management orientation.

The administrative policies shaping PI also seem a fascinating lot. Items 3 to 5 indicate that organic rather than mechanistic practices (Burns and Stalker, 1961), such as operating freedom to managers, the use of informal, normative, possibly peer group control, and widespread sharing of information, seem to be nurturing PI. At the same time, the flexibility and informality of an organic orientation, so necessary for permitting experimentation, innovation, and constant close coordination in projects, but with the built-in danger of camouflaging laziness and incompetence, seem to be offset by a strong results orientation (items 6 and 7), emphasis on individual accountability and discipline (items 8 and 9), and incentives to attract and retain talent by paying more than the industry norms (item 10). Thus, a combination of administrative flexibility, meritocracy, accountability, and talent and commitment orientation seem to shape PI. Obversely, inflexibility, nepotism or seniority orientation, laxity, and mediocrity orientation may breed a conservative and traditionalist management.

Present PI was regressed on the 10 "past" policy items. The regression explained 69% of the variance (F significant at beyond .001 level). The four regression coefficients that were significant were those of unrelated diversification (at 5% level, 2 tails), autonomy to managers to practice any appropriate style (significant at .001 level), above industry average emoluments (significant at .001 level), and emphasis on discipline (significant at .01 level). Thus, ceteris paribus, a

policy of opportunistic diversification, managerial autonomy, concern for employee commitment and talent, and emphasis on discipline seem to foster PI. The first three are likely to bring into the organization a variety of talented personnel, especially at management levels. PI is likely to jibe with the preferences of these newcomers, and so the latter may become a pressure source for the adoption of PI policies. Emphasis on staff discipline, especially vis-a-vis lower level staff, may facilitate adoption of various innovations by the organization.

PI and its Constituent Scales

Table 4 shows the correlations of 8 "past" policy items that constitute PI with current PI. Not surprisingly, seven out of the eight correlations reach significance levels, suggesting that all but one of the constituents of PI spur the PI mode, the exception being previous commitment to operating flexibility.

(Table 4 about here)

What is interesting, however, is the uneven size of the correlations, ranging from .13 to .50. The strongest correlate is prior commitment to recruiting creative junior executives, followed by prior commitment to innovation and experimentation. Thus, prior commitment to organizational creativity and innovation rather than to pioneering or to high product quality or to sophistication, representative of the modernisation ethic in developing societies - seems to be the strongest stimulus to the emergence of the PI policy framework. After all, in the context of a developing society like India, modernisation represents not genuine innovation but rather the impulse to catch up with the West by borrowing its technologies and products.

Correlations of "past" PI with "current" constituents (not reported in Table 4) indicated an interesting pattern. The largest correlations were with quality orientation and sophistication orientation (vis-a-vis choice of technology and products), and these were distinctly (though not statistically significantly) larger than the correlations with the two innovation orientation items. These results suggest that an initial management commitment to organizational creativity helps institutionalise the PI made more certainly than an initial management commitment to modernisation; but once PI is institutionalised, the management is likely to emphasise a policy of offering monopoloid, high quality, sophisticated products more than one of innovation and experimentation. This possibly alternating pattern of divergent thinking (Guildford, 1959) and some convergence or narrowing of focus to monopoloid niches seems consistent with Peterson's observation (1981 : 72-73) of cycles of entrepreneurship and "ossification" in industry. It may be explainable in terms of the inability of the organization to cope with differentiation resulting from unbridled "creativity", some failure experiences, leading to an internal realignment in the ruling coalition, resulting in a new but temporary consensus on the strengths of the organization and on achievable and profitable priorities.

Regression of present PI on the eight past constituents explained 66% of the variance (F significant beyond the .1% level). The three significant coefficients were those of the two organizational creativity items and product novelty. The strongest predictor was hiring of creative junior executives (significant at the 1% level, 2 tails), followed by marketing of novel products (5% level), and lastly, innovation orientation (10% level).

Explanatory Power of PI Determinants

Table 5 shows the explanatory power vis-a-vis PI of the organization's "past" perceived external environment, the "past" top management's goals for the organization, ten "past" business and administrative policies, and the "past" policy constituents of PI. Although the number of scales in each group is comparable, the explanatory power differs very substantially. Compared to policies and constituent items, the explanatory power of the environmental variables and goals looks modest.

(Table 5 about here)

Twenty four "past" items, comprising of 2 environmental variables, 5 goals, 10 policies, and 7 PI constituents, that were significantly correlated with present PI, were regressed on present PI (see Table 5). The regression explained 89% of the variance in present PI (adjusted R^2 of 78%), and the F-value was significant at beyond the .1% level. Neither of the two environmental variables was significant at even the 20% level (two tails), but two goals (higher efficiency positively and higher staff morale negatively), 3 policies (above average staff remuneration and perks, autonomy for executives, and unrelated diversification orientation), and 2 PI constituents (emphasis on marketing novel products and policy of recruiting creative junior managers) were significant. Of these seven determinants, above average staff remuneration and perks had by far the largest t-value. In sum, management commitment to being a generous employer, having talented, creative staff, their being given operating autonomy, the management's desire to venture into novel, unfamiliar businesses and activities, and the concern for efficiency may be the primary generators of the pioneering - innovative policy framework.

Emergent Model of PI's Generators

Since two "past" goals and five "past" policies were found to be significant predictors of PI in a regression involving 24 statistically significant "past" correlates, these seven variables seem to be the more independent and fundamental determinants, and the remaining 17 the more secondary determinants of PI. Figure 1 attempts to resurrect a somewhat speculative causal picture. It shows primary generators producing a management culture that simultaneously values novelty, innovation, and efficiency, and this culture in turn shaping several environmental, goal, strategic, and administrative secondary generators of the pioneering-innovative policy framework.

(Figure 1 about here)

While the primary generators may be independent, they also appear to have an internal coherence. In Indian conditions of scarce jobs and low pay scales, a generous employer willing to pay above industry pay and perks would be able to attract many talented persons. If the employer does select talented and innovative persons and gives them operating autonomy, the chances are that they will act as intrapreneurs and generate many proposals for innovative projects and activities. These in turn could enable the organization to offer novel products/services and pursue a strategy of opportunistic diversification. This may imply a great deal of organizational differentiation, even anarchy, but this may be offset by the concern for improving efficiency, even at the cost of morale, so that a management culture may emerge that emphasises novelty, innovation and efficiency.

The simultaneous emphasis on novelty, innovation, and efficiency may well spur many of the secondary generators of PI. For instance, the concern for offering novel outputs may land the organization into dynamic, sophisticated, possibly risky markets and market segments where outputs often need to be to customer's specifications. These in a developing country may well be in newly emerging priority sectors such as heavy engineering, industrial electronics, space, defence, etc., in which the country is striving to be self-reliant. The simultaneous concern for creativity and efficiency may produce a peculiar blend of organic and professionalist administrative policies - emphasis on experimentation, openness, and peer culture, but also on professionalism, meritocracy, discipline, and personal accountability for performance.

To sum up : the crucial determinants of PI may be a talent attraction and effective utilization strategy, operations in diverse frontier areas or market segments, and an administrative blend of organic management (Burns and Stalker, 1961) and managerial professionalism.

Discussion

The paper reports possible causal relationships between an Indian variety of vigorous management, labelled the pioneering-innovative (PI) mode, and four classes of variables, namely external environment, management goals, corporate policies, and policy constituents of PI. An examination of the correlations of "present" PI and "past" environment, goals, etc., variables, has led to a more certain identification of causal arrows. Figure 1 summarises the emergent model of the generators of PI.

In a developing country situation with generally sellers market conditions, PI seems to be nurtured not in competitive conditions but rather in sheltered, munificent but complex environments that provide

the slack for innovation but also demand of the organization innovative responses due to operating complexity. There is some evidence that risk-taking, innovative modes of management tend to be associated not only with complex but also with competitive environments in the West (Khandwalla, 1981). Thus, as (and if) a developing economy matures towards a competitive economy model, and as the ability to cope with competition gets generalised, competition may begin to elicit innovative responses from management. But until such time, competition without coping skills may, as often as not, elicit a conservative, stick-to-the-familiar rather than an innovative response.

Salient goals seem to spur PI. However, the goals that spur PI seem not to be those of profits, growth, or performance stabilisation. Rather, they may be goals that represent an enlightened self interest - concern for national development, for clients, for professional management, for staff morale, for efficiency. Thus, a management self-image of progressiveness may be a significant energiser of the PI mode. To the extent that the major institutions of a society - the family, the academia, the community, and the government - reinforce this sort of responsible corporate citizenship, a PI orientation would tend to get stronger in the organizations of that society. Since most goals were positively correlated with PI, it is likely that multiple salient goals may have an especially powerful stimulating effect on PI. First, multiple salient goals, if publicised, may attract diverse talents to the organization. Secondly, to the extent that salient goals represent resource demands on the organizational system, the existence of multiple salient goals would tend to overload the organization and force its management to try and get the most out of limited resources through innovation (Khandwalla, 1977 : ch.10). Commonplace examples of organizational innovation in the face of operating complexity and pressure are those of the matrix structure (Galbraith, 1971) in which the same

As may be expected, PI and its constituents seem to form a mutually reinforcing system. Among the constituents, however, different items may assume differential generative power in the PI life-cycle. Management commitment to creativity, innovation, experimentation, divergent thinking, novelty, and so forth may start off the PI mode. But as the costs of too much experimentation and novelty and too little focus increase, search for monopoloid, profitable niches through focussed pioneering may assume greater strategic importance over creativity and experimentation. This in turn may "ossify" the organization (Peterson, 1981), and if competition erodes the PI organization's comparative advantage, dissatisfaction with the status quo may again trigger a concern for divergent thinking. Concern for profitable niches is relatively easy to engineer socially, by the government offering, as in India, attractive financial aid packages and other concessions from regulatory controls for entering areas with high import substitution potential or for entering areas where the national output is small in relation to need. It is more difficult, however, to engineer concern for divergent thinking, especially in cultures strong on traditionalism. Creativity training for managers offers a possibility (Khandwalla, 1984). As an example, in a training intervention in a conservative subsidiary of a British multinational operating in India, creativity training inputs were provided to three batches of general managers. The intervention seemed to pay off, for the company subsequently reported a large number of new initiatives, arrested the steep decline in profits and, indeed, tripled its profits in three years.

The data presented earlier (Khandwalla, 1985) and in this paper indicate that generative conditions for PI are more likely to be internal to the organization than contextual. As was previously reported

(Khandwalla, 1985), size, technology, type of industry, type of ownership, etc., were largely unrelated to PI. In this paper, too, external environmental variables were only modestly correlated with PI and collectively explained only a modest amount of variance in PI. In comparison, corporate policies explained a far higher percentage of variance. Indeed, in a regression of PI on the 24 statistically significant correlates of PI, not one item of perceived environment reached significance level while two management goals and five policies did. From the point of view of promoting PI in a developing society struggling to raise living standards through organizational entrepreneurship, the results suggest that engineering the context of the organization may be less productive than engineering the organization's management. In other words, for promoting the PI mode, the choice of those who are to man a society's strategic organizations, especially the choice of their chief executives, may be an extremely important one. The choice of an innovative, entrepreneurial type of chief executive may be the single most important step controllers of such organizations can take to promote PI. This is eminently feasible in those developing countries like India that have massive public sectors with entrepreneurial missions. It is even feasible in the private sector, for large private sector organizations in developing countries like India are often much less autonomous, are subject to many more government regulations concerning the appointment of their managing directors, and are far more dependant on government-owned financial institutions than in the West. A purposive government policy of promoting PI through the choice of PI-type chief executives may yield excellent results. Indeed, in recent years, several cases of sick government-owned enterprises, and large privately-owned enterprises that were dramatically turned around by dynamic professional-entrepreneurial types of chief executives have been published (Chakraborti and Sen, 1980; Khandwalla, 1983-84).

Finally, some hypotheses suggested by the study are presented below in order to stimulate further research on vigorous, entrepreneurial managements. These propositions are made in the context of a developing society in which managerial skills and entrepreneurship of a pioneering kind are relatively scarce but opportunities and incentives for pioneering new activities and for innovating are many.

1. The higher the barriers to entry into a domain of activity due to operating complexity, the more likely are managements operating in it to adopt a vigorous, pioneering - innovative, entrepreneurial mode.
2. The more opportunity - rich a domain of activity (due to growth, new product innovations, etc.), the more likely are managements operating in it to adopt a vigorous, pioneering - innovative, entrepreneurial mode.

The stronger the desire of a management to improve its contributions to its stakeholders (society, customers, staff), the greater is the likelihood of the management adopting a vigorous, pioneering - innovative, entrepreneurial mode.

The stronger simultaneously the efficiency and innovation orientation of a management operating in a society with a weak work ethic, the more likely it is to adopt a vigorous, pioneering-innovative, entrepreneurial mode.

The stronger a management's preference for high quality, creative professionals as staff members, the more likely is the management to adopt a vigorous, pioneering - innovative, entrepreneurial mode.

6. The stronger a management's commitment to giving its staff members autonomy but also to enforcing their accountability for performance, the more likely will the organization attract dynamic managers, and the more likely will the management adopt a vigorous, pioneering - innovative, entrepreneurial mode.
7. The stronger a management's commitment to offer novel, unfamiliar products or services, the more likely is the management to adopt a vigorous, pioneering - innovative, entrepreneurial mode.
8. Vigorous, pioneering - innovative, entrepreneurial managements tend to have alternating phases of emphasis on creativity and experimentation and seeking of sophisticated, monopoloid, profitable niches.

FIGURE 1

GENERATORS OF PI : AN EVOLUTIONARY PERSPECTIVE

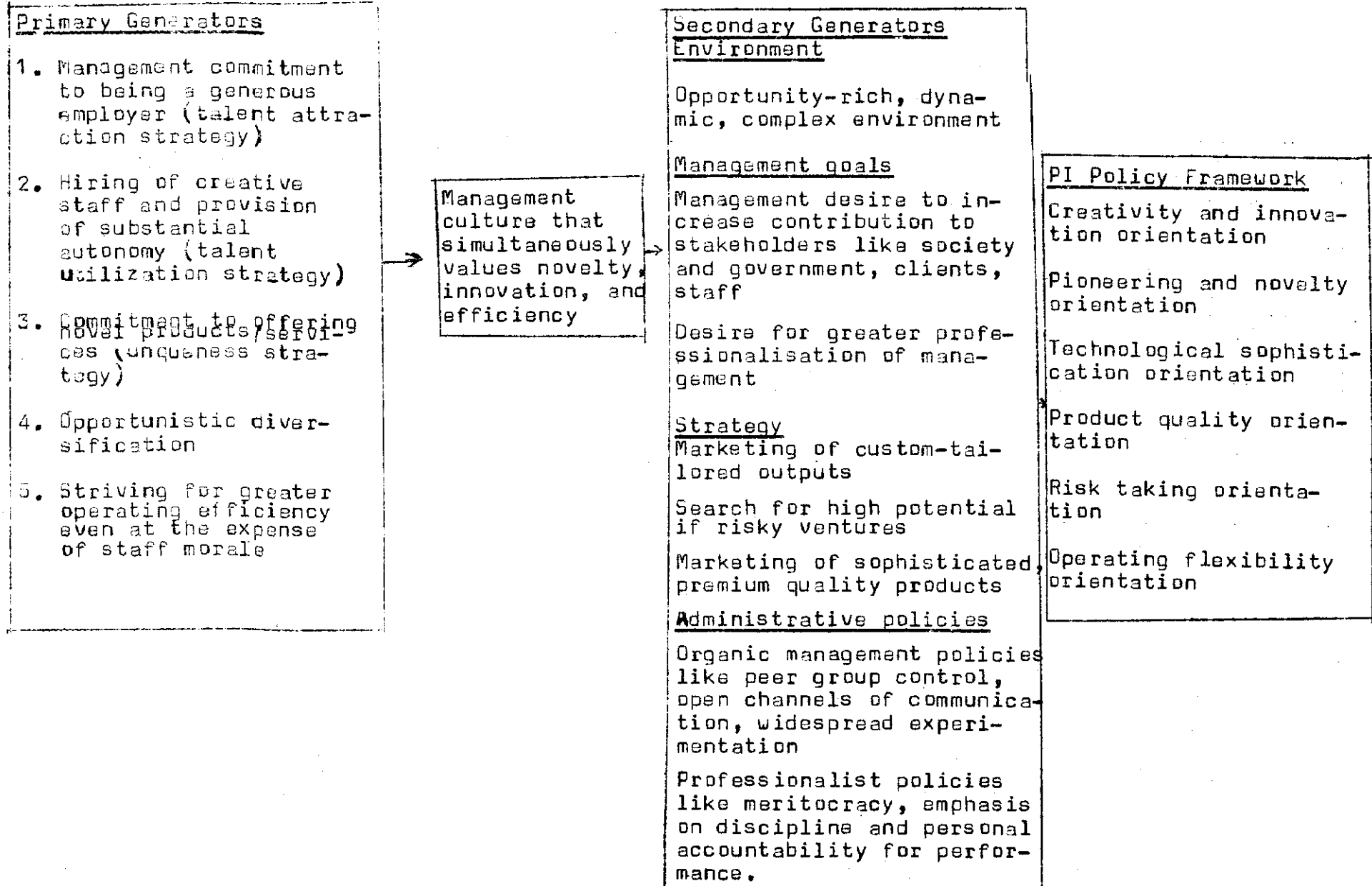


TABLE 1

CORRELATIONS OF PERCEIVED "PAST" ENVIRONMENT WITH CURRENT PI

| <u>Dimensions of "Past" Operating Environment</u> | <u>Correlation with "Present" PI</u> |
|---|--|
| Dynamism: rapidity of change in technical, economic, and social aspects | -.07 |
| Riskiness (as opposed to a safe environment in which there is no threat to the survival and well-being of the organization) | -.14 |
| Buoyancy, characterised by rapid growth of markets, emergence of new markets | .16 |
| Technological sophistication, characterised by "high tech" and the indispensability of a technically highly skilled workforce | .20 |
| Diversity, characterised by sharply differing markets or market segments operated in by the organization | .02 |
| Favourableness, characterised by the ease with which the organization can take various initiatives | .27* |
| Restrictiveness, characterised by many governmental or other constraints on expansion, diversification, etc. | -.25 |
| Stiffness of competition vis-a-vis products, promotion, distribution, pricing, etc. | -.17 |
| Rate of new offerings in the market | .28* |
| Extent of cyclical fluctuation in the organization's business | .12 |

* Significant at $p \leq .05$

TABLE 2

CORRELATIONS OF PAST TOP MANAGEMENT GOALS WITH PI

| "Past" Top Management Goals | Correlations with Present PI |
|---|------------------------------------|
| 1. A higher (than in the past) growth rate of revenues, activities, etc. | .15 |
| 2. Higher morale and commitment of staff to the organization | .27* |
| 3. Higher operating efficiency | .30** |
| 4. Greater effort by the organization for meeting national priorities through larger exports, plant location in backward areas, producing national priority items, etc. | .42** |
| 5. Greater financial strength | .21 |
| 6. Better public image | .09 |
| 7. Stabilisation of the organization's fortunes, that is, prevention of any deterioration | .03 |
| 8. Greater client or customer loyalty | .34** |
| 9. Better relations with the government and its agencies | .14 |
| 10. Greater formalisation of the organization, with clearer lines of authority, lines of communication, procedures, job descriptions, etc. | .22 |
| 11. A more professionalised management with clearer statement of goals and strategy, greater functional specialization, use of professionals and modern methods of management, etc. | .28* |

* Significant at $p \leq .05$ (2 tails)

** Significant at $p \leq .01$ (2 tails)

TABLE 3

CORRELATIONS OF "PAST" POLICY COMMITMENTS WITH PRESENT PI

| <u>A. "Past" Strategic Policies</u> | Correlations with Current PI |
|--|------------------------------------|
| 1. Preference for unrelated or conglomerate-type diversification of products or activities (versus preference for related diversification) | .31* |
| 2. Commitment to having an operating system that enables the organization to offer products or services that are tailor-made to customer's needs (versus to one that offers standard products/services) | .31* |
| <u>B. "Past" Administrative and Personnel Policies</u> | |
| 3. Commitment to giving managers operating autonomy for getting their job done (versus imposing on them a uniform style of functioning) | .43** |
| 4. Commitment to informal management control and emphasis on norm of co-operation (versus emphasis on formal controls, budgets, procedures, etc.) | .27* |
| 5. Emphasis on open channels of communication, with widespread dissemination of important financial and operating information throughout the ranks of management (versus emphasis on restricting dissemination only to a few senior persons) | .25* |
| 6. Policy of promoting managers on the basis of high performance only (versus promotion for seniority and loyalty) | .26* |
| 7. Policy of rewarding outstanding performance immediately (versus after several repetitions of good performance) | .37** |
| 8. Commitment to a policy of enforcing the individual's accountability of managers (versus emphasising group or collective accountability) | .33** |
| 9. Emphasis on enforcing strict discipline among all the employees (versus relying on their sense of fairness and commitment to the organisation) | .34** |
| 10. Policy of providing employees benefits and amenities above the industry norms (versus avoiding welfarism) | .38** |

* Significant at $p \leq .05$ (two tails)

** Significant at $p \leq .01$ (two tails)

TABLE 4

CORRELATIONS OF "PAST" PI POLICIES WITH STRENGTH OF THE PRESENT PI
ORIENTATION

| | Correlations of "Past" Constitu- ents with Present PI |
|---|--|
| 1. Commitment to recruiting creative persons at even junior management levels | .50** |
| 2. Commitment to innovation, experimentation, new techniques in every area of management | .41** |
| 3. Commitment to go in for high potential ventures even if they are highly risky | .39** |
| 4. Commitment to the organization marketing novel products/services | .38** |
| 5. Commitment to offering high quality premium price products/services (versus to offering standard quality, popularly priced products or services) | .38** |
| 6. Commitment to going in for latest technology and equipment (versus considerable conservatism in choice of plant and technology) | .33** |
| 7. Commitment to pioneering technologically sophisticated products/services (versus avoidance of pioneering) | .30* |
| 8. Commitment to freely adapting to changing circumstances without regard to traditions and time honoured "management principles" (versus holding fast to traditions and fixed norms) | .13 |

* Significant at $p \leq .05$ (two tails)

** Significant at $p \leq .01$ (two tails)

TABLE 5
EXPLANATORY POWER OF VARIOUS GROUPS OF VARIABLES VIS-A-VIS PI MODE
OF MANAGEMENT

| Presumed Generative Variables | Dependent Variable | F | R ² | Adj.R ² |
|---|--------------------|--------|----------------|--------------------|
| 1. Ten scales of "past" perceived external environment of the organization | "Present" PI | 2.56* | .42 | .24 |
| 2. Eleven scales of "past" top management goals for the organization | "Present" PI | 2.62* | .37 | .22 |
| 3. Ten scales of "past" top management policies | "Present" PI | 6.34** | .69 | .57 |
| 4. Eight "past" policies constituting the measure of PI | "Present" PI | 8.66** | .66 | .57 |
| 5. Twenty-four "past" environments, goals, policies, and constituents of PI that are significantly correlated with "present" PI | "Present" PI | 7.78** | .89 | .78 |

* Significant at the .025 level

** Significant at the .001 level

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