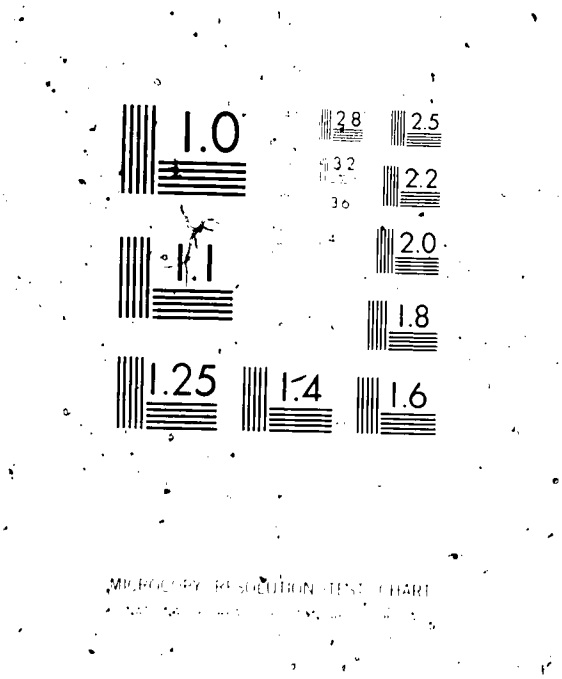
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ABSTRACT

Analyses preparatory to construction of a suitable file for generating a system of future performance trend indicators are described. Such a system falls into the category of a current value approach to human resources accounting. It requires that there be a substantial body of data which: (1) uses the work group or unit, not the individual, as the analysis unit; (2) contains standard measures of the human organization and dollar-convertible performance measures, both with high internal consistency; and (3) displays a high frequency of statistically significant relationships of human organization to performance measures. This report presents analyses whose function is to construct a data file with these characteristics. Internal consistency reliabilities of both human organization (survey) data and performance (total variable expenses and absenteeism rate) are shown to be high, and a pattern of human organization-to-performance coefficients results which is eminently usable. It constructs a base from which to take the next steps: multiple regression, time lag and magnitude estimation, and value attribution. (Author/MV)

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a high frequency of statistically significant relationships of human organization to performance measures.

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TECHNICAL REPORT

September, 1976

FUTURE PERFORMANCE TREND INDICATORS: A CURRENT VALUE APPROACH TO HUMAN RESOURCES ACCOUNTING

REPORT I

INTERNAL CONSISTENCIES AND RELATIONSHIPS TO PERFORMANCE BY SITE

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FUTURE PERFORMANCE TREND INDICATORS: A CURRENT VALUE APPROACH TO HUMAN RESOURCES ACCOUNTING

REPORT I

INTERNAL CONSISTENCIES AND RELATIONSHIPS TO PERFORMANCE BY SITE*

Patricia A. Pecorella
David G. Bowers

An organization is an open social system, which means that it functions by receiving inputs of resources and energy from the outside world, converts them by a throughput process to a commodity or service which it then exports into the environment in return for replenishment of its resource input. In greatly oversimplified form, one might view the Navy in social systems terms as receiving inputs from American society in the form of manpower from the civilian population and money appropriated by its Congress. The Navy by its functioning converts these resources into an output of defense of the nation, which it "exports," in the sense that it makes it visible, present, and useful in the world.

In the Navy, as in any system, not [redacted] of the input appears at the end of the cycle in the form of output. Some of the input must necessarily be consumed in the throughput process itself; that is, some proportion must be diverted to maintain the organization. The more of the input that must be so diverted, in relation to a given output, the less effective the organization is. The efficiency of the throughput process, therefore, largely determines

*A more complete conceptual statement of the issues involved in current value human resources accounting may be found in Bowers, D.G. & Pecorella, P.A., "A Current Value Approach to HRA," Accounting Forum, 1975, 45 (2), 25-40.

the organization's effectiveness. What organizations -- their leaders and key decision-makers -- do by way of managing and utilizing their manpower constitutes a significant portion of this throughput process and thus is likely to have a substantial impact on the possibilities for improved system effectiveness. Yet, to even the most casual observer, signs of the underutilization and disaffection of our nation's manpower have been apparent. Unemployment, strikes, and other manpower problems have become almost daily news items.

If human resources and their effective utilization are critical, and they would appear to be, then the question of why that utilization may not occur requires an answer. Certainly it is not because today's worker is less well prepared, educated and trained (although it may well be that he is "over prepared," i.e., that his job has not grown in ways commensurate with advances in his education and training). Nor does it seem that his aspirations and desires have diminished; far from it.

The problem may well be that contemporary organizations have adhered, and continue to adhere, overmuch to the canons of a managerial system from a somewhat earlier epoch, a system which believes that effectiveness can be attained (if not guaranteed) by merely (a) demanding particular outputs and (b) manipulating various aspects of the organization's technical and reward systems. That seeming short-term gains are realized by these practices is undeniable. Headcount reductions generate immediate and lower payroll costs; faster equipment does, indeed, operate at greater speed. Yet, what seems to go unrecognized among those who rely upon these practices is that short-term gain may well have been spurious, that long-term disability may instead be the result.

The situation is perhaps most clearly illustrated by what may be termed the "contingency paradox." A rather substantial body of evidence indicates that better cost performance occurs under a more open, "participative" management system than under a more rigid, "autocratic," tightly directed one. When the question is posed directly to them, senior managers tend to verify this finding in their experience. Yet, confronted with a need for higher efficiency, managements typically move toward what has been shown to be a less cost effective system -- the rigid, autocratic one. (Likert, 1967)

In a similar vein, Lawrence and Lorsch (1969) have pointed to the importance to organizational structures of the environment in which they occur. More fluid, unpredictable environments require internal flexibility and an ability to coordinate creatively. Stable environments, on the other hand, permit more regimented, structured forms to function with acceptable effectiveness. Yet what we have termed the "contingency paradox" appears to operate here as well. Organizations whose environments become more fluid and less predictable seem to turn toward more rigid, "bureaucratic" ways in their attempts to cope, not toward more flexible ones.

At least one very plausible explanation is that the practice persists because the information systems which service organizational managers and key decision makers are deficient in content and function. These systems commonly provide, largely or exclusively, readings upon events and conditions at the outcome stage only, e.g., detailed statements of production for the previous month. No indication is given as to what conditions and events led to the reported outcomes, since these systems traditionally do not include information about what the human organization is, how it functions, and how this is related to events at the outcome stage. Secondly, conventional

information systems contribute to a time-lag-warp in organizational evaluation, since they focus almost exclusively upon short-term outcomes and provide little or no data upon the relationship of short-run dollars to the longer range outcomes of the organization. Without these additional kinds of information, constructive corrective action on the part of management becomes exceedingly difficult. Thus, management oftentimes relies upon arbitrary practices which provide short-term gains at the sometimes substantial cost of long-run effectiveness or even survival.

A more adequate approach would recognize:

(1) That an organization has a <u>social</u> as well as a <u>technical</u> system, a system which tends to grow in complexity as the technical system becomes more automated.

(2) That, with increasing complexity comes greater lag time; that is, the effects of today's human organization practices are felt farther into the future than is true in simpler instances.

(3) That, in such circumstances, the management information system must provide to managers inputs concerning the likely impact of present conditions upon <u>future</u> outcomes.

An adequate information system, then, needs to include assessments of current human resource management practices and the way in which these are related to the long-run success or failure of an organization. These additional inputs would make it possible to assess the impact current management practices are likely to have on <u>future</u> effectiveness. In other words, this information -- when compiled and presented appropriately -- would operate as "future performance trend indicators." Such trend indicators would give

management lead time for taking corrective action and would pin-point specific areas of the human organization to be improved. In addition, the importance of effectively managing human resources would become more obvious to key decision makers, since the state of the human resources would be tied to familiar measures of effectiveness (e.g., retention rates or operating costs).

In a provocative but operationally ignored article some 25 years ago, Brogden & Taylor (1950) proposed "the development of an overall index of an employee's value to the ... organization." They went on to suggest that an optimal criterion measure (in their view primarily for personnel selection and training) would consist of dollar units, determined on a cost accounting basis. While these authors' concerns antedate social systems theory and were phrased in terms of individuals in jobs, many of their crucial points seem extendible to groups, organizations, and collective tasks. For example, they say that, as a preparatory step in criterion construction, jobs must be defined, in order to "identify a group of workers homogeneous with respect to their job duties." (p. 135) In our own present work, such homogeneity is still seen as an important requirement, but, since an organizational, rather than an individual, task focus is taken, it is homogeneity with respect to reporting relationships that is valued. They also state that a criterion should be related to the general objective of the organization and that this objective, at least for work organizations, translates into overall efficiency. In form, this seems quite close to the input/output ratio criterion seen as ultimate in social systems thinking. Furthermore, the necessity of cause-effect sequences, extending across time and therefore involving both lead and lag aspects, is implicit in the importance they attach to "tracing out"

the connections between job-process and job-product. Finally, they provide a clear argument in favor of the "dollar criterion:"

> Two distinct advantages of the cost accounting technique may be identified: (1) all measures are made in or translated into a single, meaningful metric -- the dollar contribution to or detraction from the overall objective of the sponsoring organization; and (2) the resultant determination of the importance of each element in terms of its standard deviation. These two characteristics of the cost accounting approach completely solve the problem of combining criterion elements. (p. 147)

Also appropriate as an antecedent to the present work is a body of research aimed at developing a personnel status index for the Navy. (Dunnette, Milkovich, & Motowidlo, 1973; Borman & Dunnette, 1974.) Beginning with a conference of scholars drawn from various fields, the investigators set as their task deriving a personnel status measure which was:

- a single index whose components remain retrievable
- on a scale which permits cross-time comparisons and which is evaluative, not merely descriptive
- computable from accessible components
- capable of providing estimates for organizational entities, not just for single individuals
- sensitive to major fluctuations, but resistant to minor ones
- credible to and easily interpreted by a lay audience, and reasonably resistant to fudging.

Using the policy capturing method with a group of Naval officers drawn from the Naval Postgraduate School, these investigators identified what, in the judgment of those officers, were the most important possible components of a personnel status index. While some 29 potential indicators were examined in terms of their importance, reliability, generalizability,

accessibility and fudgeability (and the results were subsequently factor analyzed,) a close reading indicates that only nine measures fell in the top third of each array on the five rating criteria. When their factors are reexamined in this light, it seems clear that three components stood out in the officers' minds as important potential indicators:

(1) Retention rate, as measured by reenlistment and stability statistics;

(2) Discipline, as measured by unauthorized absence rate and rate of less-than-honorable discharges;

(3) Readiness, as measured by manning level and maintenance ratings.

To these were added a fourth factor whose nature seems more "input" than "output" related, a measure of average aptitude, loading on intelligence test scores, numbers able to pass rating exams, and the like.

Whatever the measure is that we search for, the strengths, shortcomings and insights of these earlier efforts suggest that it should consider:

- the sequence of events which occur in organizational functioning;
- that these events lead to an ultimate criterion of overall efficiency whose values are perhaps best expressed in the dollar terms of cost accounting;
- that a lead-and-lag time focus permits one to assess the likely impact of present conditions upon future outcomes.

More recently, attempts to gather and compile the necessary information have been termed, for simplicity, "Human Resources Accounting." (Hermanson, 1964) To date, three routes or methods have been conceptualized. A formal initial statement of these three approaches is contained in a joint publication by three scholars who have subsequently pursued independent efforts in the development of the first two, i.e., the "Incurred Cost" and "Replacement Cost" methods.

(1) The "Incurred Cost" method -- measuring the amounts already invested in the human organization (Brummet, Pyle, & Flamholtz, 1968; Pyle, 1970a, 1970b).

(2) The "Replacement Cost" method -- estimating the cost of replacing the organization's human resources (Flamholtz, 1969).

(3) The "Current Value" method -- estimating the future productive potential of today's human resources (Likert, 1967; Likert, Bowers & Norman, 1969; Likert & Bowers, 1973).

All three human resources accounting procedures have the same major purpose: to assess the value of the human organization. They differ from one another in comparative foci, however. The technique of estimating the present value of human resources (the "Current Value" method) emphasizes the value of a human organization which is well managed and maintained, whereas the other two approaches emphasize the importance of attracting and retaining valuable human resources. The two latter approaches focus upon personalized records, whereas the "Current Value" method is likely to focus instead upon unit-level records. Finally, the "Incurred Cost" and "Replacement Cost" methods attempt to assess the total value of the organization's human resources. However, the "Current Value" method is designed primarily to predict changes in future productive potential that will result from a human organization which is "better" or "worse" today than it was at a specified time in the past.

The objections which have been raised to the concept of human resources accounting are similar in form to those which have been raised concerning social indicators more generally. Basically, these revolve around two somewhat contradictory statements: (a) that it is not feasible, and (b) that it is feasible and should not be undertaken on ethical grounds. The first of these

two ordinarily takes the form of the view that human relationships, motivations, behaviors, and attitudes are not capable of being measured with the requisite degree of accuracy. The second of the two objections is most often stated in terms of the likelihood that brash attempts to assess the value of human resources may produce side effects which will decrease the value of those very resources.

For the most part, real-world efforts to develop a system of human resources accounting have employed one of the first two methods cited -- i.e., a "cost" method. That this is true seems largely attributable to the facts that (a) they have relied for their data upon existing, conventional accounting records and are thus less likely to be unacceptable to the accounting profession, and (b) the volumes of data required for the third (current value) approach have been unavailable to most investigators.

In part, the current value versus cost dispute reflects an underlying disagreement between economists and accountants. Historically and substantively intertwined, these two disciplines nevertheless have some rather crucial differences concerning value attribution. Economists often fault accountants for being too focused upon past history, to the exclusion of future prediction. Accountants, for their part, have an aversion to sampling and probability statistics, insisting instead upon the greater validity that is presumed to accompany methods which encompass all available data (Caplan & Landekich, 1974).

Those who have taken a reasonably detached view of human resources accounting in the light of this debacle seem to have concluded that the current value approach (more consonant with the views of economists) is theoretically preferable, but probably unworkable on the already-mentioned grounds of inadequate measurement capabilities.

Were it to be possible, however, they say that the following two step procedure would be required:

(1) Estimate the amounts and timing of future benefits.

(2) Estimate the present value of those future benefits (i.e., multiply them by a discount factor).

(The present research focuses on the value of providing "future performance trend indicators." The goals and principles are consonant with those pertaining to the "Current Value" approach to human resources accounting. However, the focus is upon providing additional inputs to management information systems in general, rather than to accounting systems specifically. For this reason the phrase "future performance trend indicators" is deemed more appropriate than "human resources accounting" and will be used henceforth in this report.)

Stated in somewhat greater detail, the ability to provide accurate estimates of the current value of human resources depends upon the following conditions (Likert & Bowers, 1973):

(1) The availability of scientific knowledge which identifies key dimensions of human organizations;

(2) The adequacy of methodology and instruments for measuring these key dimensions;

(3) The availability of reliable and valid performance data;

(4) the availability of knowledge of the relationships between key dimensions of the human organization and performance outcomes;

(5) The availability of knowledge of the persistence of changes in the human organization after they have occurred;

(6) A statistical technique for computing the current value of the human organization.

Only when these conditions are met will there be adequate information about the present state of the human organization and about the relationship between characteristics of the human organization at present and future productive performance by it.

Key Dimensions of the Human Organization and their Measurement (Conditions 1 and 2 above). The body of scientific knowledge about how organizations function takes integrated form as a theory or model. As such, it is a simplified representation of complex events, structures, experiences, and relationships that are presumed to occur in the real world. The greater its fidelity to reality, the more the model is a reliable and valid guide.

An earlier publication (Bowers & Franklin, 1976) has proposed several criteria for evaluating the worth of such models. For the purposes presently in mind, as well as for general suitability, a model should be:

- Applicable to the current setting;
- Reasonably comprehensive in scope -- that is, its content should approximate the content of the real world events and processes that it purports to represent;
- Fairly precise in its predictions, that is, fairly clear in its cause-effect implications.

Several theories in the psychological literature propose conceptual models for understanding the functioning of human organizations. However, few of them in our judgment meet to an adequate degree the criteria just cited. Most of them lack the necessary comprehensiveness, focusing instead upon one or two isolated constructs, such as "motivation" or "interpersonal relations." In addition, very few of them focus upon the causal flow of events in organizational functioning; that is, very few focus upon the question of what behaviors and attitudes of which organization members at

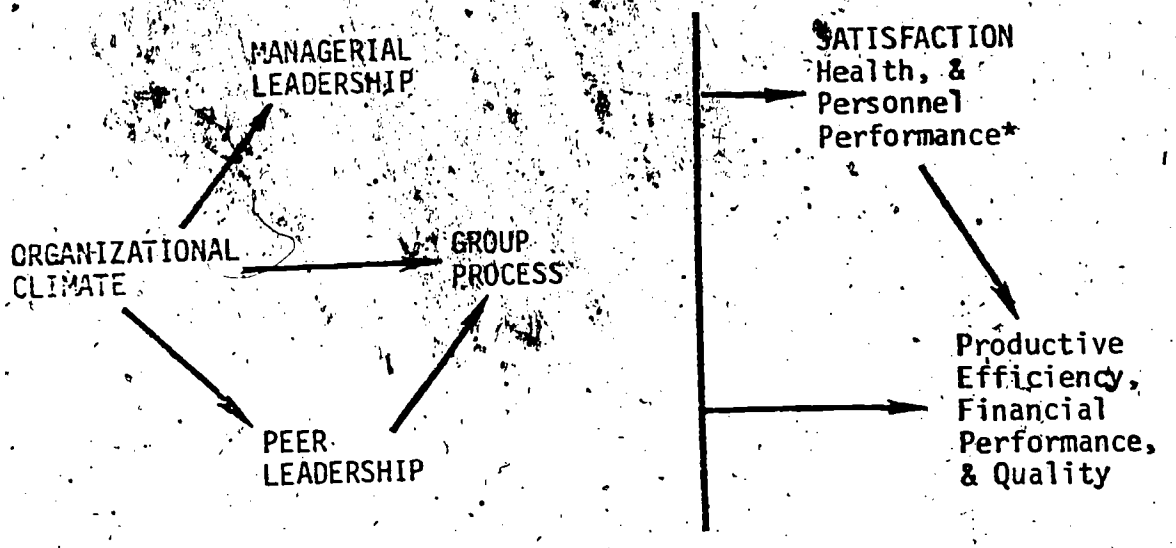
what point in time lead to other behaviors and attitudes by other organization members at some other point in time. Yet it is precisely this requirement (among others) which is critical to any ability to forecast shifts in productive capability on the basis of changing properties of the human organization: a model must be in place which describes the manner in which the several dimensions interrelate across time.

A notable exception to the general lack of causal flow propositions is Likert's meta-theory, which places constructs in a causal-intervening-end result sequence (Likert, 1961, 1967; Bowers, 1976). Briefly, organizational climate and managerial leadership are viewed as the major causal variables, peer leadership and group process as intervening variables, and satisfaction and performance as end result variables. Figure 1 shows graphically the relationships among these variables. This causal flow of events takes place within a framework of the organization as a system of overlapping groups. (The groups are described as "overlapping" because for all persons below the very top and above the very bottom of the organization, each is a member of two groups simultaneously; he is a subordinate in the group immediately above and a supervisor in the group immediately below.) The dual membership implicit in this fact serves an integrating or linkage function for the organization, that is, it serves to knit together the functions, purposes, and needs of the various parts of the system.

Equally important is the fact that the theory is supported by a wealth of empirical evidence -- indeed, it represents a crystallization in conceptual form of a large volume of empirical findings. In this sense it is appropriate to the setting in which we undertake presently to use it because it was derived from such settings over the years. Its comprehensiveness has been at least indirectly assessed by comparing the content listing of its major

Figure 1

Relationships between Major Social-Psychological Factors and Outcomes



*Personnel performance includes such factors as turnover, grievance rate and absence rate.

written representations with topical abstract listings for the organizational area. The results show what we judge to be an adequate degree of overlap, 66 percent. (Bowers & Franklin, 1976) Beyond this, its representativeness draws upon the fact that, during the thirty or more years that its formulation has been ongoing, data have been drawn from more than 200 organizations in all walks of business and government life. Its applicability to military settings has been tested as well, (Bowers, 1975a, 1975b) and its major causal statements have been examined with cross-time and cross-echelon analyses (Franklin, 1975a, 1975b). As a model, therefore, it includes what a great deal of research has shown to be key dimensions of the human organization and places them in the causal-intervening-end result sequence suggested by accumulated evidence.

A survey method has been developed by Taylor & Bowers (1972) for measuring the major constructs included in Likert's meta-theory with reasonable efficiency, accuracy, and objectivity. It utilizes a standard, machine-scored questionnaire entitled the Survey of Organizations (SOO). This instrument includes 16 major indexes and, over the past eight years, has produced in its various editions data from 24,000 persons in 57 different organizational sites. For each item and index, national norms have been established based upon the total population and hierarchically stratified subsets of respondents, permitting the state of the human organization to be related to performance criteria at whatever level these criteria exist. In this form the questionnaire has been used extensively and quite successfully for both diagnostic and information-feedback purposes within organizational development studies. Utilizing Likert's meta-theory and the survey methodology developed to measure its principal dimensions, we believe that conditions (1) and (2) above can be met.

Availability of Valid Performance Data (Condition 3). Ability to identify and measure the characteristics of the human organization (or at least a limited array of principal dimensions thereof) is but half the equation. The remaining half concerns the availability of measures of organizational sub-unit performance which are ultimately capable of being tied to dollars.

A number of classification schemes, distinctions, and definitional nuances have been advanced under the general rubric of performance, or the "criterion problem." Admittedly the problem of deciding just what constitutes the effectiveness domain is a thorny matter, subject at least as much to the orientation vicissitudes of the conceptualizer as to its own intrinsic properties.

Still, if the purpose of the defining process is to identify basic aspects of the capacity of the organization (and each of its sub-units) to do its work, the basic dimensionality might be proposed in a quite straightforward fashion. There is first of all, the volume of work done. We are not ordinarily concerned about straight volume, however; in this sense, sheer volume is a nonsensical criterion of organizational effectiveness. That a large manufacturer produces thousands of bicycles and Joe's Bike Shop dozens does not necessarily make the former thousands of times more effective than the latter (although it may in fact be so). A large producer may be in the process of going bankrupt, while a small competitor makes a fortune. There are, of course, times (e.g., World War II) when volume alone is important. But in most instances, we prefer volume in relation to something else. For example, volume divided by number of personnel would be a better indicator than volume alone. But that is still not acceptable, since we may imagine a manager who succeeds in producing

as many units of product with more people who are less skilled and in toto less costly than his counterpart in the next department who is able to produce the same number of units with somewhat fewer people, all of them at a much higher skill level and a far greater total cost. A much better indicator is volume in relation to some expected level, standard, or capacity.

The cost of doing the work or providing a service is another basic dimension of work. Cost alone is nonsensical, however. Cost is absolutely higher when more work is done, nil when no work is done at all. Here, as before, it is cost in relation to some level or standard that is important, ordinarily a volume standard.

Quality, another basic dimension of work similarly stands not alone, but in relation to some standard. We are not in our efforts, however, interested in devising an organization capable of producing only one absolutely perfect unit, regardless of cost, but an organization capable of producing as many units as possible of the highest possible quality at the lowest possible cost; that is, we are also interested in efficiency.

Although different organizations may establish different cut-off points for acceptability on volume, costs, quality, or efficiency, reflecting different patterns of internal needs and external requirements, it does seem at least possible that we might consider some standard array of effectiveness indicators to include:

(1) Volume as a percent of capacity, or, alternatively, as a percent of schedule

(2) Cost per product unit

(3) Quality as compared to some standard

(4) Efficiency, that is (quality x volume), divided by total cost.

All other dimensions would then enter as criteria because they are precursors of one or more of these measures; for example, absenteeism is costly; dissatisfaction leads to costly turnover, etc..

Those familiar with the field will note that this scheme classifies such "people" measures as "identity", "motivation", "satisfaction", "morale", and "revitalization" as intermediate rather than end-result organizational outcomes. This does not say that they are unimportant; it simply says that they are penultimate, not ultimate, criteria of effectiveness for work organizations. This notion of performance criteria, as falling into a hierarchy of outcomes, has been proposed by other researchers as well (Seashore, 1965).

In a recent article, Likert and Bowers (1969) suggested three categories which may be considered in this scheme as penultimate criteria of effectiveness: Attendance, Human Costs, and Development. The importance of attendance is obvious, since an organization cannot efficiently produce the goods and services it exists to provide without a relatively stable and reliable work force. Of course, a certain amount of absenteeism is expected. Some degree of turnover may be desirable if it provides a means for introducing into the system new people with different, but functional, orientations. However, the organization would be on shaky ground indeed if one could not predict who (and how many) would work from one day or week to the next.

Secondly, it is dysfunctional to have employees physically present but not able or willing to work because of debilitating or demotivating conditions on or surrounding their jobs. Thus, organizations must be concerned with the indirect human costs associated with various management styles, work methods, and physical working conditions.

Finally, an organization that remains stagnant in an environment characterized by changing demands and competitive conditions is not likely to remain solvent for any extended period of time. Organizational leaders must be concerned with the development of resources (manpower and other) in order to ensure the innovativeness, foresight, etc., necessary to maintain a favorable market position.

It seems reasonable to assume that in most business, industrial, and military settings, measures germane to the four generic categories (Volume, Cost, Quality, Efficiency) as well as the penultimate categories (Attendance, Human Costs, Development) can be extracted, generated, or approximated from operating records. For each category, several measures may be imagined. The list below, offers examples for each of the categories:

Ultimate Criteria:

Volume of Work

- Volume of output versus a standard
- Market penetration

Cost

- Production costs versus budget
- Production costs attributable to waste or scrap
- Down time

Quality

- Rework ratio
- Accuracy
- Customer returns
- Customer complaints
- Repeat business
- Rejection rate

Efficiency

- Performance versus schedule
- Performance versus standard
- Rate of earnings

Penultimate Criteria:

Attendance

Sick leave and absence
Hours worked per week
Retention and Turnover

Human Costs

Satisfaction
Motivation
Physical health
Psychological health
Tension
Stress
Conflict
Grievances
Disciplinary actions

Development

Growth in volume
Manpower development
Innovation
Organization improvement

On the surface, gathering this information would seem to pose little or no problem: American organizations typically generate a plethora of documents, records, and pages of numbers concerned with performance. Yet, a recent large, multi-organizational study experienced great difficulty in obtaining high quality and appropriate measures of performance (Bowers, 1971; Taylor & Bowers, 1972; Bowers, 1973). Stated most bluntly, American business and industrial firms collect and tabulate reams of data for purposes other than the guidance of operations by those who must manage them. Data are collected for wage payment purposes, for benefit entitlement calculations, for agency reporting purposes, for stockholder report purposes -- in short, for a number of extra-operating system reasons, but all too infrequently for sub-unit guidance.

The causes of this situation would seem to be manifold. In some instances, organizations appear to be prisoners of a surveillant-suspicious system. Effectiveness statistics are regarded as privileged, potent, and dangerous bits of information, to be concealed, even from those persons whom the organization relies upon to see to the attainment of the valued numbers. In other instances, organizations would be only too willing to share the information, were it already part of the tabulation system, but "head-count" pressures have so reduced manpower available for that task that it is no longer physically possible to obtain them.

In most such instances, however, the data are retrievable, provided that external persons who have an interest in obtaining them (a) are trusted, and (b) have financial support and time to do so. In our experience both of these requirements seem capable of being met.

More serious are certain other constraints. The validity of performance data is questionable when the following practices occur:

(a) Changing standards or bases differentially from subunit to subunit or period to period,

(b) maintaining common standards for all subunits, but in situations in which the work nature or mix has changed over time drastically and differently from subunit to subunit,

(c) agglomerating performance information into cost centers which bear little or no resemblance to the real organizational operating structure, and

(d) relying upon collection procedures which systematically distort reported results (Taylor & Bowers, 1972).

In a slightly different vein, if the organizational unit for which the estimates are made is one in which the control and reward systems encourage supervisory and non-supervisory employees to protect themselves by deliberately reporting inaccurate performance data, the estimates of changes from period-to-period in the current dollar-value of the human organization will be less accurate because the performance data upon which they are based were invalid. The potential problem of performance data reports being deliberately "fudged" is not uniquely relevant to developing future performance trend indicators, however. It presents problems as well for traditional accounting methods and reports used to assess the short-run profitability of corporations. Nevertheless, an important research objective should be to investigate the validity of performance data to be used in developing trend indicatprs.

Availability of knowledge of the relationships between key dimensions of the human organization and performance outcomes (Condition 4). In the period of the middle to late 1940's, researchers and practitioners in considerable numbers came to believe that employee "morale" was a precursor of productivity, a notion which came into question as, a decade later, a number of reviews indicated that no such simple, consistent, dependable relationships existed.

However, research in recent years has suggested that the original notion, while essentially correct in spirit, was too oversimplified to be demonstrable. Among the reasons for the earlier absence of observed dependable relationships would appear to be the following:

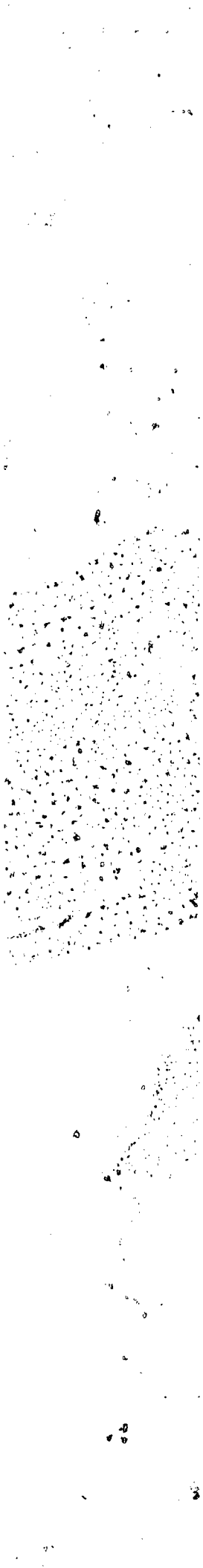
(1) All too often, the wrong variables received attention. In some instances human characteristics too far removed in the causal chain (e.g., personality traits) were simply averaged and related to performance. In other instances, appropriate characteristics were indeed tapped, but were immersed in many inappropriate ones.

(2) In more instances than not, measures were constructed on an ad hoc basis, with little or no attention paid to their reliability, much less to their construct validity within some meaningful theoretical framework.

(3) Lack of awareness of the fact of lag time -- that today's organizational characteristics produce tomorrow's (not today's) performance -- led to selection of inappropriate criterion periods.

(4) Methodological traps were fallen upon all too frequently, such as relying heavily upon self-report descriptions from a single person.

The measurement method and its underlying theoretical rationale which are drawn in the present study seem to avoid most of the problems just cited. Reliability coefficients for the survey measures contained in the national normative array have been known for quite some time and have been published. (Taylor & Bowers, 1972) That same volume presents evidence of construct, concurrent and predictive validity, to the extent that such evidence was available at the time of its writing. Subsequent studies have reinforced the conclusions reached in those analyses. As the evidence



presented in the just-cited manual indicates, 20 to 30 percent of all coefficients relating SOO indexes to measures of efficiency drawn from organizations' operating records are statistically significant beyond the five percent level of confidence. The majority of these coefficients fall between .25 and .50, with a few reaching values in the high .70's and low .80's. Similar results exist for measures of attendance for these same organizations. A somewhat different form of presentation, one which serves to suggest the potential of the findings for current value human resources accounting, appears in Table 1.

Evidence of significant relationship of these measures to Navy performance criteria is also available. Relationships of SOO measures to reenlistment rates and to validated reenlistment intentions of individuals have been demonstrated by Bowers (1973). Analyses relating these measures to indexes of actual retention and readiness have also been conducted (Franklin & Drexler, 1976; Drexler & Franklin, 1976). Finally, relationships to discipline rate have also been established (Crawford & Thomas, 1975). When the problems listed at the outset of this section are taken into account and solved, as we feel they have in some substantial measure been in the data sets and analyses just described, the likelihood of finding meaningful relationships increases.

The persistence of changes in the human organization after they have occurred (Condition 5). If the relationships between characteristics of organizational functioning and performance criteria are indeed meaningful, and if improvements in these characteristics are to contribute to increased effectiveness, there must be evidence supporting the durability of changes in them.

TABLE

ORGANIZATIONAL SUB-UNIT PERFORMANCE RANGES

FOR A SUBSET OF ORGANIZATIONS, SOO DATA FILE

Organization	Performance Measure	Best* Unit	Worst** Unit	Ratio, Worst/Best	Best 10%	Worst 10%	Ratio, Worst 10%/Best 10%
A	Grievance Rate (9-month mean)	.00	29.50	--	.04	16.90	422 to 1
	Absence Rate (9-month rate)	1.70	17.50	10.29 to 1	3.80	12.50	3.29 to 1
	Efficiency	15.90	36.90	2.32 to 1	18.80	25.50	1.36 to 1
B	Renewal Bus. Costs	.27	.99	3.67 to 1	.42	.89	2.12 to 1
	New Business Cost Performance	5.90	35.48	6.01 to 1	8.91	27.18	3.05 to 1
C	Total Variable Cost Performance	43.20	142.00	3.28 to 1	53.90	126.00	2.33 to 1
D	Total Variable Cost Performance	75.10	176.10	2.34 to 1	80.80	136.70	1.69 to 1
E	Total Variable Cost Performance	59.70	204.10	3.42 to 1	70.60	146.30	2.07 to 1
			Mean Ratios	7.60 to 1			54.78 to 1
			Mean Ratios without A	4.48 to 1			2.27 to 1

*Best unit = unit with highest SOO scores

**Worst unit = unit with lowest SOO scores

The book, Management by Participation (Marrow, Bowers & Seashore, 1967), describes a highly successful organizational development program. Findings at the time of that effort reflected improved productivity. A follow-up study by Seashore & Bowers suggested that the changes in business outcomes as well as in attitudes toward the job and supervisors that resulted from the formal change program (1962-1964) had persisted over time (Seashore & Bowers, 1970). Although this represents but one study of the human organization, the positive results are quite promising. However, further investigation of this issue is merited.

A statistical technique for computing future performance trend indicators (Condition 6). Once all five of the above conditions have been met, a statistical technique is needed for converting predicted increments and decrements in future productive performance into dollar estimates. Such a conversion would mean that future productive performance would be expressed in terms of an increase or decrease in the current economic value of the human resources. In other words, if it were estimated that the human resources are valued at $10,000 more this year than least year, the organization could expect its effectiveness to increase correspondingly (in dollar or dollar-related terms) during a specified period in the future.

The newness of any procedure for making these estimates (relative to the traditional procedures for estimating current financial returns), will probably have some initial effect upon their accuracy. However, as these procedures are further developed and refined, the magnitude of errors will decrease and the ability to estimate their size will increase. As these refinements occur, accuracy will increase. It should be emphasized that

even in cases in which the estimates are not overwhelmingly accurate, they will be a great deal more accurate than current statements of effectiveness, in which the changes in dollar-value of the human organization are not taken into account at all (Likert, 1967).

A statistical procedure has been developed by Likert and Bowers which provides the desired "current value" estimates (Likert & Bowers, 1973). As now formulated, the methodology involves measuring the key dimensions of the human organization at each time period, say one year ago (T_1) and now (T_2). Scores on the key dimensions are converted to "standard" scores by taking into account the variability (standard deviation) displayed by each measure. This allows us to talk about change in terms of "units" of gain or loss. Performance measures are also "standardized." Thus, one can speak of so many "units" of gain or loss in, for example, production costs.

Since the human organization dimensions are related statistically to future performance, a positive change in scores on the key dimension measures will be associated with a decrease in production costs. The amount of this decrease will depend upon the strength of the relationship between the key dimension and production costs. For example, let's assume that this relationship has been established over time for a given organizational unit, and that the correlation is -.70. (The correlation is negative, since higher scores on the key dimensions are associated with lower costs.) Also in this hypothetical organization:

- The standard deviation of the key dimension scores is 0.25.
- The standard deviation in production costs is $5.00.
- The organization has an annual production of 100,000 units.

The organization had at T_1 a key dimension score of 3.60; and it had at T_2 a key dimension score of 3.85. (The key dimensions are measured on 5-point scales with "5" indicating a high score.)

Based on this information, the following computations would be performed:

(1) The gain in the key dimension scores is from 3.60 to 3.85, or +.25.

(2) This gain, when converted to standard scores by dividing the gain by the key dimension scores, is +1.00 (+.25 ÷ .25 = 1.00).

(3) In turn, this gain of +1.00 is converted to an estimated gain in standard scores in the unit production costs by multiplying it by the correlation (-.70) between the key dimension scores and production costs (+1.00 x -.70 = -.70).

(4) Converting this reduction in unit production costs of -.70 expressed in standard scores to dollars, yields an estimated reduction in unit costs of $3.50 (per unit). This conversion to dollars requires multiplying the estimated reduction in standard scores by the standard deviation of the unit production costs (-.70 x $5.00 = $3.50).

(5) The total annual reduction in costs is $350,000 (100,000 x $3.50), that is, the savings per unit multiplied by the number of units produced annually.

(6) If this dollar estimate of the gain in productive capability of the human resources is then capitalized at an appropriate rate (say 20 percent), an estimate of the change in current value of that human organization as an asset is the result. In the present example, the increase in current value would have been $1,750,000 (Likert, 1973, pp. 14-15).

The single "best" estimate of the change in value of the human resources using this methodology would be computed by performing multiple correlations which include all the causal variables and an index combining the scores for all the performance variables. Estimates based upon changes in intervening variables might be used as a check, taking lag time into account. Intermediate outcomes such as satisfaction and motivation levels might be utilized in an attempt to make feasible earlier predictions concerning the effects of changes in the human organization than would be possible if only final outcomes were considered. In addition, if the relationships between intermediate and final outcome variables can be established, intermediate level outcomes will be potentially useful in organizational systems where final outcome data are not available.

An Overview of What is to Follow

With the foregoing discussion as a backdrop, we turn to an overview of the research sequence to be reported in this and forthcoming reports. Obviously, the first task in any attempt to construct future performance trend indicators is to assess the quality of the data in hand and the strength of the survey-to-performance connections which they generate. We have chosen to take on this large task in manageable portions. Accordingly, in the present report we will examine the following basic issues for the first five organizational data sets (of six ultimately to be used):

(1) The strength of internal consistency (alpha) reliability coefficients for the 16 survey indexes.

(2) The size of performance periods, that is, the number of months that a "period" may reasonably be judged to contain for each organization, together with internal consistency (alpha) reliability coefficients for the multi-month periods so defined.

(3) The size of zero-order survey-to-performance correlation coefficients, by site.

In subsequent reports, the remaining usable sites will be similarly examined. Performance data will then be transformed to a scale common to all sites, and a master file will be generated. Multivariate analyses will then be conducted to determine both size and lag times of the relationship of the human organization's functional state to its performance outcomes. As a final set of steps in the subsequent phase of the research, value attribution will occur: that is, dollar conversions will be undertaken.

METHODS

Phase I of the project called for secondary analyses of data in the Organization Development Research Program's data bank. In this report, data from four industrial organizations (representing continuous process and assembly line manufacturing) and one marketing firm were studied.* Data sources, measures, and analysis procedures are described below.

Data Sources

This report utilizes the five civilian organizations for which there were two waves of comparable organizational functioning data in addition to measures of performance. These data were available from 21 work groups in Organization I (one plant), 18 large departments in Organization II (four plants), 253 work groups in Organization III (one plant), six departments in Organization IV (one plant), and 35 sales districts in Organization V (eight regional offices). The research efforts generating the data were conducted between 1966 and 1970 as part of the Michigan Inter-Company Longitudinal Study (ICLS) described by Bowers (1971; 1973).

Measures of Organizational Functioning

ICLS (as first described by Likert, et. al., 1969) was begun in order to make feasible the systematic investigation of relationships between characteristics of the human organization and performance levels of organizational units. The Survey of Organizations questionnaire (SOO), a machine-scored, standardized

*In subsequent reports data from another large civilian organization will also be included.

instrument was developed as an integral part of this research program. The questionnaire was needed to collect comparable data from diverse organizational sites in an economical and efficient manner. The first form of the SOO was completed in 1966. While some modifications have since been made in the SOO, most of the "core" measures remained consistent across the ICLS sites.

In its current edition, the SOO includes 124 items focusing on various aspects of the work setting. Six items focus on individual demographic characteristics. Forty-two additional spaces are provided for supplementary questions tailored to a particular organization or study. Responses to most items regarding the work setting are recorded on a five-point extent scale ranging from (1) "to a very little extent" to (5) "to a very great extent." A description of the complete instrument together with statistical information regarding the validity and reliability of its component elements is provided by Taylor and Bowers (1972) in the questionnaire manual.

Five key dimensions of organizational functioning are measured by the SOO: Organizational Climate, Supervisory Leadership, Peer Leadership, Group Process, and Satisfaction. Organizational Climate refers to the organization-wide conditions, policies, and procedures within which each work group operates. These conditions and policies are created for a work group by other groups, especially by those above it in the organizational hierarchy. Climate conditions set bounds on what does and what can go on within any work group. Aspects of climate can help or hinder conditions within groups, or may do both at the same time. Supervisory Leadership is comprised of interpersonal and task-related behaviors which describe the way supervisors are viewed by their subordinates. Peer Leadership is comprised of inter-

personal and task-related behaviors of work group members toward each other. Group Process measures those things which characterize the group as a team and whether group members work together well or poorly. The way in which group members share information, make decisions, and solve problems determines the group's effectiveness and the quality of its outputs. Satisfaction measures whether organization members are satisfied with economic and related rewards, the immediate supervisor, the organization as a system, the job as a whole, compatibility with fellow work group members, and present and future progress within the organization.

Sixteen major indices in the SOQ measure these five dimensions of organizational functioning. The indices and component items are listed in Table 2.

The SOQ was administered at least twice to the five organizations discussed in this report with the time between the survey administrations ranging from eight to 24 months. Table 3 lists the dates of the administrations.

Cronbach's Coefficient alpha (Bohrnstedt, 1969) and Scott's Homogeneity Ratio (Scott, 1960) were computed to assess the internal consistency of the 16 major SOQ indices in the current samples. Table 4 summarizes the results of these tests in the five organizations for each wave of survey data. (Separate results for each organization are provided in Appendix A.) As the results in Table 4 show, the SOQ indices displayed moderate to high internal consistency.

A few methodological points should be noted. First, the sites surveyed early in the ICLS program were missing a few questionnaire items which had not yet been developed. Organization I and regions 1 to 4 of Organization V had no measures of group process or technological readiness.

TABLE 2

ITEMS COMPRISING THE

SURVEY OF ORGANIZATIONS INDICES

The indices below are made up of items to which responses are given on a five-point extent scale: 1 = to a very little extent, 2 = to a little extent, 3 - to some extent, 4 = to a great extent, and 5 = to a very great extent.*

Organizational Climate

Human Resources Primacy (HRP)

To what extent does this organization have a real interest in the welfare and happiness of those who work here?

How much does this organization try to improve working conditions?

To what extent are work activities sensibly organized in this organization?

Decision Making Practices (DMP)

How are objectives set in this organization?

1. Objectives are announced with no opportunity to raise questions or give comments.
2. Objectives are announced and explained and an opportunity is then given to ask questions.
3. Objectives are drawn up, but are discussed with subordinates and sometimes modified before being issued.
4. Specific alternative objectives are drawn up by supervisors, and subordinates are asked to discuss them and indicate the one they think is best.
5. Problems are presented to those persons who are involved, and the objectives felt to be best are then set by the subordinates and the supervisors jointly, by group participation and discussion.

In this organization to what extent are decisions made at those levels where the most adequate and accurate information is available?

When decisions are being made, to what extent are the persons affected asked for their ideas?

People at all levels of an organization usually have know-how that could be of use to decision-makers. To what extent is information widely shared in this organization so that those who make decisions have access to all available know-how?

*Exceptions are starred.

Communication Flow (Comm)

How adequate for your needs is the amount of information you get about what is going on in other departments or shifts?

How receptive are those above your supervisor to your ideas and suggestions?

To what extent are you told what you need to know to do your job in the best possible way?

Motivational Conditions (Motiv)

*How are differences and disagreements between units or departments handled in this organization?

1. Disagreements are almost always avoided, denied, or suppressed
2. Disagreements are often avoided, denied or suppressed
3. Sometimes disagreements are accepted and worked through; sometimes they are avoided or suppressed
4. Disagreements are usually accepted as necessary and desirable and worked through
5. Disagreements are almost always accepted as necessary and desirable and worked through

*Why do people work hard in this organization?

1. Just to keep their jobs and avoid being chewed out
2. To keep their jobs and to make money
3. To keep their jobs, make money, and to seek promotions
4. To keep their jobs, make money, seek promotions, and for the satisfaction of a job well done
5. To keep their jobs, make money, seek promotions, do a satisfying job, and because other people in their work group expect it

To what extent are there things about working here (people, policies, or conditions) that encourage you to work hard?

Technological Readiness (Tech)

To what extent is this organization generally quick to use improved work methods?

To what extent are the equipment and resources you have to do your work adequate, efficient, and well maintained?

Lower Level Influence (LLI)

In general, how much say or influence does each of the following groups of people have on what goes on in your department?

*Exceptions are starred.

*Lowest-level supervisors (supervisors of non-supervisory personnel)?

1. Little or no influence
2. Some
3. Quite a bit
4. A great deal
5. To a very great extent

*Non-supervisory personnel

(Same Scale)

Supervisory Leadership

Supervisory Support (SS)

How friendly and easy to approach is your supervisor?

When you talk with your supervisor, to what extent does he pay attention to what you're saying?

To what extent is your supervisor willing to listen to your problems?

Supervisory Team Building (STB)

To what extent does your supervisor encourage the persons who work for him to work as a team?

To what extent does your supervisor encourage the persons who work for him to work as a team?

Supervisory Goal Emphasis (SGE)

How much does your supervisor encourage people to give their best effort?

To what extent does your supervisor maintain high standards of performance?

Supervisory Work Facilitation (SWF)

To what extent does your supervisor show you how to improve your performance?

To what extent does your supervisor provide you with the help you need so that you can schedule work ahead of time?

To what extent does your supervisor offer new ideas for solving job-related problems?

*Exceptions are starred.

Peer Leadership

Peer Support (PS)

How friendly and easy to approach are the persons in your work group?

When you talk with the persons in your work group, to what extent do they pay attention to what you're saying?

To what extent are persons in your work group willing to listen to your problems?

Peer Team Building (PTB)

How much do persons in your work group encourage each other to work as a team?

How much do persons in your work group emphasize a team goal?

To what extent to do persons in your work group exchange opinions and ideas?

Peer Goal Emphasis (PGE)

How much do persons in your work group encourage each other to give their best effort?

To what extent do persons in your work group maintain high standards of performance?

Peer Work Facilitation (PWF)

To what extent do persons in your work group help you find ways to do a better job?

To what extent do persons in your work group provide the help you need so that you can plan, organize, and schedule work ahead of time?

To what extent do persons in your work group offer each other new ideas for solving job-related problems?

Group Process (GP)

To what extent does your work group plan together and coordinate its efforts?

To what extent does your work group make good decisions and solve problems well?

To what extent do persons in your work group know what their jobs are and know how to do them well?

To what extent is information about important events and situations shared within your work group?

Exceptions are starred.

Group Process (GP - Continued)

To what extent does your work group really want to meet its objectives successfully?

To what extent is your work group able to respond to unusual work demands placed on it?

To what extent do you have confidence and trust in the persons in your work group?

Satisfaction (Sat)

*All in all, how satisfied are you with the persons in your work group?

*All in all, how satisfied are you with your supervisor?

*All in all, how satisfied are you with your job?

*All in all, how satisfied are you with this organization compared to most others?

*Considering your skills and the effort you put into the work, how satisfied are you with your pay?

*How satisfied do you feel with the progress you have made in this organization up to now?

*How satisfied do you feel with your chance for getting ahead in this organization?

1. Very dissatisfied
2. Somewhat dissatisfied
3. Neither satisfied nor dissatisfied
4. Fairly satisfied
5. Very satisfied

*Exceptions are starred.

Table 3

DATES OF SOO ADMINISTRATIONS

TO CURRENT SAMPLES

	Time 1	Time 2	# Months Between
Organization I	May, 1966	May, 1967	12
Organization II			
Plant 1	October, 1969	October, 1971	12
Plant 2	October, 1969	September, 1970	11
Plant 3	December, 1969	January, 1971	13
Plant 4	February, 1970	February, 1972	24
Organization III	April, 1968	June, 1969	14
Organization IV	July, 1969	June, 1970	11
Organization V			
Regions 1-4	Fall, 1966	December, 1967	6
Region 5	November, 1967	March, 1969	16
Region 6	June, 1968	March, 1969	10
Region 7	February, 1968	February, 1969	12
Region 8	April, 1968	December, 1968	8

Table 4

ALPHA'S AND HOMOGENEITY RATIOS FOR MAJOR SOO INDICES

Index	Wave 1 Median Alpha	Range of Alpha's	Median HR	Range of HR's
Decision Making Practices	.75	.70-.87	.44	.38-.65
Communication Flow	.69	.53-.79	.43	.28-.56
*Motivational Conditions	.67	.52-.79	.41	.40-.56
*Human Resources Primacy	.76	.66-.86	.56	.50-.67
Lower Level Influence	.59	.55-.71	.42	.39-.55
*Technological Readiness	.60	.49-.71	.44	.33-.55
Supervisory Support	.86	.85-.94	.68	.66-.84
Supervisory Goal Emphasis	.80	.61-.87	.66	.44-.78
Supervisory Work Facilitation	.85	.76-.89	.66	.53-.74
Supervisory Team Building	.84	.51-.91	.73	.36-.84
Peer Support	.87	.82-.88	.69	.61-.72
Peer Goal Emphasis	.77	.72-.86	.64	.57-.78
Peer Work Facilitation	.85	.84-.90	.66	.63-.75
Peer Team Building	.87	.71-.90	.69	.45-.76
*Group Process	.77	.74-.91	.46	.37-.60
*Satisfaction	.82	.63-.85	.40	.26-.46
	Wave 2			
Decision Making Practices	.82	.73-.90	.55	.42-.72
Communication Flow	.80	.62-.92	.57	.36-.79
*Motivational Conditions	.72	.71-.88	.54	.45-.73
*Human Resources Primacy	.83	.80-.90	.70	.57-.77
Lower Level Influence	.69	.65-.81	.53	.49-.68
*Technological Readiness	.45	.42-.79	.32	.27-.68
Supervisory Support	.93	.90-.95	.83	.76-.87
Supervisory Goal Emphasis	.87	.83-.90	.78	.71-.81
Supervisory Work Facilitation	.91	.83-.93	.77	.63-.82
Supervisory Team Building	.90	.86-.93	.83	.75-.88
Peer Support	.88	.82-.92	.71	.61-.79
Peer Goal Emphasis	.77	.75-.86	.63	.61-.77
Peer Work Facilitation	.85	.75-.92	.66	.50-.78
Peer Team Building	.91	.85-.94	.77	.67-.84
*Group Process	.86	.78-.93	.56	.51-.65
*Satisfaction	.84	.69-.89	.44	.32-.55

** If an asterisk (*) appears before the index title, some of the earlier sites were missing one or more of the items in that index.

Seoond, the statistics on the SOO's internal consistency were computed using work group rather than individual data. The data were aggregated because all later analyses will also be conducted at the group level.*

Measures of Performance

Two levels of organizational effectiveness criteria were identified earlier in this report. Ultimate criteria are those organizational outcomes pertinent to the organization's production goals and include variables like volume, cost, quality, and efficiency. Penultimate criteria are intermediate rather than end-result organizational outcomes and include variables like attendance, human costs, and resource development.

Three of the organizations discussed in this report provided data for at least one ultimate and one penultimate effectiveness criterion. All organizations provided one or more general cost measures, referred to here as total variable expense (TVE). Organizations I and IV provided one or more measures of direct labor costs (DLC). Organizations I, II, and III also provided a measure of total absence (ABS). A listing of the measures each organization provided their definitions and the number of months covered are provided in Table 5.

The performance data originally provided by the organizations corresponded to different sizes of organizational units. Some data reflected plant performance, some departmental, and still others group performance. An early

*Some of the groups included in this set of analyses do not have performance data. Thus the final samples containing both SOO and performance data will be a subset of those establishing the SOO's internal consistency. The reliability of the instrument in the subsets needs to be confirmed at some point.

Table 5

MONTHLY MEASURES OF ORGANIZATIONAL PERFORMANCE

ORGANIZATION	TVE1	TVE2	DLC1	DLC2	ABS
I. Title	Total Variable Expense		Direct Labor Costs		Total Absence
Definition	Largest actual expense figure from each cost center encompassing all expenses, as percentage of engineered standard. (High Score = Poor Performance)		Actual cost of labor involved in production (but not in equipment maintenance) as percentage of engineered standard. (High Score = Poor Performance)		Number of employees absent in a month as percentage of total number of employees. (High Score = Poor Performance)
Duration	Nov. 1965-Nov. 1967		Nov. 1965-Nov. 1967		Nov. 1965-Nov. 1967
II. Title	% Production Efficiency				Absence Rate
Definition	Actual manhours worked as percentage of bugeted manhours. (High Score = Poor Performance				Number of mandays missed as a percentage of number of mandays scheduled. (High Score = Poor Performance)
Duration	Jan. 1969-June 1970				Sept. 1969-May 1970
III. Title	Overtime Labor Costs				Total Absence
Definition	Total overtime as percentage of total scheduled work days. (High Score = Poor Performance)				Total days absent as percentage of total scheduled work days. (High Score = Poor Performance)
Duration	Jan. 1968-April 1969				Jan. 1968 - April 1969
IV. Title	% Standard Cost		% Non-Productive Manhours	%Indirect Labor Costs	
Definition	Variance of actual production costs from budgeted costs as a percentage of budgeted costs. (High Score = Good Performance)		Manhours not chargeable internally (e.g., costs while waiting for materials) as a percentage of total manhours worked. (High Score = Poor Performance)	Labor costs due to e.g., set-up time as percentage of total manhours worked. (High Score = Poor Performance)	
Duration	July 1969-March 1970		July 1969-March 1970	July 1969-March 1970	
V. Title	Expenses/Sales	Expenses/Manpower			
Definition	Sales team payroll as percentage of dollars of premiums written. (High Score = Poor Performance	Number on sales team payroll as percentage of average number of team salesmen. (High Score = Poor Performance)			
Duration	Winter 1967-Summer 1965 (Data by Quarters)	Winter 1967-Summer 1965 (Data by Quarters)			

issue was at what level of aggregation the data should be for analyses relating the SOO to performance measures. The choices were either to a aggregate the SOO data to match the grossest units for which performance data were available (this would reduce the N substantially and reduce the SOO variance) or to impute performance data to the group level (this would introduce a high number of tied scores, reduce the potential variance in the performance measures, and thus probably depress the correlations between the SOO and performance measures). The decision was made to impute performance data to all work groups included in each cost center. Table 6 lists the original level of aggregation and the N's before and after imputation.

Analysis Procedures

This report had two analytic tasks: (1) to identify sufficiently stable performance periods within each site which were also comparable across sites and (2) to explore the relationship between the SOO and performance. All analyses were performed separately for each site.

A non-metric technique called Smallest Space Analysis (SSA) was used to identify the performance months to be combined to form performance periods. The specific program used was MINISSA which is available as a public file on the University of Michigan's terminal system.

SSA takes as input similarity or dissimilarity measures (s) of all variables from some set of variables. Ordinal distances (d) among these pairs of variables are computed in such a way that monotonicity is maintained. When the relationships among variables are measured by similarity coefficients, the monotonic function is defined as:

$$d_{ij} \leq d_{kl} \text{ when } s_{ij} \quad s_{kl}$$

Table 6

PERFORMANCE DATA - LEVEL OF AGGREGATION AND N BEFORE AND AFTER IMPUTATION

Organization	Before Imputation Level of Aggregation	N	After Imputation N
I	Plant	3	27 (TVE, DLC) 38 (ABS)
II	Department	18	71 (TVE) 118 (ABS)
III	Department or Division	11	414
IV	Department	6	124
V	Salesteam	62	62

The measures used in the present case were Pearson product moment coefficients or correlation coefficients. These coefficients show the strength of association between variables, and as such are measures of similarity. Once the distance measures are determined, the SSA technique represents the resulting relationships in some N-dimensional space.

There are a number of advantages of SSA and other non-metric scaling techniques over the traditional factor analytic methods. First, the level of the data need not be intervally scaled. SSA uses an ordinal set of relationships and concern for violating assumptions required for factor analysis is greatly reduced. The second advantage is the final representation is close approximation to the original data. Third, the final representation requires fewer spatial dimensions to represent the original data. Thus, the final representation is more visually interpretable than other approaches. Finally, SSA can determine more subtle differences among sets of points and relationships than can factor analytic techniques.

An understanding of certain parts of the SSA output is critical for the present analysis. First, the system outputs the coordinates for each element's position in some N-dimensional space. Each of the elements can be plotted to visually represent its position with respect to the other elements. For the present study, the elements are months of performance data. The number of dimensions is determined by the fewest number required to represent the data while maintaining monotonicity. The recommended criterion for monotonicity is that the Guttman-Lingoes Coefficient of Alienation be less than or equal to 0.15. When this criterion is met, the program plots the elements in the appropriate number of dimensions.

Thus, one criterion for combining certain months of performance was that they be empirically represented in space close to one another. Another criterion was that the months defining a performance period be contiguous.*

The stability, or internal consistency, of the performance periods suggested by the SSA were then assessed using Cronbach's alpha coefficient and Scott's Homogeneity Ratio (HR).

This two-step procedure for defining stable performance periods -- SSA followed by alpha and HR tests -- permitted the periods identified to be of various lengths within one site, and also reveal any differences in performance period lengths and stability across sites. Thus, the periods were matched more closely to actual performance patterns in the sites than if set performance period lengths (e.g., quarterly data) were imposed.

To investigate the relationships between the SOO and performance Pearson r correlations were employed. Each major index was correlated with each performance period of each performance measure.

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*References for the SSA technique include Guttman (1968); Lingoes (1965); Lingoes and Guttman (1967); Lingoes and Roskam (1971); Napior (1972); Roskam and Lingoes (1970); Shepard (1972).

RESULTS

This section of the report describes the performance periods identified for each site and performance measure, the internal stability of each performance period, and the correlations between the SOO and the performance periods.

Identifying Performance Periods

A note about format: The SSA results were summarized via figures which portray the way in which performance months clustered. In the figures, performance months were ordered relative to when the SOO was first administered. Thus, the performance month occurring one month previous to the first SOO administration was "minus one month" (-1m); the one occurring the same month as the survey was TO, the one occurring one month subsequent to the survey was +1m, etc. Each performance month is represented in the figure by a dot. Performance months which the SSA analyses indicated as being close together were circled. Performance months were required to be sequential in order to be clustered into a performance period. The performance periods were labelled A through M. Within each measure, performance periods were roughly comparable across sites in terms of their time relation to the first SOO administration. For the reader who is interested in the more basic statistical elements of defining the performance periods, descriptive statistics and the correlations among performance months are presented by site, for each performance measure, in Appendices B and C.

Organization I

Organization I provided three measures of performance: Total Variable Expense (TVE 1), Direct Labor Costs (DLC 1), and Absence (ABS). A Smallest Space Analysis was performed for each measure and the results of these analyses are in Appendix D1. The TVE 1 and DLC 1 data yielded a two dimensional configuration. The Absence Rate measure required three dimensions.

Figure 2 displays the performance periods suggested by the SSA results. The data extended from -6m to +18m. There were 13 performance periods defined for TVE 1, 11 for DLC 1, and 9 for ABS. The performance periods included from one to six months.

Alpha coefficients and Homogeneity Ratio's for the performance periods including more than one month are presented in Table 7. The internal consistency of the periods was moderate to high with one exception. Period A for TVE 1 had an alpha coefficient of only .03. Since the homogeneity Ratio for the same index was .38 however, the low alpha was not of great concern. The remaining alpha's ranged from .25 to .97. The HR's ranged from .38 to .96.

Descriptive statistics for the performance periods and correlations among periods and measures are provided in Appendices E1 and F1.

Organization II

Four plants in Organization II were included in the analyses. Plants 1 and 2 provided data for the TVE 1 (Production Efficiency) and Absence Rate measures.* Plants 3 and 4 provided absence rate data only. The results of the SSA's are provided in Appendix D2. The TVE 1 data required one dimension in Plant 1, two dimensions in Plant 2. The ABS data yielded a three-dimensional configuration.

Figure 3 displays the performance periods suggested by the results. Since the SOO was not administered at the same time to the four plants, performance periods are shown for each plant separately. The data spanned

*The SSA for production efficiency was performed on both plants combined and on each plant separately, and produced slightly different results each time. Performance periods were defined on the basis of the separate SSA's.

Figure 2

Organization I - Performance Groupings
Suggested by SSA Analyses

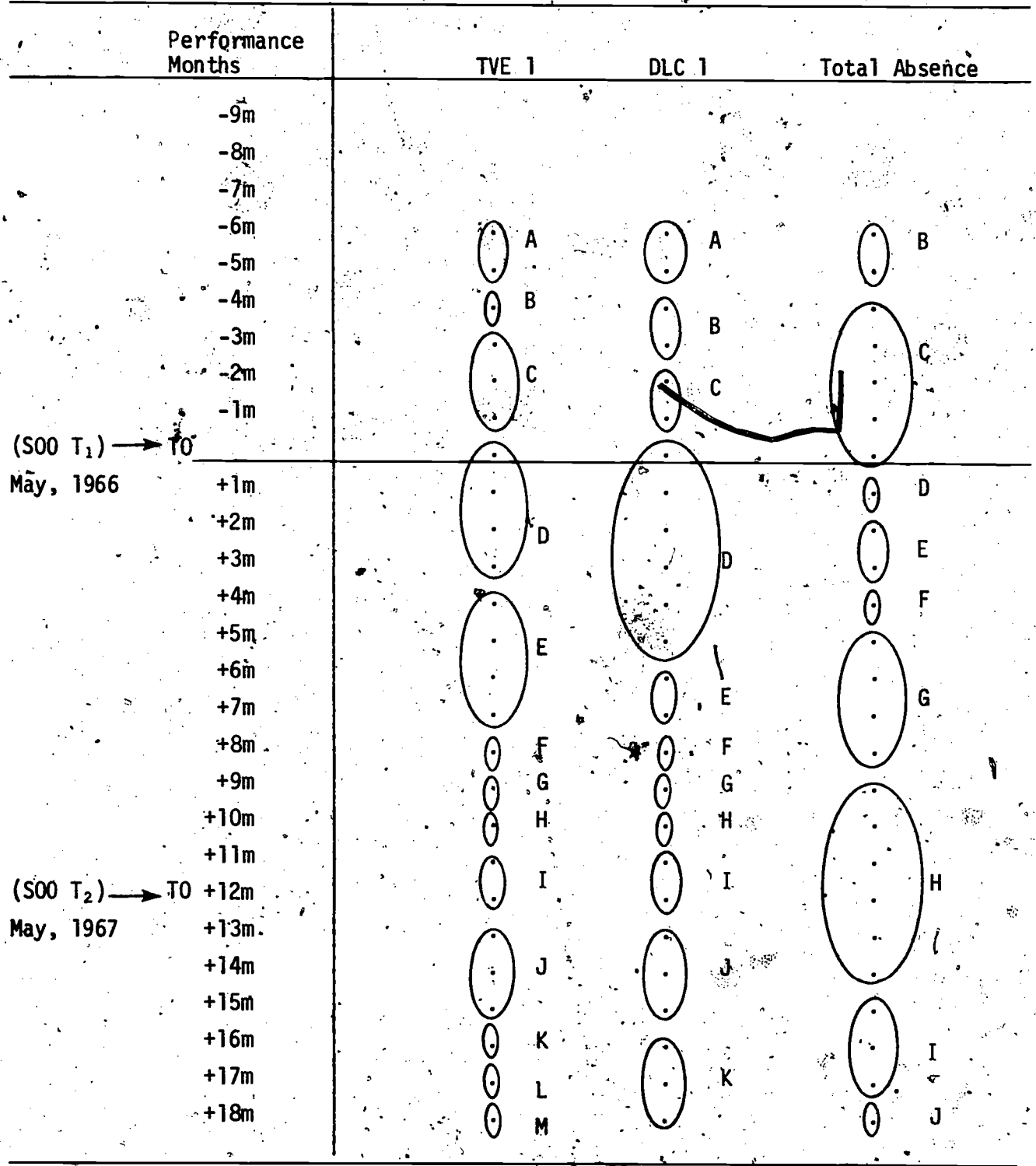


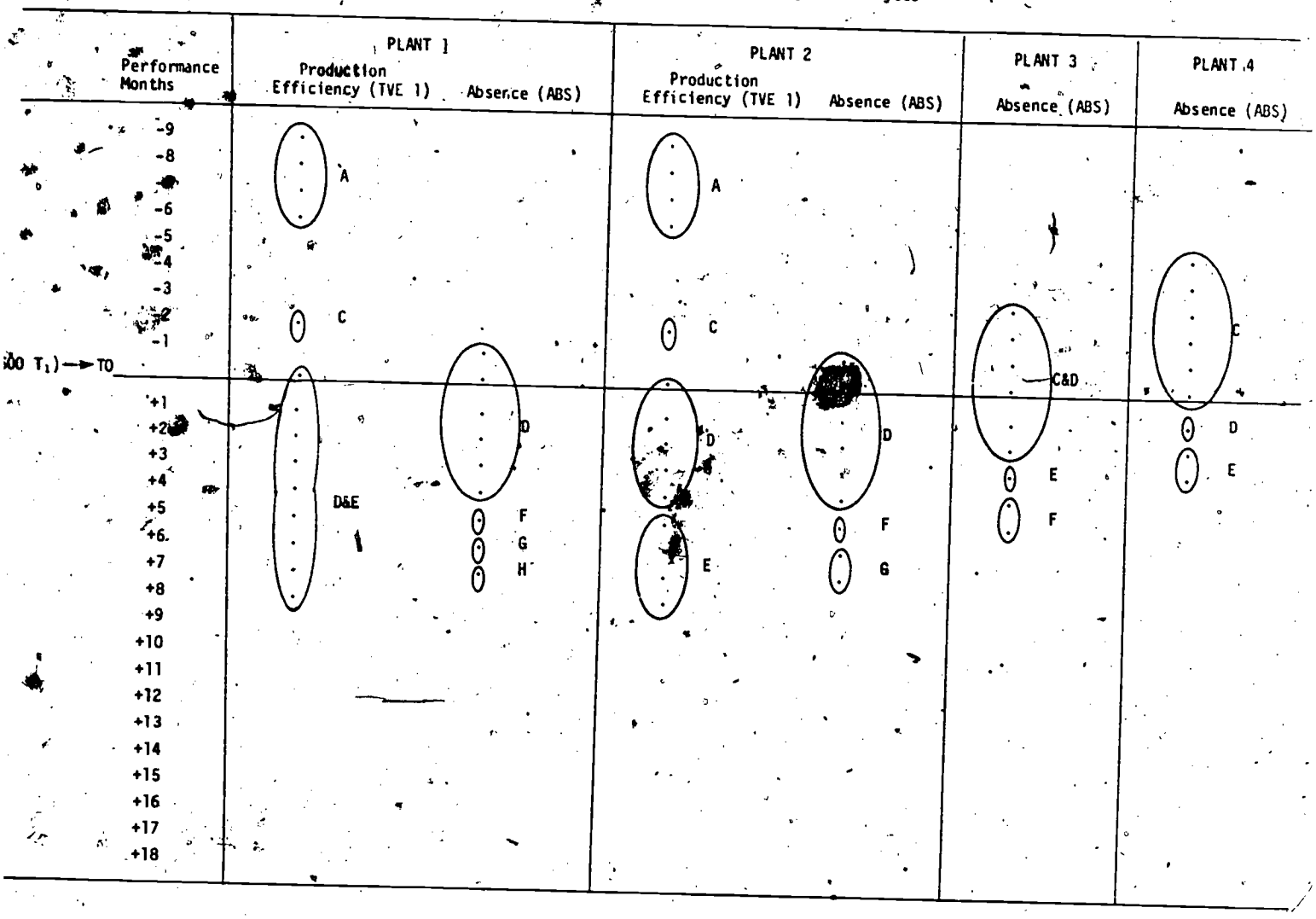
TABLE 7

ORGANIZATION I - ALPHA COEFFICIENTS AND HOMOGENEITY RATIOS FOR PERFORMANCE PERIODS

Measure		A	B	C	D	E	F	G	H	I	J	K	L	M
TVE 1	#V's	2	1	3	4	4	1	1	1	2	3	1	1	1
	alpha	.03		.88	.79	.91				.59	.75			
	HR	.38		.89	.71	.92				.43	.82			
DCL 1	#V's	2	2	2	6	2	1	1	1	2	3	3	MD	MD
	Alpha	.73	.74	.87	.88	.25				.43	.77	.90		1
	HR	.95	.84	.87	.61	.87				.64	.96	.77		
ABS	#V's	MD	2	5	1	2	1	4	6	3	1	MD	MD	MD
	alpha		.97	.76		.91		.85	.89	.78				
	HR		.94	.65		.90		.62	.69	.71				

Figure 3

Organization II - Performance Groupings Suggested by SSA Analyses



a 19-month time period, from -9m to +9m, although there were no data available for some months. Performance periods included from one to nine months. There were four periods for TVE 1 in Plant 1, three for TVE 1 in Plant 2, and three for ABS in each of the four plants.

Alpha coefficients and Homogeneity Ratios for the performance periods comprised of more than one month are presented in Table 8. Tests were conducted separately for each plant. The results showed the performance periods to have moderate to high internal stability, with one exception. Period G for ABS, in Plant 1, had an alpha of -.35 and an HR of -.15. Because of this, the two months were split into two periods and labelled G and H. The remaining alpha's ranged from .55 to .98 and the remaining HR's from .23 to .95.

Descriptive statistics for the performance periods and correlations among periods and measures are provided in Appendices E2 and F2.

Organization III

Organization III provided two measures of performance: Overtime Labor Costs (TVE 1) and Total Absence (ABS). A Smallest Space Analysis was performed for each measure. A two dimensional configuration represented the data sufficiently. The SSA's are in Appendix D3.

Figure 4 summarizes the performance periods suggested by the SSA results. The data extended from -3m to -12m; there were three periods for TVE 1, nine for ABS, with period lengths ranging from one to four months.

Alpha coefficients and Homogeneity Ratios for the performance periods comprised of more than one month are presented in Table 9. The results showed the performance periods to have moderate to high internal stability. The alpha's ranged from .46 to .98 and the HR's from .40 to .94.

TABLE 8

ORGANIZATION II - ALPHA COEFFICIENTS AND HOMOGENEITY RATIOS FOR PERFORMANCE PERIODS

Measure		A	B	C	D	E	F	G	H	I	J	K	L	M
PLANT I														
TVE 1	#V's	4	MD	1	9	9	MD	MD	MD	MD	MD	MD	MD	MD
	alpha	.98			.83	.83								
	HR	.93			.48	.48								
ABS	#V's	MD	MD	MD	6	MD	1	2	MD	MD	MD	MD	MD	MD
	alpha				.55			-.35						
	HR				.23			-.15						
PLANT II														
TVE 1	#V's	4	MD	1	4	5	MD	MD	MD	MD	MD	MD	MD	MD
	alpha	.93			.85	.97								
	HR	.87			.61	.91								
ABS	#V's	MD	MD	MD	6	MD	1	2	MD	MD	MD	MD	MD	MD
	alpha				.96			.97						
	HR				.84			.96						
PLANT III														
ABS	#V's	MD	MD	6	6	1	2	MD	MD	MD	MD	MD	MD	MD
	alpha			.93	.93		.95							
	HR			.74	.74		.95							
PLANT IV														
ABS	#V's	MD	MD	6	1	2	MD	MD	MD	MD	MD	MD	MD	MD
	alpha			.98		.94								
	HR			.94		.88								

1 Periods D and E contain the same performance months in this case.

2 Periods C and D contain the same performance months in this case.

3 These data subsequently split into two periods (G and H) containing one month each.

Figure 4

Organization III - Performance Groupings Suggested by SSA Analyses

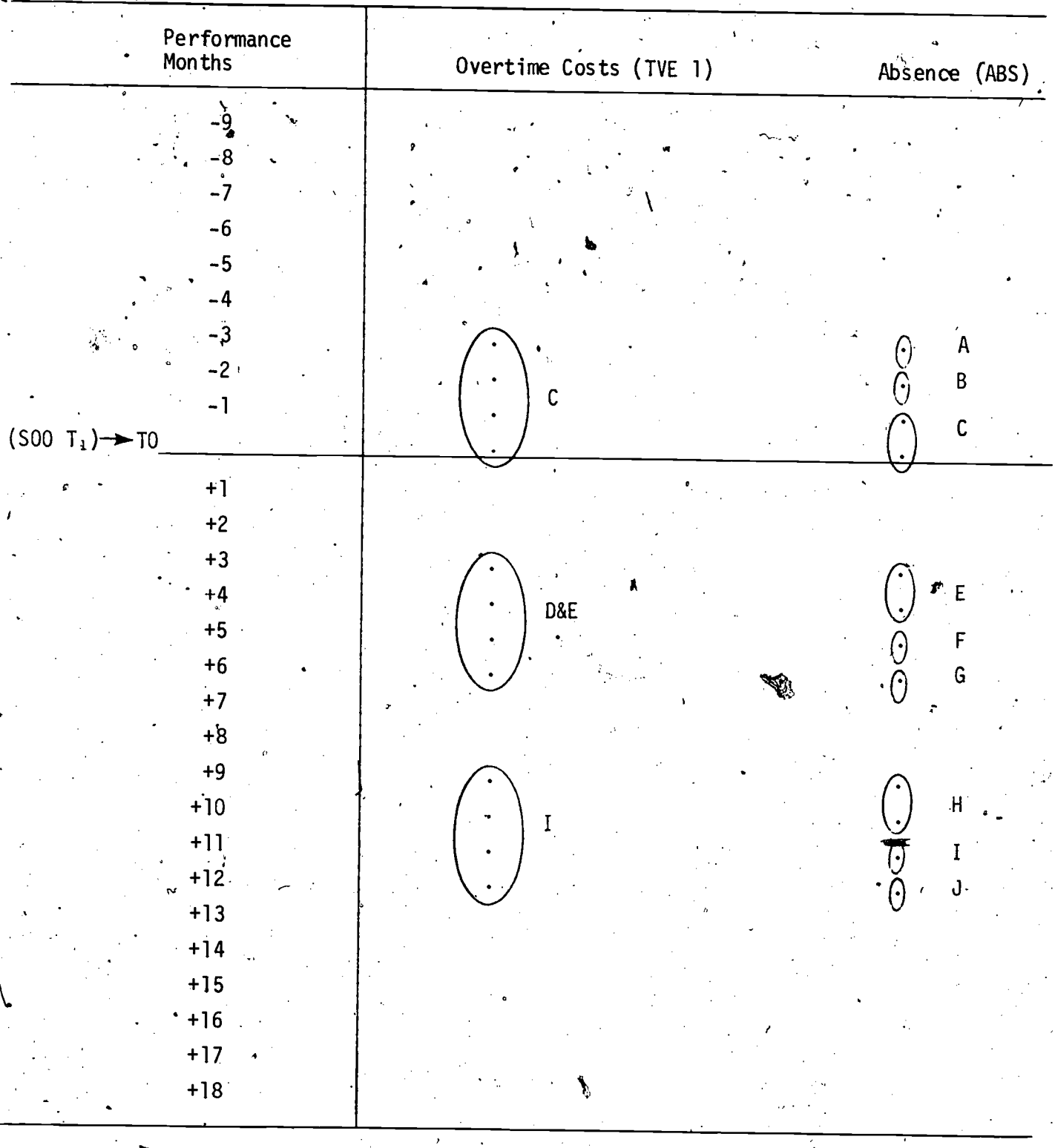


TABLE 9

ORGANIZATION III - ALPHA COEFFICIENTS AND HOMOGENEITY RATIOS FOR PERFORMANCE PERIODS

Measure	A	B	C	D*	E*	F	G	H	I	J	K	L	M
TVE 1 (overtime labor costs)													
#V's	MD	MD	4	4	4	MD	MD	MD	4	MD	MD	MD	MD
alpha			.92	.98	.98				.98				
HR			.77	.94	.94				.93				
ABSENCE													
#V's	1	1	2	MD	2	1	1	2	1	1	MD	Md	MD
alpha			.74		.55			.46					
HR			.69		.38			.40					

*Periods D and E of TVE contain the same performance months.

Descriptive statistics for the performance periods and correlations among periods and measures are provided in Appendices E3 and F3.

Organization IV

Organization IV provided three measures of performance: percent standard cost (TVE 1), percent non-productive manhours (DLC 1), percent indirect labor costs (DLC 2). A Smallest Space Analysis was performed for each measure and the results of these analyses are presented in Appendix D4. The data for the TVE 1 and DLC 2 measures yielded one-dimension solutions while the DLC 1 measures required a two-dimensional configuration.

Figure 5 displays the performance periods suggested by the results. The data extended from TO to T+8. There were three performance periods for TVE 1, one for DLC 1, and one for DLC 2. Performance periods included from one to nine months. Alpha coeffieicnts and Homogeneity Ratios for the performance periods comprised of more than one month are in Table 10. The performance periods were highly stable with alphas ranging from .94 to .99 and HR's ranging from .76 to .96.

Descriptive statistics for the performance periods and correlations among periods and measures are provided in Appendices E4 and F4.

Organization V

Eight sales regions in Organization V were included in these analyses. Each of the regions provided two measures of performance: Expenses in relation to sales (TVE 1) and expenses in relation to manpower (TVE 2). Since the data provided reflected quarterly rather than monthly performance, no SSA's were performed.

Figure 5

Organization IV - Performance Groupings
Suggested by SSA Analyses

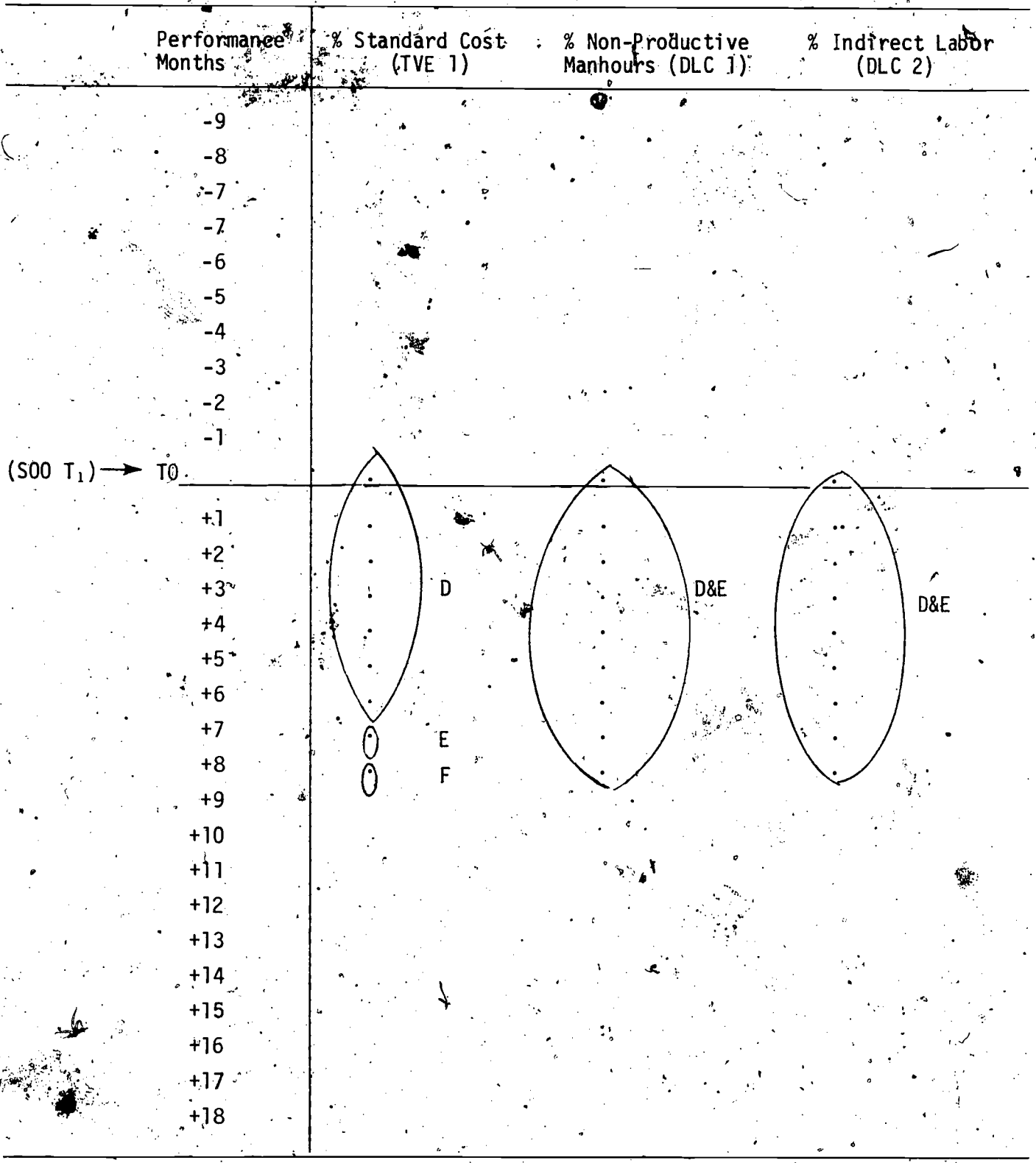


TABLE 10

ORGANIZATION IV - ALPHA COEFFICIENTS AND HOMOGENEITY RATIOS FOR PERFORMANCE PERIODS

Measure		A	B	C	D	E	F	G	H	I	J	K	L	M
TVE 1	#V's	MD	MD	MD	7	1	1	MD	MD	MD	MD	MD	MD	MD
	alpha				.94									
	HR				.73									
DLC 1	#V's	MD	MD	MD	9*	9*	MD	MD	MD	MD	MD	MD	MD	MD
	alpha				.99	.99								
	HR				.95	.95								
DLC 2	#V's	MD	MD	MD	9*	9*	MD	MD	MD	MD	MD	MD	MD	MD
	alpha				.99	.99								
	HR				.96	.96								

*The same variables comprise periods D and E.

Figure 6 displays the performance data relative to the first SOO administration. Where the survey was administered at different times in the regions, the performance data are shown separately. The data extended from -8m to +18m.*

Descriptive statistics for the performance quarters and correlations matrices of relationships among periods and measures are provided in Appendices E5 and F5.

Summary

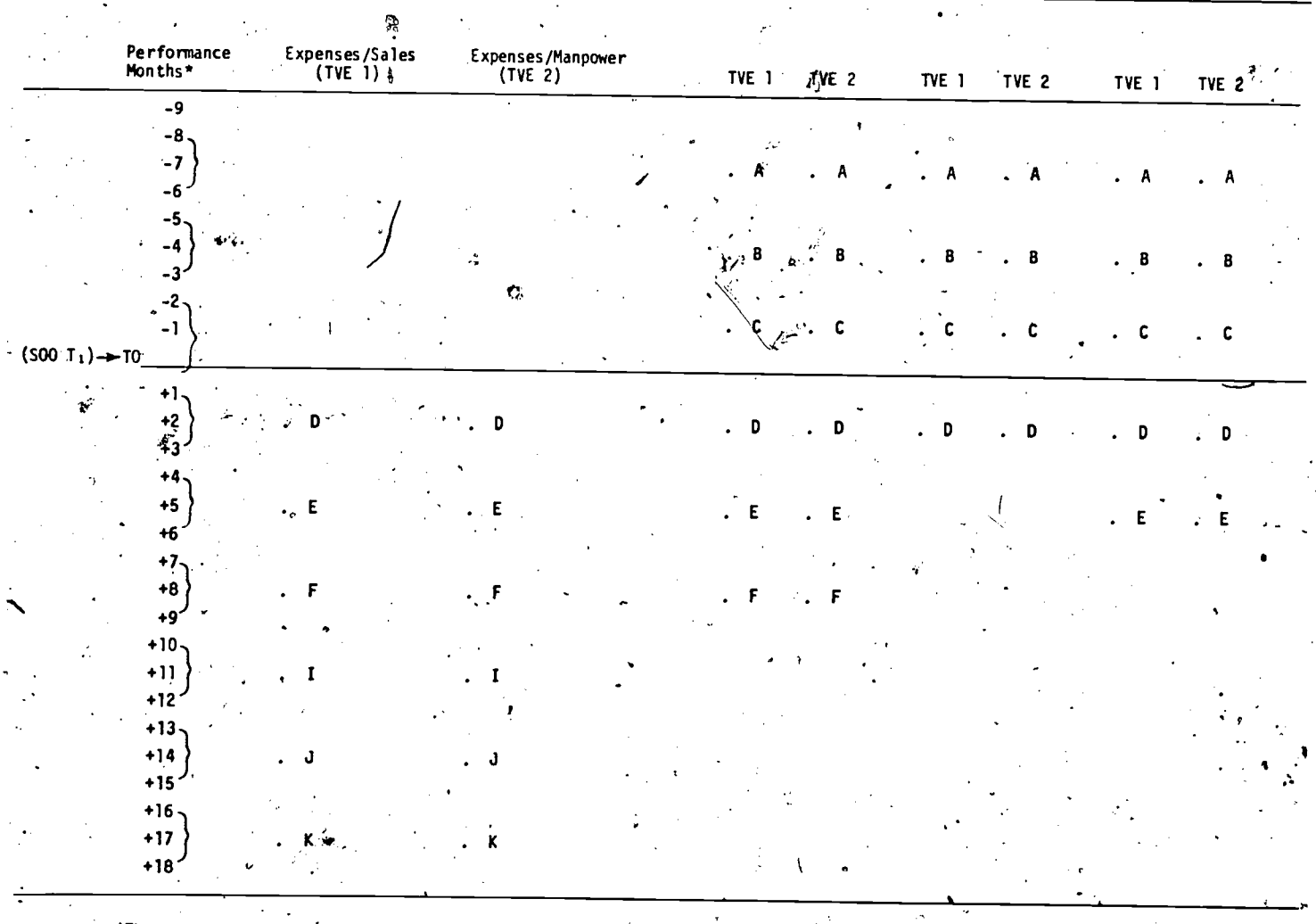
Performance periods were defined in five organizations using Smallest Space Analysis. With one or two exceptions the periods defined displayed good internal consistency.

There was some variation in the lengths of performance periods across both sites and measures. This was not unexpected. In fact, it was encouraging as to how much approximate comparability there was. Figures 7 and 8 summarize the performance periods identified for the ultimate and penultimate measures in the five organizations.

*Actually, for some sales regions the data extended even further, but these data were not included in the analyses since cut-off points of -9m and +18m were selected.

Figure 6

Organization V - Performance Data
In Relation to the First SOO Administration



*The data from this organization reflected quarterly, not monthly performance. Thus, each dot in the figure represents a three-months time-span as indicated on the verticle listing of performance months.

Figure 7

Ultimate Criteria - Performance Periods for All Sites

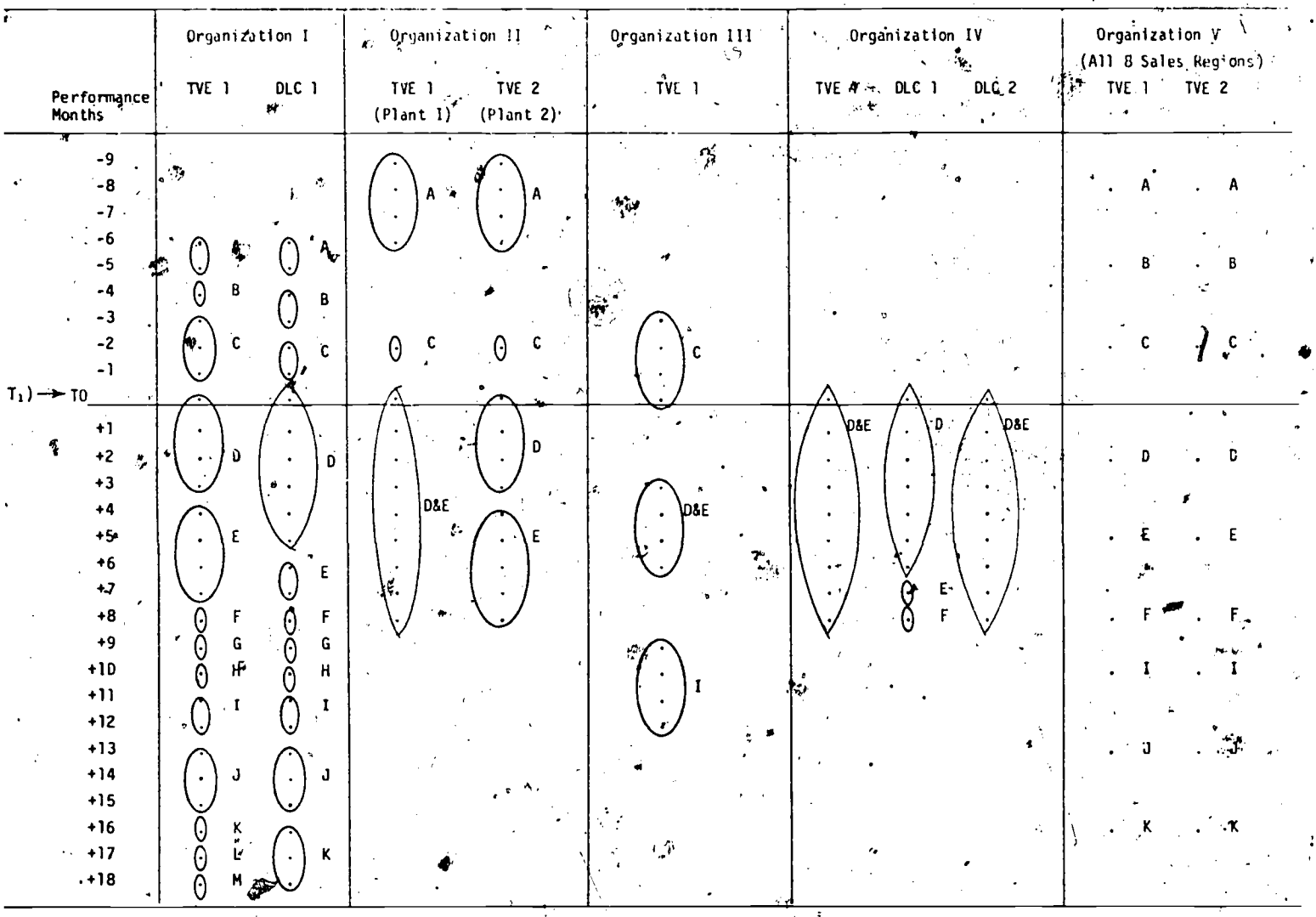
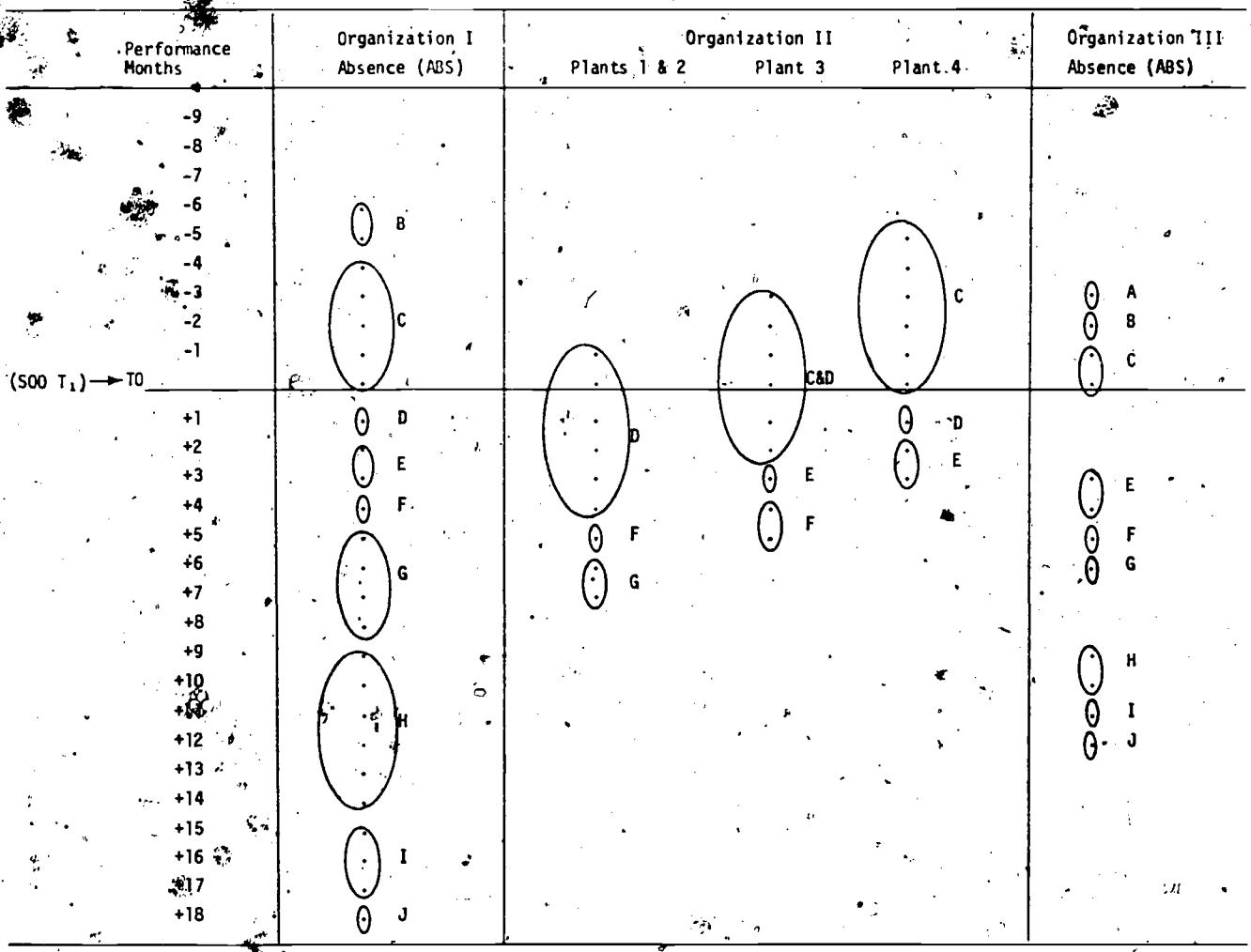


Figure 8

Penultimate Criteria - Performance Periods for All Sites



Correlations Between SOO and Performance

The relationship between the SOO and organizational performance was examined using Pearson r correlations. Correlations were computed by site for two waves of SOO data and for all periods of each performance measure. For readers interested in the entire array of correlations, the correlation matrices are presented in Appendix G. Summaries of the results were prepared and were the basis for discussion in the text of this report.

The data summaries highlight three dimensions of the relationships between the SOO and performance, namely differences in correlations by:

- Area of organizational functioning (Climate, Supervisory Leadership, Group Process, and Satisfaction).
- Performance period (i.e., lag time between SOO and performance).
- Performance measure (TVE, DLC, ABS).

The summary indicators, designed to take account of both correlation strength and direction included:

- Percent significant correlations
- Percent significant correlations in the expected direction (i.e., high SOO associated with low costs and absenteeism).
- Median significant correlation.
- Highest significant correlation.

Organization I

Organization I provided a great deal of data for a few groups (N=13-22). There were data for all three basic performance measures (TVE 1, DLC 1, ABS) and for most performance periods (A-M).

Tables 11 to 15 summarize the correlations found between the SOO and performance by wave, measure, performance period, and area of organizational functioning. Tables 11 and 12 present the most detailed summaries while Tables 13 to 15 each emphasize one dimension of the relationships. Taken as a set, the tables suggest the following conclusions:

1. Climate and satisfaction were the most "strongly" related to performance. This was the case for all three performance measures. Between 14% and 26% of the climate and 18% to 33% of the satisfaction correlations were significant beyond the .05 level. In comparison, from zero to 10% of the peer leadership and 6 to 13 percent of the group process correlations were statistically significant at the same level (see Table 13).
2. Correlations tended to be high in an absolute sense. Median significant correlations ranged from -.37 to .67. The highest correlations ranged from -.33 to -.69 (see Tables 11 and 12).
3. The percentage of significant correlations in the expected direction varied considerably. Comparing these percentage figures in Tables 11, 12, 13, and 15, "performance measure" emerged as the dimension making the most difference. About equal percentages of correlations achieved significance for each measure (~13%); however, slightly less than half of these correlations were significant for TVE or DLC while 100% were significant for Absence (see Table 15).
4. Lag time varied somewhat by measure. The greatest difference was between measures of ultimate criteria -- both TVE and DLC -- and Absence, a penultimate criteria. For the ultimate

TABLE II

ORGANIZATION I - SUMMARY OF CORRELATIONS BETWEEN SOO WAVE 1 AND PERFORMANCE (N=13-22 GROUPS)

SOO T_1

formance Periods	A	B	C	D	E	F	G	H	I	J	K	L	M
TWE 1													
OO indices with significant r's	0%	7%	7%	14%	7%	7%	14%	14%	0%	23%	0%	7%	21%
ignificant index r's in expected irection	-	0%	100%	0%	100%	0%	100%	50%	-	33%	-	0%	0%
ian significant r	-	.48*	-.59**	.48*	-.48*	.47*	-.59*	.56*	-	.56*	-	.62*	.64*
iest r	-	.48*	-.59**	.50*	-.48*	.47*	-.61*	-.57*	-	-.58*	-	.62*	.67*
DLC 1													
OO indices with significant r's	0%	7%	0%	7%	7%	7%	14%	21%	21%	14%	7%	No data	No data
ignificant index r's in expected irection	-	100%	-	0%	100%	0%	100%	0%	0%	50%	100%		
ian significant r	-	-.47*	-	.59**	-.51*	.51*	-.63*	.59*	.67**	.57*	-.60*		
iest r	-	-.47*	-	.59**	-.51*	.51*	-.61*	.60*	.69**	-.62*	-.60*		
ABS													
OO indices with significant r's	No data	14%	7%	0%	0%	7%	0%	0%	21%	7%	No data	No data	No data
ignificant index r's in expected irection		100%	100%	-	-	0%	-	-	100%	100%			
ian significant r		-.44*	-.44*	-	-	.43*	-	-	-.44*	-.47*			
iest r		-.47*	-.44*	-	-	.43*	-	-	-.55**	-.47*			

*p<.05

**p<.01

TABLE 12

ORGANIZATION I - SUMMARY OF CORRELATIONS BETWEEN SCO WAVE 2 AND PERFORMANCE (N=18-25 GROUPS)

SCO

nance Periods	A	B	C	D	E	F	G	H	I	J	K	L	M
TYE 1													
ndices with significant r's	0%	0%	21%	29%	14%	14%	7%	0%	43%	0%	14%	36%	29
ficant index r's in expected ction	-	-	100%	0%	100%	0%	100%	-	0%	-	0%	100%	
significant r	-	-	-.62*	.50*	-.50*	.48*	-.41*	-	.43*	-	.39*	-.49*	.48*
r	-	-	.53*	.60*	-.61**	.60**	-.68**	-	.77*	-	.45*	-.63**	.58**
DLC 1													
ndices with significant r's	21%	14%	50%	14%		21%	7%	0%	21%	0%	36%	No Data	No Data
ficant index r's in expected tion	0%	100%			0%	0%	100%	-	0%	-	0%		
significant r	.59**	.48*			.59*	.58*	-.62*	-	.46*	-	.51**		
r	.61**	-.60**			.61*	.62*	-.62**	-	.48*	-	.66**		
ADS													
ndices with significant r's	No Data	36%	67%	0%	0%	0%	50%	43%	0%	7%	No Data	No Data	No Data
ficant index r's in expected tion		100%	-	-	-	-	100%	100%	-	100%			
significant r		.48*	-	-	-	-	-.42*	-.37*	-	-.33*			
r		-.67**	-	-	-	-	-.62**	-.52*	-	-.33*			

*p<.05

**p<.01

TABLE 13

ORGANIZATION I - SUMMARY OF CORRELATIONS BETWEEN THE SOO AND PERFORMANCE BY AREA OF ORGANIZATIONAL FUNCTIONING[1]

(N=13-25 GROUPS)

	% SOO Indices With Significant r's	% Significant r's in Expected Direction	Highest Significant r
TVE 1			
Climate	26%	38%	.77**
Supervisory Leadership	6%	33%	-.61*
Peer Leadership	0%	--	--
Group Process	No Data	--	--
Satisfaction	27%	43%	-.59*
DLC 1			
Climate	25%	36%	.69**
Supervisory Leadership	6%	20%	-.63*
Peer Leadership	0%	--	--
Group Process	No Data	--	--
Satisfaction	18%	25%	-.61*
ABS			
Climate	14%	100%	-.54**
Supervisory Leadership	13%	100%	-.67**
Peer Leadership	10%	100%	-.44*
Group Process	No Data	---	--
Satisfaction	33%	83%	-.62**

[1]In the calculation of figures in this table, the correlations across all performance periods for both waves of SOO data are included.

*p<.05

**p<.01

TABLE 14

ORGANIZATION I - MEAN PERCENTAGE OF SIGNIFICANT CORRELATIONS BETWEEN SOO INDICES AND PERFORMANCE INDICES BY PERFORMANCE PERIOD[1]

Performance Measure	Performance Periods: Mean % of Significant Correlations			
	A-C	D-F	G-I	J-M
JVE 1	6%	9%	9%	11%
DLC 1	2%	7%	19%	11%
ABS	10%	2%	3%	7%

[1]Wave 1 SOO data only

TABLE 15

ORGANIZATION I - MEAN % OF SIGNIFICANT CORRELATIONS BETWEEN THE SOO AND PERFORMANCE BY PERFORMANCE MEASURE[1]

Performance Measures	Mean % of Significant Correlations with SOO	Mean % of Significant Correlations in Expected Direction
TVE 1	13%	47%
DLC 1	12%	44%
ABS	14%	100%

[1]Across all performance periods and for both waves of SOO data.

criteria, higher percentages of correlations achieved significance several performance periods following the SOO administration (see Table 14). This might be called "positive lag time." For absence, however, the highest percentage of correlations were significant in periods prior to the SOO survey administration (see Table 14) and this might be called "negative lag time."

Organization II

Organization II provided data for two measures: percent production efficiency (TVE 1) and total absence (ABS). Four plants were included in the study. Correlations were computed on the data from each plant, with the number of groups ranging from seven to 39. When compiling the data summaries, however, correlations for all plants were combined.

Tables 16 to 20 summarize the correlations between the SOO and performance by wave, measure, performance period, and area of organizational functioning. Tables 16 and 17 present the most detailed summaries while Tables 18 to 20 each emphasize one dimension of the relationships. The findings in these tables suggest that:

1. The percentage of significant correlations varied slightly by area of organizational functioning. Peer Leadership and Group Process indices were most often related to TVE 1; 17% of these correlations were significant. Group Process and Satisfaction indices were the most strongly related to absence; 12% of the Group Process and 26% of the Satisfaction correlations were significant. By comparison, from 6% to 10% of the correlations in other areas were significant beyond the .05 level (see Table 18).

TABLE 16

ORGANIZATION II - SUMMARY OF CORRELATIONS BETWEEN SOO WAVE 1 AND PERFORMANCE (N=15-37 GROUPS)

SOO T_1

Performance Periods	A	B	C	D	E	F	G	H	I	J	K	L	M
TVE[1]													
% SOO indices with significant r's	28%	No Data	6%	9%	9%	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
% significant index r's in expected direction	44%		0%	0%	0%								
Median significant r	-.49*		.35*	.49**	.49**								
Highest r	-.58**		.37*	.60**	.50**								
ABS[2]													
% SOO indices with significant r's	No Data	No Data	3%	6%	0%	17%	0%	12%	No Data	No Data	No Data	No Data	No Data
% significant index r's in expected direction			100%	100%	-	100%	-	100%					
Median significant r			-.51*	-.51*	--	-.55*	-	-.44*					
Highest r			-.51*	-.57**	-	-.63*	-	-.60**					

[1]Includes Plants 1 and 2

[2]Includes Plants 1-4

TABLE 17

ORGANIZATION II - SUMMARY OF CORRELATIONS BETWEEN SOQ WAVE 2 AND PERFORMANCE (N=7-39 GROUPS)

Performance Periods	A	B	C	D	E	F	G	H	I	J	K	L	M
TVE [1]													
% SOQ indices with significant r's	12%	No Data	0%	6%	6%	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
% significant index r's in expected direction	50%		-	100%	100%								
Median significant r	-.34*		-	-.36*	-.31*								
Highest r	.41*		-	-.36*	-.31*								
ABS [2]													
% SOQ indices with significant r's	No Data	No Data	22%	8%	12%	9%	0%	No Data	No Data	No Data	No Data	No Data	No Data
% significant index r's in expected direction			57%	100%	100%	100%							
Median significant r			-.81*	-.85*	-.88*	-.88*							
Highest r			-.89**	-.89**	-.89**	-.89**							

[1] Includes Plant 2

[2] Includes Plants 2-4

TABLE 18

ORGANIZATION II - SUMMARY OF CORRELATIONS BETWEEN THE SOO PERFORMANCE BY AREA OF ORGANIZATIONAL FUNCTIONING[1]

(N=7-39 GROUPS)

	% SOO Indices With Significant r's	% Significant r's In Expected Direction	Highest Significant r
TVE 1			
Climate	7%	60%	-.58**
Supervisory Leadership	10%	20%	.44**
Peer Leadership	17%	38%	.60**
Group Process	17%	0%	.48*
Satisfaction	8%	0%	.38*
ABS			
Climate	6%	100%	-.85*
Supervisory Leadership	9%	75%	-.81*
Peer Leadership	9%	100%	-.90**
Group Process	12%	100%	-.55*
Satisfaction	26%	83%	-.88**

[1]In the calculation of figures in this Table, the correlations across all performance periods for both waves of SOO data are included.

TABLE 19

ORGANIZATION II - MEAN PERCENTAGE OF SIGNIFICANT CORRELATIONS BETWEEN SOO INDICES AND PERFORMANCE INDICES BY PERFORMANCE PERIOD[1]

Performance Measure	Performance Periods: Mean % of Significant Correlations			
	A-C	D-F	G-I	J-M
TVE 1	17%	9%	No Data	No Data
ABS	3%	8%	6%	No Data

[1]Wave 1 SOO data only.

TABLE 20

ORGANIZATION II - MEAN OF SIGNIFICANT CORRELATIONS BETWEEN THE SOO AND PERFORMANCE BY PERFORMANCE MEASURE[1]

Performance Measure	Mean % of Significant Correlations with SOO	Mean % of Significant Correlations in Expected Direction
TVE 1	9.5%	37%
ABS	8%	66%

[1]Across all performance periods and for both waves of SOO data.

2. Correlations that were significant were moderate to high in strength. The median significant correlations ranged from -.31 to -.88. The highest correlations ranged from -.31 to -.89 (see Tables 16 and 17).
3. The percentage of significant correlations in the expected direction varied by area of organizational functioning, performance period, and measure, yet no consistent patterns of variation were apparent (see Tables 16 to 18 and 20).
4. Lag time is difficult to assess because periods with the highest percentages of significant correlations also have higher percentages of correlations in the unexpected direction.

Organization III

Organization III provided data for 258 groups. There were data for several performance periods of the absence measure, fewer for TVE 1 (overtime costs).

Tables 21 to 25 summarize the correlations between the SOO and performance by wave, measure, performance period, and area of organizational functioning. Tables 21 and 22 present the most detailed summaries while Tables 23 to 25 each emphasize one dimension of the relationship. The findings in these tables suggest the following conclusions:

1. The greatest percentage of significant correlations were found for the climate indices; 63% of the correlations with TVE 1 and 74% of the correlations with ABS were significant beyond the .05 level. By comparison, between zero and 47 percent were significant for other areas of organizational functioning (see Table 23).

TABLE 21

ORGANIZATION III - SUMMARY OF CORRELATIONS BETWEEN SOO WAVE 1 AND PERFORMANCE (N=258 GROUPS)

SOO T_1

Performance Periods	A	B	C	D	E	F	G	H	I	J	K	L	M
TVE 1													
% SOO indices with significant r's	No Data	No Data	37%	44%	44%	No Data	No Data	No Data	6%	No Data	No Data	No Data	No Data
% significant index r's in expected direction			83%	100%	100%				100%				
Median significant r			-.15*	-.14*	-.14*				-.19**				
Highest r		-.21**	-.24**	-.24**				-.19**					
ABS													
% SOO indices with significant r's	50%	44%	50%	No Data	6%	56%	25%	50%	50%	50%	No Data	No Data	No Data
% significant index r's in expected direction	75%	100%	87%		100%	100%	75%	75%	25%	75%			
Median significant r	-.19**	-.16**	-.17**		-.14*	-.17**	-.16**	-.18**	+.17**	-.17**			
Highest r	-.27**	-.27**	-.21**		-.14*	-.23**	-.21**	-.24**	+.22**	-.22**			

*=p<.05

**=p<.01

TABLE 22

ORGANIZATION III - SUMMARY OF CORRELATIONS BETWEEN SOO WAVE 2 AND PERFORMANCE (N=230 GROUPS)

SOO T_2

Performance Periods	A	B	C	D	E	F	G	H	I	J	K	L	M
TYE 1													
% SOO indices with significant r's	No Data	No Data	37%	31%	31%	No Data	No Data	No Data	19%	No Data	No Data	No Data	No Data
% significant index r's in expected direction			66%	100%	100%				100%				
Median significant r			+.17**	-.20**	-.20**				-.17**				
Highest r			-.27**	-.23**	-.23**				-.18**				
ABS													
% SOO indices with significant r's	69%	69%	62%	No Data	31%	31%	44%	37%	56%	62%	No Data	No Data	No Data
% significant index r's in expected direction	91%	100%	80%		100%	80%	57%	100%	33%	100%			
Median significant r	-.27**	-.20**	-.22**		-.22**	-.15*	-.21**	-.16**	-.21**	-.18**			
Highest r	-.37**	-.32**	-.32**		-.23**	-.15*	-.23**	-.28**	+.27	-.34**			

*p<.05

**p<.01

TABLE 23

ORGANIZATION III - SUMMARY OF CORRELATIONS BETWEEN THE SOO AND PERFORMANCE BY AREA OF ORGANIZATIONAL FUNCTIONING[1]

(N=220 GROUPS)

	% SOO Indices With Significant r's	% Significant r's In Expected Direction	Highest Significant r
TVE 1			
Climate	63%	100%	-.27**
Supervisory Leadership	16%	100%	-.16**
Peer Leadership	9%	0%	+.19**
Group Process	0%	--	--
Satisfaction	25%	100%	-.15*
ABS			
Climate	74%	89%	-.37**
Supervisory Leadership	25%	94%	-.27**
Peer Leadership	47%	56%	-.25**
Group Process	11%	100%	-.23**
Satisfaction	39%	100%	-.22**

[1]In the calculation of figures in this Table, the correlations across all performance periods for both waves of SOO data are included.

*p<.05

**p<.01

TABLE 24

ORGANIZATION III - MEAN PERCENTAGE OF SIGNIFICANT CORRELATIONS BETWEEN SOO INDICES AND PERFORMANCE INDICES BY PERFORMANCE PERIOD[1]

Performance Measure	Performance Periods: Mean % of Significant Correlations			
	A-C	D-F	G-I	J-M
TVE 1	37%	44%	6%	No Data
ABS	48%	31%	42%	50%

[1]Wave 1 SOO data only.

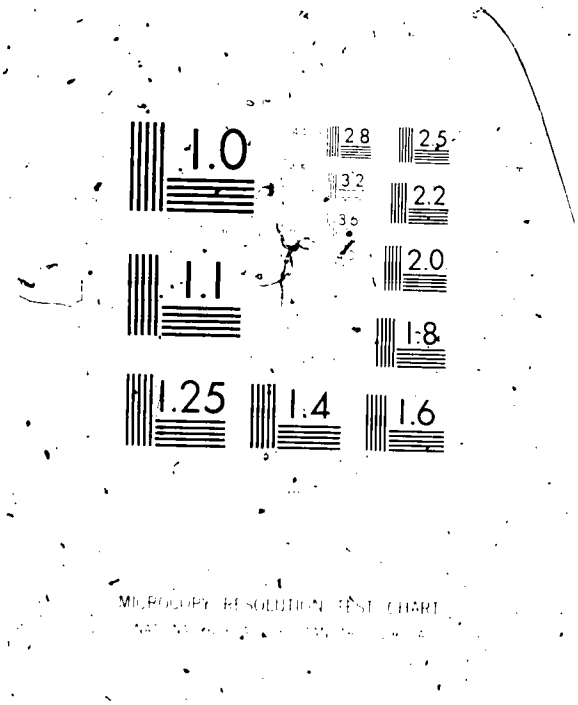

1.0
2.8
2.5
3.2
2.2
3.6
2.0
1.1
1.8
1.25
1.4
1.6
MICROCOPY RESOLUTION TEST CHART

TABLE 25

ORGANIZATION III - MEAN % OF SIGNIFICANT CORRELATIONS BETWEEN THESSOO AND PERFORMANCE BY PERFORMANCE MEASURE[1]

Performance Measure	Mean % of Significant Correlations with SOO	Mean % of Significant Correlations in Expected Direction
TVE 1	31%	94%
ABS	44%	81%

[1]Across all performance periods and for both waves of SOO data.

2. Relatively high percentages of the correlations were significant although most of the absolute correlations were low to moderate. Median significant correlations ranged from -.14 to -.27. The highest correlations ranged from -.14 to -.37 (see Tables 21 and 22).

3. Most significant correlations were in the expected direction. The main exception was found for the peer leadership indices. Nine percent of the correlations between peer leadership and TVE 1 were significant; none were in the expected direction. Forty-seven percent of the correlations between peer leadership and absence were significant; only 56% of these were in the expected direction (see Table 23).

4. Lag time between the SOO and performance varied by performance measure. For the TVE measure, the smallest percentage of correlations were significant (6%) during periods G to I which were relatively distant from the first survey administration. On the other hand, one-third of the correlations were significant for performance periods immediately preceding and following the first survey administration.

For the absence measure, the smallest percentage of correlations were significant (31%) during periods D to F, i.e., those immediately following the first survey administration. The highest percentage was significant during periods J to M.

Organization IV

Organization IV provided data for one TVE measure and two DLC measures; however, the data were confined to periods immediately following the first survey administration. The number of groups with these data ranged from 67 to 114.

Tables 26 to 30 summarize the correlations found between the SOO and performance by wave, performance measure, and period, and area of organizational functioning. Tables 26 and 27 present the most detailed summaries while Tables 28 to 30 each emphasize one dimension of the relationships. The results suggest the following conclusions:

1. The two DLC measures were not very useful. The SOO indices were either unrelated to the measures or related in the unexpected direction and at low levels. They will not be discussed further at this point.
2. The TVE 1 measure was significantly related to the SOO. There were three performance periods -- D, E, and F. Between 44% and 81% of the SOO indices in these three periods had significant correlations. The median significant r's ranged from -.23 to -.31 and the highest r's from .25 to -.47 (see Tables 26 and 27).
3. The percentage of significant TVE correlations in the expected direction varied dramatically by performance period. In periods D and F, 100% of the significant correlations were in the expected direction while in Period E 100% were in the wrong direction (see Tables 26 and 27).
4. There were substantial percentates of significant correlations between TVE and all areas of organizational functioning (see Tables 28). Taking both significance and direction of the correlations

TABLE 26

ORGANIZATION IV - SUMMARY OF CORRELATIONS BETWEEN SOO WAVE 1 AND PERFORMANCE (N=67-114 GROUPS)

Performance Periods	A	B	C	D	E	F	G	H	I	J	K	L	M
TVE 1													
% SOO indices with significant r's	No Data	No Data	No Data	81%	44%	50%	No Data	No Data	No Data	No Data	No Data	No Data	No Data
% significant index r's in expected direction				100%	0%	100%							
Median significant r				-.31**	.27**	-.25**							
Highest r			-.47**	.34**	-.34**								
DLC 1													
% SOO indices with significant r's	No Data	No Data	No Data	0%	0%	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
% significant index r's in expected direction				-	-								
Median significant r				-	-								
Highest r				-	-								
DLC 2													
% SOO indices with significant r's	No Data	No Data	No Data	25%[1]	25%[1]	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
% significant index r's in expected direction				0%	0%								
Median significant r				.25**	.25**								
Highest r				.26**	.26**								

[1]D and E include the same performance months

TABLE 27

ORGANIZATION IV - SUMMARY OF CORRELATIONS BETWEEN SOO WAVE 2 AND PERFORMANCE (N=119 GROUPS)

Performance Periods	A	B	C	D	E	F	G	H	I	J	K	L	M
TVE 1													
% SOO indices with significant r's	No Data	No Data	No Data	75%	62%	44%	No Data	No Data	No Data	No Data	No Data	No Data	No Data
% significant index r's in expected direction				100%	0%	100%							
Median significant r				-.23*	.24*	-.26**							
Highest r				-.42**	.25**	-.30**							
DLC 1													
% SOO indices with significant r's	No Data	No Data	No Data	0%[1]	0%[1]	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
% significant index r's in expected direction				-	-								
Median significant r				-	-								
Highest r				-	-								
DLC 2													
% SOO indices with significant r's	No Data	No Data	No Data	50%[1]	50%[1]	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
% significant index r's in expected direction				0%	0%								
Median significant e				.23*	.23*								
Highest r				.31**	.31**								

[1]D and E include the same performance months

TABLE 28

ORGANIZATION IV - SUMMARY OF CORRELATIONS BETWEEN THE SOO AND PERFORMANCE BY AREA OF ORGANIZATIONAL FUNCTIONING[1]

(N=67-119 GROUPS)

	% SOO Indices With Significant r's	% Significant r's In Expected Direction	Highest Significant r
TVE 1			
Climate	75%	63%	-.42**
Supervisory Leadership	71%	88%	-.34**
Peer Leadership	25%	57%	.27**
Group Process	66%	50%	-.26**
Satisfaction	25%	100%	-.31**
DLC 1			
Climate	0%	--	--
Supervisory Leadership	0%	--	--
Peer Leadership	0%	--	--
Group Process	0%	--	--
Satisfaction	0%	--	--
DLC 2			
Climate	50%	0%	.31**
Supervisory Leadership	62%	0%	.25**
Peer Leadership	0%	--	--
Group Process	50%	0%	.22*
Satisfaction	0%	--	--

[1]In the calculation of figures in this Table, the correlations across all performance periods for both waves of SOO data are included.

TABLE 29

ORGANIZATION IV - MEAN PERCENTAGE OF SIGNIFICANT CORRELATIONS BETWEEN SOO INDICES AND PERFORMANCE INDICES BY PERFORMANCE PERIOD[1]

Performance Measure	Performance Periods Mean % of Significant Correlations			
	A-C	D-F	G-I	J-M
TVE.1	No Data	58%	No Data	No Data
DLC 1	No Data	0%	No Data	No Data
DLC 2	No Data	25%	No Data	No Data

[1]Wave 1 SOO data only.

TABLE 30

ORGANIZATION IV - MEAN % OF SIGNIFICANT CORRELATIONS BETWEEN THE SOO AND PERFORMANCE BY PERFORMANCE MEASURE[1]

Performance Measure	Mean % of Significant Correlations with SOO	Mean % of Significant Correlations in Expected Direction
TVE 1	58%	67%
DLC 1	0%	--
DLC 2	25%	0%

[1]Across all performance periods and for both waves of SOO data.

into consideration peer leadership had the weakest relationship (25% significant with 57% of these in the expected direction), and supervisory leadership the strongest relationship (71% significant with 88% of these in the expected direction (see Table 28).

5. The effects of lag time could not be assessed because data were available for too few periods (see Table 29).

Organization V

Organization V, a marketing firm, provided two variable expense measures: (1) expenses in relation to sales and (2) expenses in relation to manpower. There were no measures of direct labor costs or absence.

Eight sales regions of the firm were included in the study. Data from regions that completed the first survey at the same time were analyzed together. This resulted in correlations being computed on the following groupings.

Regions 1 to 4
Region 5
Regions 6 and 8
Region 7

The number of groups on which the correlations were based ranged from eight to 21. When compiling the data summaries, correlations for all region groupings were included.

Tables 31 to 35 summarize the correlations between the SOO and performance by wave, measure, performance period, and area of organizational functioning. Tables 31 and 32 present the most detailed summaries while Tables 33 to 35 each emphasize one dimension of the relationships. The findings in these tables suggest that:

TABLE 31

ORGANIZATION V - SUMMARY OF CORRELATIONS BETWEEN SOQ WAVE 1 AND PERFORMANCE (N=8-21 GROUPS)

Performance Periods	A	B	C	D	E	F	G	H	I	J	K	L	M
TVE 1													
% SOQ indices with significant r's	5%	5%	5%	6%	5%	4%	No Data	No Data	0%	0%	0%	0%	No Data
% significant index r's in expected direction	50%	50%	50%	75%	50%	0%			-	-	-	-	
Median significant r	.73*	-.69*	-.68*	-.47*	-.71*	.76*			-	-	-	-	
Highest r	-.79*	.71*	.71*	.73*	.75*	.76*			-	-	-	-	
TVE 2													
SOQ indices with significant r's	10%	5%	2%	4%	4%	3%	No Data	No Data	0%	0%	0%	0%	
% significant index r's, in expected direction	25%	50%	100%	100%	100%	100%			-	-	-	-	
Median significant r	-.71*	.49*	-.67*	-.70*	-.66*	-.66*			-	-	-	-	
Highest r	.86**	-.70*	-.67*	-.73*	-.68*	-.66*			-	-	-	-	

*p<.05

**p<.01

TABLE 32

ORGANIZATION V - SUMMARY OF CORRELATIONS BETWEEN SOO WAVE 1 AND PERFORMANCE (N=7-25 GROUPS)

Performance Periods	A	B	C	D	E	F	G	H	I	J	K	L	M
TVE 1													
% SOO indices with significant r's	0%	0%	0%	9%	8%	9%	No Data	No Data	0%	0%	0%	0%	No Data
% significant index r's in expected direction	-	-	-	80%	100%	100%			-	-	-	-	
Median significant r	-	-	-	-.50*	-.50*	-.52*			-	-	-	-	
Highest r	-	-	-	.72*	-.54*	-.53*			-	-	-	-	
TVE 2													
% SOO indices with significant r's	12%	9%	5%	2%	2%	0%	No Data	No Data	6%	6%	6%	0%	No Data
% significant index r's in expected direction	40%	75%	50%	100%	100%	-			100%	100%	100%	-	
Median r	.65*	.49*	.50*	-.78*	-.74*	-			-.40*	-.40*	-.30*	-	
Highest r	-.95**	-.91**	-.91**	-.78*	-.74*	-			-.40*	-.40*	-.39*	-	

*p<.05

**p<.01

TABLE 33

ORGANIZATION V - SUMMARY OF CORRELATIONS BETWEEN THE SOO AND PERFORMANCE BY AREA OF ORGANIZATIONAL FUNCTIONING[1]

	% SOO Indices With Significant r's	% Significant r's In Expected Direction	Highest Significant r
TVE 1			
Climate	3%	25%	-.78*
Supervisory Leadership	1%	0%	.72*
Peer Leadership	9%	100%	-.79*
Group Process	0%	--	--
Satisfaction	0%	--	--
TVE 2			
Climate	8%	90%	-.95**
Supervisory Leadership	0%	--	--
Peer Leadership	6%	0%	.86**
Group Process	0%	--	--
Satisfaction	0%	--	--

[1]In the calculation of figures in this Table, the correlations across all performance periods for both waves of SOO data are included.

TABLE 34

ORGANIZATION V - MEAN PERCENTAGE OF SIGNIFICANT CORRELATIONS BETWEEN SOO INDICES AND PERFORMANCE INDICES BY PERFORMANCE PERIOD[1]

Performance Measures	Performance Periods			
	Mean % of Significant Correlations			
	A-C	D-F	G-I	J-M
TVE 1	5%	5%	0%	0%
TVE 2	6%	4%	0%	0%

[1]Wave 1 SOO data only.

TABLE 35

ORGANIZATION V - MEAN % OF SIGNIFICANT CORRELATIONS BETWEEN THE SOO AND PERFORMANCE BY PERFORMANCE MEASURE[1]

Performance Measure	Mean % of Significant Correlations with SOO	Mean % of Significant Correlations in Expected Direction
TVE 1	3%	61%
TVE 2	4%	81%

[1]Across all performance periods and for both waves of SOO data.

1. The greatest percentage of significant correlations were found between:

   (a) Peer Leadership and TVE 1 (expense/sales), and

   (b) Climate and TVE 2 (expenses/manpower).

   Nine percent of the correlations were significant in (a). All of these were in the expected direction -- low costs associated with high SOO scores. Eight percent of the correlations were significant in (b); 90% of these were in the expected direction. Few of the correlations in the remaining areas were significant, from zero to six percent (see Table 33).

2. Correlations that were significant were moderate to high in strength. Median significant correlations ranged from -.39 to -.78. The highest correlations ranged from -.39 to -.95 (see Tables 31 and 32).

3. There were variations in correlations (in both strength and direction) by performance period and area of organizational functioning. Very small percentages of correlations were significant overall however, and this overshadowed any differences. For example, none of the correlations were significant during periods G to M while four percent to six percent were significant during periods A to F (see Tables34).

DISCUSSION OF THE RESULTS

The findings presented in the preceding section are germane to a set of general questions answers to which are a prerequisite to the more complex analyses yet to come.

(1) Is there evidence that the Survey of Organizations measures are sufficiently reliable (internally consistent) in these specific settings to be used in the proposed analyses?

(2) Is there evidence that the performance measures available for these organizations are sufficiently reliable (internally consistent) to be used in the proposed analyses?

(3) Are the requisite relationships between survey measures and performance measures, necessary for the proposed analyses, in fact in place?

The results provide a clear and positive answer to the first question. With the possible exception of two organizational climate indexes whose alpha coefficients are comparatively low, the internal consistencies for survey measures reported are quite high: alpha coefficients generally range between .75 and .95.* We can be reasonably certain, therefore, that the measures of the human organization which we propose to use are quite internally consistent.

*The two climate indexes, Technological Readiness and Lower Level Influence, showed relatively low alpha coefficients in the analyses reported in the Survey's manual and were for that reason suggested for cautious use (Taylor & Bowers, 1972).

Reliability of performance measures is a totally separate issue. It may be recalled that here, as in the case of the survey data, we sought an indicator of internal consistency (not stability) and chose to approach that goal by empirically clustering adjacent months which appear in fact to be internally consistent. Such an approach recognized from the outset that a stable performance "period" may be of varying absolute lengths from organization to organization and from one time to another within the same organization. Once again, the answer appears to be positive. With one or two exceptions, the periods defined by the method outlined displayed moderate to high internal consistency (alpha) coefficients. As might be expected, some variation in the absolute length of performance periods occurs across both sites and measures. Periods range in absolute lengths from two months in the case of Organization I to nine months in that of Organization IV. For the rest, a period encompasses three or four months.

An answer to the third question -- whether relationships of survey to performance data are as they should be -- is more complicated to arrive at. About these correlations several things may be said at the outset:

(1) Significant relationships of survey to performance data occur much more frequently than chance would lead us to expect.

(2) Those relationships which attain statistical significance range generally from .25 to .65, which is a quite respectable magnitude.

(3) Better -- stronger, more frequent -- relationships are obtained to penultimate (absenteeism) measures than to ultimate (cost performance) measures.

(4) However, the frequency of "reverse" relationships (that is, instances in which excellence of the human organization goes with poorer cost performance or higher absenteeism) is sufficient to warrant closer scrutiny.

Obviously, the first two results are reassuring. Having in hand relationships of human organization measures to performance measures which occur with non-chance frequency and at levels adequate for the analyses which we have in mind is a prime prerequisite to further work.

While true in general, this finding is not true of all of the data sets being considered. For example, Organization I displays both a relatively low frequency of significance and a somewhat mixed directional pattern.

An earlier analysis of these data, contained in a report to the sponsoring firm, demonstrated several effects not incongruent with what occurs here. First, there were comparatively few relationships that attained statistical significance, although those which did displayed inter-month consistencies that were fairly persuasive in their congruency with expectations. Second, there was evidence of a rhymthic ebbing and flowing from month-to-month that would add unduly to the complexity of what we propose in the present analysis to do. The report to the client firm sums this up in the following way:

> The data show that organizational behavior tends to repeat itself in cycles. That is, production is less efficient, additional leadership behaviors are supplied as corrective measures, production costs drop, leadership is reduced, production costs eventually rise again.

The comparative interplay of fixed and variable production costs, with corporation-assigned production quotas, was cited as well as a major contaminant of these performance data. For these reasons, Organization I,

at least in the cost performance area, seems a candidate for exclusion from subsequent analyses.

Organization V contains similar deficiencies. In this case, the measures were intricately constructed by a committee of researchers and company officials. Efforts were made to control for the effects of a number of potential contaminants, but this may not have been successful. Indeed, after construction some uneasiness prevailed among project personnel that more serious contaminants had been introduced than removed! The present findings are certainly not reassuring. While those significant correlations which do occur are almost always directionally appropriate, the percentage of significance is absolutely low. In light of this, it seems prudent to exclude Organization V as well, in the process additionally underwriting the certainty with which we shall have satisfied the first two points -- frequent, sizeable correlations to performance.

Returning to the general pattern of findings, the finding that correlations to absenteeism are stronger than those to cost performance should not surprise us. External events, to the extent that they intrude, might be expected to intervene with inordinate frequency and impact directly upon cost performance measures. As this occurs, variance correlated to human organization functioning comes to affect outcomes, and relationships are reduced. Human cost performance, on the other hand -- in the form of penultimate criteria such as absenteeism -- seems more likely to remain in close contact with aspects of human organization functioning.

The fourth result -- the frequency of "reversals" -- is more perplexing, however. If the findings indicated, for certain organizations or measures, a consistent reversal of the hypothesized connections between survey and performance measures, the answer would be clear (if distressing); the

practices which our meta-theory states to be value-enhancing would not necessarily be so. The finding is not that, however. It is instead a pattern in which reversals are found well mixed within a general pattern that is directionally appropriate. Several explanations may be possible:

(1) Reversals may occur in conjunction with low frequencies of significant relationships. If this were true, a comparatively high incidence of reversals would simply suggest chance fluctuations. We might then judge the performance data set to be reflective of events and influences beyond the scope of our human organizational concerns.

(2) The comparative frequency of reversals may reflect the imputation process and its effect in reducing the size of the coefficients themselves. The enhancement of number of cases which imputation provides would then in determining significance presumably not be compensating for the reduced size which the number of ties causes.

(3) The reversals may occur in the early segment of the array of periods, while the directionally appropriate coefficients occur in the later segment. If so, this would suggest an "adaptation" effect in which, for example, poor performance led to attempts at better human organization functioning, which in turn led to improved performance.

(4) The reversals may reflect peculiar organizational practices at odd times, much as the practice in slow periods of assigning persons from poorer managed, "fat" departments to trimmer, better managed ones (for maintenance work, and the like). Such a problem is described in the survey manual (Taylor & Bowers, 1972); its effect

is to make the good performers appear poor and the poor good, for the duration of the slow period.

The first three possibilities can be at least approximately assessed by examining the condensed data representation in Table 36. We see, from the first two columns of that table that, for Organization III, frequency of reversals presents no real problem. Significant relationships not only occur with great frequency, they are almost always directionally appropriate.

For the remaining two organizations, the first three possibilities would lead us to expect the following:

Possibility #1 - Reversals as a function of low significance frequency

Comparing data in columns (3) and (4) with those in (5) and (6) suggests that, while this may be an explanation for Organization II, it is not plausible for Organization IV.

Possibility #2 - Reversals as a function of high imputation rate

This is apparently not a plausible explanation in the case of either of these organizations. High imputation rate occurs with neither the highest nor lowest frequency of reversals (see column 11).

Possibility #3 - Reversals as a function of an adaptation effect

For this explanation to hold, we would find reversals "clustering" in the first half of the array of time periods, rather than the second half. While columns (7) and (8) show that such reversals as do occur occur in the first half, data for the second half -- (columns (9) and (10) -- are in both cases missing.

TABLE 36

PERCENTAGES OF REVERSALS, AND IMPUTATION RATE, BY ORGANIZATION

Organization/Wave	Mean Per Cent Significant		Per Cent of Periods with 50 Per Cent or More Reversals		Per Cent of Periods with 50 Per Cent or More Reversals and < 10 Per Cent Significant		Per Cent of Significants in First 7 Periods with 50 Per Cent or More Reversals		Per Cent of Significants in Last 6 Periods with 50 Per Cent or More Reversals		Imputation Rate
	TVE 1	ABS	TVE 1	ABS	TVE 1	ABS	TVE 1	ABS	TVE 1	ABS	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
I Wave 1	9	6	38	11	15	11	33	33	75	0	9 to 1
Wave 2	16	21	38	0	0	--	40	0	75	0	
II Wave 1	13	6	100	0	75	--	100	0	N.D.	0	4 to 1
Wave 2	6	10	0	0	--	--	0	0	N.D.	N.D.	
III Wave 1	33	42	0	11	--	0	0	0	0	33	37 to 1
Wave 2	30	51	0	11	--	0	0	0	0	33	
IV Wave 1	58	--	33	--	0	--	33	N.D.	N.D.	N.D.	21 to 1
Wave 2	60	--	33	--	00	--	33	N.D.	N.D	N.D.	
V Wave 1	5	--	10	--	10	--	17	N.D.	0	N.D.	1 to 1
Wave 2	3	--	0	--	--	--	0	N.D.	0	N.D.	

In combination with the other explanations, however, the likelihood of this one's holding true seems quite small.

Possibility #4 - Reversals as a function of intrusive factors

This possibility requires more detailed scrutiny than the case of Organization IV. An inspection of the basic relationships shows that all of the reversals occur in one time period, and that they are caused by a peculiar fluctuation of the cost performance data of one set of groups, all in the office and administration (not production) area. We feel reasonably certain, therefore, that we may safely dismiss reversals as a significant problem for Organization IV.

Organization II is a somewhat more complicated matter. The discrepancy between present findings and those published earlier for the same data (Taylor & Bowers, 1972) lead us to believe that imputation and the fact that correlations were in this instance computed separately for each location (rather than as part of one integrated data set) account for the problem. If so, it reinforces our suspicion that Organization II's problem is an instance of the first possibility's workings, but a readily corrigible instance.

A re-running of the correlations for Organization II in a format in which all groups from the four locations are combined shows that this is, indeed, the explanation

(see Appendix H). When all units are combined into the multi-location organizational entity, the coefficients become absolutely much larger and very frequently significant. Moreover, with the exception of a single instance in relation to absenteeism, there are no longer any reversals. We feel quite reassured in including Organization II in the subset for further analyses.

We are left, therefore, with three prime data sets, from the five considered, which seem to display all of those characteristics which we cited as desirable at the outset. Although one more complex data set (three organizations from a single company) remains to be analyzed in similar fashion in a succeeding report, earlier preliminary analyses suggest that these, too, will prove suitable. All together, therefore, we would then have a file for the multivariate stage containing more than 600 work groups from four organizations, with survey data and an ultimate criterion measure of total variable expense, and more than 500 work groups from a somewhat different subset of four organizations with a penultimate criterion measure of absenteeism rate.

Conclusions and Next Steps

We therefore believe that the questions posed at the outset have been answered affirmatively and that the following conclusions are warranted by the results as just discussed:

(1) There are, in fact, sufficient data of the required quality to proceed with the succeeding analyses.

(2) However, not all of the data sets submitted to these various examinations prove to be suitable. Specifically it seems advisable to eliminate two organizations (I and IV), from cost performance analyses. Three which remain will provide ample numbers of cases.

(3) Two principal performance measures are available with sufficient frequency across the remaining sites to be included: (a) total variable expense, which is an ultimate criterion measure of cost performance, and (b) absenteeism rate, which is a penultimate, human cost measure.

(4) Two survey indexes, established as somewhat experimental by original analyses for the Survey of Organizations, should be dropped from these analyses as having insufficient internal consistency.

Based upon these results, we feel reasonably confident in pursuing the remaining, less cumbersome but more intricate, analyses. In the first of these, performance measures for the included organizations will be converted to standard scores based upon each organization's score distribution for a

particular period. The separate organizational files will then be merged into a single large file containing hundreds of groups. For the analyses in relation to total variable expense, as for those for absenteeism, the total sample of groups will be randomly divided in half. Each half sample will be submitted to multiple regression procedures predicting performance from survey scores. The weights derived from each half will then be applied to the survey scores from the other half, the performance scores predicted, and these predictions compared to actual scores. From this "double cross-validation" procedure, we expect to provide the basis for the value attribution activities in the second phase of the research.

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APPENDIX A

ALPHA'S, HOMOGENEITY RATIO'S, AND DESCRIPTIVE STATISTICS FOR SOO INDICES BY SITE

TABLE A1: ORGANIZATION I -

DESCRIPTIVE STATISTICS ON SOO: WAVE 1

Index	N	Mean	SD	Alpha	HR
Decision Making Practices				.74	.42
Communication Flow				.62	.36
*Motivational Conditions				.52	.40
*Human Resources Primacy				.66	.50
Lower Level Influence				.69	.53
*Technological Readiness				MD	MD
Supervisory Support				.85	.67
Supervisory Goal Emphasis				.61	.44
Supervisory Work Facilitation				.76	.53
Supervisory Team Building				.51	.36
Peer Support				.84	.64
Peer Goal Emphasis				.86	.78
Peer Work Facilitation				.86	.68
Peer Team Building				.71	.45
*Group Process				MD	MD
*Satisfaction				.63	.26

*Some or all items were missing.

TABLE A2: ORGANIZATION I -

DESCRIPTIVE STATISTICS ON SOO: WAVE 2

Index	N	Mean	SD	Alpha	HR
Decision Making Practices	64	2.92	.45	.77	.46
Communication Flow	64	3.21	.47	.69	.44
*Motivational Conditions	64	3.31	.52	.71	.59
*Human Resources Primacy	64	3.45	.56	.83	.71
Lower Level Influence	64	2.46	.54	.66	.49
*Technological Readiness	MD	MD	MD	MD	MD
Supervisory Support	64	4.20	.54	.94	.85
Supervisory Goal Emphasis	64	3.93	.52	.85	.74
Supervisory Work Facilitation	64	3.26	.51	.83	.63
Supervisory Team Building	64	3.49	.65	.88	.79
Peer Support	64	3.94	.46	.92	.79
Peer Goal Emphasis	64	3.48	.52	.86	.77
Peer Work Facilitation	64	3.34	.52	.88	.71
Peer Team Building	64	3.25	.60	.94	.84
*Group Process	MD	MD	MD	MD	MD
*Satisfaction	64	3.81	.43	.69	.32

*Some or all items were missing.

TABLE A3: ORGANIZATION II -

DESCRIPTIVE STATISTICS ON SOO: WAVE I

Index	N	Mean	SD	Alpha	HR
Decision Making Practices	500	3.03	.65	.87	.65
Communication Flow	500	3.09	.59	.79	.56
Motivational Conditions	499	3.47	.49	.71	.45
Human Resources Primacy	500	2.55	.57	.86	.67
Lower Level Influence	496	3.38	.62	.55	.39
Technological Readiness	496	3.38	.62	.62	.49
Supervisory Support	500	3.94	.62	.89	.73
Supervisory Goal Emphasis	500	3.81	.69	.87	.78
Supervisory Work Facilitation	501	3.32	.72	.89	.74
Supervisory Team Building	502	3.46	.81	.91	.84
Peer Support	498	3.74	.54	.87	.69
Peer Goal Emphasis	498	3.30	.58	.82	.72
Peer Work Facilitation	498	3.19	.64	.89	.73
Peer Team Building	498	3.15	.79	.90	.76
Group Process	499	3.69	.49	.91	.60
Satisfaction	500	3.86	.52	.85	.46

TABLE A4: ORGANIZATION II -

DESCRIPTIVE STATISTICS ON SOO: WAVE 2

Index	N	Mean	SD	Alpha	HR
Decision Making Practices	184	3.08	.54	.86	.62
Communication Flow	184	3.20	.51	.82	.61
Motivational Conditions	184	3.53	.46	.72	.47
Human Resources Primacy	184	3.34	.50	.83	.63
Lower Level Influence	184	2.61	.53	.72	.57
Technological Readiness	184	3.31	.51	.45	.32
Supervisory Support	184	4.00	.61	.90	.76
Supervisory Goal Emphasis	184	4.00	.66	.89	.80
Supervisory Work Facilitation	184	3.53	.66	.92	.80
Supervisory Team Building	183	3.74	.73	.92	.86
Peer Support	184	3.83	.45	.82	.61
Peer Goal Emphasis	184	3.49	.49	.77	.64
Peer Work Facilitation	184	3.31	.52	.85	.66
Peer Team Building	184	3.38	.66	.88	.72
Group Process	184	3.82	.41	.89	.56
Satisfaction	184	3.93	.44	.80	.38

TABLE A5: ORGANIZATION III -

DESCRIPTIVE STATISTICS ON SOO: WAVE 1

Index	N	Mean	SD	Alpha	HR
Decision Making Practices	295	2.89	.59	.79	.49
Communication Flow	295	2.98	.55	.69	.43
Motivational Conditions	293	3.41	.51	.67	.41
Human Resources Primacy	295	3.25	.59	.82	.60
Lower Level Influence	294	2.41	.55	.59	.43
Technological Readiness	295	3.55	.58	.60	.44
Supervisory Support	298	3.85	.72	.94	.84
Supervisory Goal Emphasis	298	3.82	.64	.85	.74
Supervisory Work Facilitation	301	3.21	.69	.89	.73
Supervisory Team Building	299	3.44	.79	.89	.80
Peer Support	294	3.82	.51	.87	.70
Peer Goal Emphasis	294	3.47	.53	.75	.61
Peer Work Facilitation	294	3.35	.62	.90	.75
Peer Team Building	294	3.26	.64	.89	.73
*Group Process	293	3.53	.43	.81	.46
Satisfaction	294	3.77	.51	.83	.42

*Some items were missing.

TABLE A6: ORGANIZATION III -

DESCRIPTIVE STATISTICS ON SOO: WAVE 2

Index	N	Mean	SD	Alpha	HR
Decision Making Practices	277	2.91	.50	.82	.55
Communication Flow	277	3.14	.53	.80	.57
Motivational Conditions	275	3.44	.51	.78	.54
Human Resources Primacy	277	3.27	.51	.87	.70
Lower Level Influence	277	2.55	.54	.69	.53
Technological Readiness	276	3.45	.48	.63	.48
Supervisory Support	282	3.93	.67	.93	.83
Supervisory Goal Emphasis	282	3.88	.59	.83	.71
Supervisory Work Facilitation	278	3.40	.62	.91	.77
Supervisory Team Building	278	3.58	.67	.90	.83
Peer Support	278	3.81	.50	.86	.68
Peer Goal Emphasis	277	3.53	.47	.75	.61
Peer Work Facilitation	277	3.44	.55	.92	.78
Peer Team Building	277	3.53	.58	.91	.77
*Group Process	274	3.62	.38	.86	.57
Satisfaction	275	3.87	.43	.84	.44

*Some items were missing.

TABLE A7: ORGANIZATION IV -

DESCRIPTIVE STATISTICS ON SOO: WAVE 1

Index	N	Mean	SD	Alpha	HR
Decision Making Practices	219	2.40	.46	.78	.48
Communication Flow	219	2.56	.61	.79	.56
Motivational Conditions	219	2.82	.60	.79	.56
Human Resources Primacy	219	2.43	.52	.79	.56
Lower Level Influence	219	2.21	.48	.59	.42
Technological Readiness	218	2.57	.61	.71	.55
Supervisory Support	219	3.52	.74	.94	.84
Supervisory Goal Emphasis	219	3.54	.65	.80	.66
Supervisory Work Facilitation	154	2.91	.71	.89	.74
Supervisory Team Building	219	3.73	.53	.89	.81
Peer Support	218	3.18	.57	.87	.69
Peer Goal Emphasis	218	3.17	.60	.81	.68
Peer Work Facilitation	218	3.17	.60	.85	.66
Peer Team Building	218	3.11	.60	.86	.68
Group Process	217	3.24	.40	.77	.48
Satisfaction	219	3.40	.51	.82	.40

TABLE A8: ORGANIZATION IV - DESCRIPTIVE STATISTICS ON SOO: WAVE 2

Index	N	Mean	SD	Alpha	HR
Decision Making Practices	201	2.52	.62	.90	.72
Communication Flow	201	2.60	.69	.92	.79
Motivational Conditions	201	2.86	.60	.88	.73
Human Resources Primacy	201	2.52	.59	.90	.77
Lower Level Influence	201	2.28	.52	.81	.68
Technological Readiness	200	2.61	.64	.79	.68
Supervisory Support	201	3.53	.77	.95	.87
Supervisory Goal Emphasis	200	3.50	.70	.90	.81
Supervisory Work Facilitation	201	2.89	.72	.93	.82
Supervisory Team Building	201	3.13	.85	.93	.88
Peer Support	200	3.66	.46	.89	.74
Peer Goal Emphasis	200	3.24	.54	.77	.63
Peer Work Facilitation	200	3.16	.51	.89	.73
Peer Team Building	200	3.02	.65	.92	.80
Group Process	200	3.61	.44	.93	.65
Satisfaction	201	3.29	.55	.89	.55

TABLE A9: ORGANIZATION V (Regions 1-4) -

DESCRIPTIVE STATISTICS ON SOO: WAVE 1

Index	N	Mean	SD	Alpha	HR
Decision Making Practices	305	3.49	.44	.75	.44
Communication Flow	305	3.66	.50	.73	.48
*Motivational Conditions	305	3.87	.43	.69	.53
*Human Resources Primacy	305	4.07	.51	.75	.60
Lower Level Influence	305	3.16	.59	.71	.55
*Technological Readiness	MD	MD	MD	MD	MD
Supervisory Support	305	4.47	.43	.86	.68
Supervisory Goal Emphasis	305	4.17	.51	.80	.66
Supervisory Work Facilitation	307	3.52	.55	.85	.66
Supervisory Team Building	307	3.75	.66	.84	.73
Peer Support	305	4.29	.37	.83	.63
Peer Goal Emphasis	304	3.69	.49	.77	.64
Peer Work Facilitation	304	3.28	.54	.84	.65
Peer Team Building	304	3.53	.59	.88	.71
*Group Process	MD	MD	MD	MD	MD
*Satisfaction	304	4.06	.42	.77	.41

*Some or all of the items were missing.

TABLE A10: ORGANIZATION V (Regions 5-8) -

DESCRIPTIVE STATISTICS ON SOO: WAVE 1

Index	N	Mean	SD	Alpha	HR
Decision Making Practices	199	2.87	.38	.70	.38
Communication Flow	199	3.46	.38	.53	.28
Motivational Conditions	199	3.63	.38	.66	.40
Human Resources Primacy	199	3.45	.39	.76	.51
Lower Level Influence	199	2.81	.46	.57	.41
Technological Readiness	199	3.61	.42	.49	.33
Supervisory Support	199	3.98	.44	.85	.66
Supervisory Goal Emphasis	199	3.92	.52	.87	.78
Supervisory Work Facilitation	199	3.09	.56	.85	.66
Supervisory Team Building	199	3.57	.62	.84	.73
Peer Support	199	3.85	.38	.88	.72
Peer Goal Emphasis	199	3.33	.43	.72	.57
Peer Work Facilitation	199	2.95	.50	.84	.63
Peer Team Building	199	3.10	.51	.87	.69
Group Process	199	3.60	.34	.74	.37
Satisfaction	199	2.81	.46	.82	.40

TABLE A11: ORGANIZATION y -

DESCRIPTIVE STATISTICS ON SOO: WAVE 2

Index	N	Mean	SD	Alpha	HR
Decision Making Practices	496	2.91	.42	.73	.42
Communication Flow	496	3.38	.45	.62	.36
Motivational Conditions	496	3.63	.42	.71	.45
Human Resources Primacy	496	3.39	.42	.80	.57
Lower Level Influence	495	2.77	.52	.65	.50
Technological Readiness	496	3.49	.41	.42	.27
Supervisory Support	495	4.10	.52	.91	.77
Supervisory Goal Emphasis	495	4.06	.54	.87	.78
Supervisory Work Facilitation	492	3.34	.56	.86	.68
Supervisory Team Building	491	3.74	.60	.86	.75
Peer Support	494	3.97	.41	.88	.71
Peer Goal Emphasis	494	3.52	.48	.76	.62
Peer Work Facilitation	494	3.19	.50	.85	.66
Peer Team Building	494	3.36	.56	.89	.73
Group Process	493	3.64	.43	.78	.51
Satisfaction	496	2.77	.52	.85	.47

APPENDIX B

PERFORMANCE MONTHS:

DESCRIPTIVE STATISTICS BY SITE

TABLE B-1: ORGANIZATION I

-DESCRIPTIVE MEASURES CASES= ORG I

	VARIABLE	N	MINIMUM	MAXIMUM	MEAN	STD DEV
	02001.V2001 -6m	19	505.00	600.00	564.05	41.759
	02002.V2002 -5m	19	483.00	5772.0	1391.9	1953.4
	02003.V2003 -4m	19	476.00	715.00	541.26	93.466
T	02004.V2004 -3m	19	507.00	530.00	514.32	9.9222
	02005.V2005 -2m	19	443.00	515.00	468.26	31.096
	02006.V2006 -1m	19	462.00	531.00	485.95	28.007
V	02007.V2007 TO	19	494.00	597.00	559.26	43.451
	02008.V2008 +1m	19	497.00	544.00	526.37	20.609
	02009.V2009 +2m	19	507.00	599.00	565.32	36.516
E	02010.V2010 +3m	19	533.00	740.00	658.79	92.332
	02011.V2011 +4m	19	460.00	705.00	537.11	98.372
	02012.V2012 +5m	19	416.00	635.00	489.79	87.335
	02013.V2013 +6m	19	519.00	624.00	558.63	45.386
	02014.V2014 +7m	19	438.00	785.00	590.53	165.94
	02015.V2015 +8m	19	500.00	673.00	615.53	73.675
	02016.V2016 -6m	19	77.100	96.000	87.553	9.1871
	02017.V2017 -5m	19	86.000	93.000	90.211	3.1016
	02018.V2018 -4m	19	73.500	137.00	93.737	26.227
D	02019.V2019 -3m	19	82.000	103.00	91.947	10.773
	02020.V2020 -2m	19	63.500	94.000	79.684	10.742
L	02021.V2021 -1m	19	69.000	86.000	81.368	6.6182
	02022.V2022 TO	19	84.000	96.000	89.684	4.2302
	02023.V2023 +1m	19	84.000	109.00	100.95	10.773
C	02024.V2024 +2m	19	85.000	112.00	102.16	11.739
	02025.V2025 +3m	19	90.000	113.00	102.74	9.9423
	02026.V2026 +4m	19	98.000	126.00	114.58	14.226
	02027.V2027 +5m	19	75.000	113.00	67.211	14.109
	02028.V2028 +6m	19	83.000	88.000	84.737	2.1562
	02029.V2029 +7m	19	83.000	135.00	107.63	20.675
	02030.V2030 +8m	19	110.00	138.00	125.26	13.812
	02031.V2031 -6m	26	.80000	7.9000	3.3962	1.9470
	02032.V2032 -5m	26	0.	6.7000	3.1654	1.8774
A	02033.V2033 -4m	26	1.0000	5.5000	3.9308	1.4568
	02034.V2034 -3m	26	0.	16.400	4.8615	3.0246
	02035.V2035 -2m	26	2.8000	16.600	5.9923	3.9987
B	02036.V2036 -1m	26	2.2000	55.000	5.5077	10.121
	02037.V2037 TO	26	1.6000	16.700	3.9192	3.0292
	02038.V2038 +1m	26	.90000	3.7000	2.6846	.93667
S	02039.V2039 +2m	26	.80000	6.1000	4.1077	1.2096
	02040.V2040 +3m	26	.80000	7.5000	3.7885	1.8414
	02041.V2041 +4m	26	1.0000	11.000	4.6077	3.1389
	02042.V2042 +5m	26	.60000	8.1000	3.4654	2.0544
	02043.V2043 +6m	26	1.7000	8.5000	4.1615	1.8309
	02044.V2044 +7m	26	.80000	4.3000	2.5000	1.0815
	02045.V2045 +8m	26	1.3000	8.1000	3.5115	2.0772
	02046.V2046 +9m	25	92.000	125.00	109.70	14.064
	02047.V2047 +10m	25	103.00	144.00	116.56	14.703
T	02048.V2048 +11m	25	110.00	150.00	125.44	16.194
	02049.V2049 +12m	25	116.00	159.00	124.36	13.515
V	02050.V2050 +13m	25	109.00	154.00	125.26	16.684
	02051.V2051 +14m	25	88.000	150.00	111.02	22.926
E	02052.V2052 +15m	25	95.000	251.00	129.80	61.955
	02053.V2053 +16m	25	90.000	125.00	101.32	9.0472
	02054.V2054 +17m	25	100.00	111.00	107.36	3.7625
	02055.V2055 +18m	25	105.00	111.00	107.12	2.2789
	02056.V2056 +9m	25	92.000	136.00	114.68	18.887
	02057.V2057 +10m	25	105.00	154.00	117.70	18.609
D	02058.V2058 +11m	25	97.000	172.00	120.10	26.474
	02059.V2059 +12m	25	115.00	129.00	120.78	5.9233
L	02060.V2060 +13m	25	116.00	207.00	138.46	35.319
	02061.V2061 +14m	25	96.000	167.00	126.04	23.921
C	02062.V2062 +15m	25	95.000	359.00	158.02	103.73
	02063.V2063 +16m	25	90.000	129.00	104.32	13.436
	02064.V2064 +17m	25	99.000	137.00	107.76	11.163
	02065.V2065 +18m	25	96.000	120.00	105.30	9.0646
	02066.V2066 +9m	42	1.9000	29.200	7.2746	6.3836
	02067.V2067 +10m	42	1.1000	30.800	5.7095	4.8561
A	02068.V2068 +11m	42	2.9000	13.800	6.6952	2.0834
	02069.V2069 +12m	42	1.3000	14.600	4.4690	2.4918
	02070.V2070 +13m	42	.80000	16.900	5.0857	2.9846
B	02071.V2071 +14m	42	1.7000	20.800	4.5667	2.9390
	02072.V2072 +15m	42	.50000	4.3000	2.9595	1.1417
S	02073.V2073 +16m	42	.90000	6.1000	3.4429	1.3130
	02074.V2074 +17m	42	0.4000	9.7000	5.0810	2.7783
	02075.V2075 +18m	42	0.	3.7000	2.0262	1.1359

TABLE B-2: ORGANIZATION II

DESCRIPTIVE MEASURES <1> ORG. II Plant 1

	VARIABLE		N	MINIMUM	MAXIMUM	MEAN	STD DEV
	2000.V2000	-9m	24	18.100	20.700	19.792	.77061
	2001.V2001	-8m	24	18.600	20.700	19.408	.94036
T	2002.V2002	-7m	24	18.700	20.800	19.725	.81093
	2003.V2003	-6m	24	18.500	20.500	19.567	.70813
V	2004.V2004	-2m	24	20.600	25.700	23.050	2.3063
	2005.V2005	TO	24	17.600	20.800	19.400	1.5559
E	2006.V2006	+1m	24	17.500	20.300	19.025	1.3328
	2007.V2007	+2m	24	16.700	20.300	18.575	1.6222
	2008.V2008	+3m	24	19.400	21.200	19.750	.52833
	2009.V2009	+4m	24	19.900	20.700	20.125	.21315
	2010.V2010	+5m	24	19.500	21.500	19.925	.50411
	2011.V2011	+6m	24	19.300	22.100	19.942	.69715
	2012.V2012	+7m	24	19.500	22.700	20.025	.83523
	2013.V2013	+8m	24	19.500	22.500	20.42	.82475
	2014.V2014	-1m	24	3.7000	8.3000	5.841	1.5416
	2015.V2015	TO	24	5.0000	6.4000	5.7583	.44421
A	2016.V2016	+1m	24	4.4000	7.1000	5.8333	.59903
	2017.V2017	+2m	24	3.9000	5.3000	4.033	.60
B	2018.V2018	+3m	24	3.8000	5.1000	4.29	
	2019.V2019	+4m	24	3.7000	7.9000	6.066	
S	2020.V2020	+5m	24	3.7000	5.3000	4.5333	
	2021.V2021	+6m	24	3.7000	6.5000	5.0167	.8095
	2022.V2022	+7m	24	4.8000	6.4000	5.541	.74420

TABLE B-2 (CONTINUED)

DESCRIPTIVE MEASURES (<2>) Org. II Plant 2

VARIABLE	N	MINIMUM	MAXIMUM	MEAN	STD DEV
2000.V2000 -9m	47	20.000	28.200	24.157	2.4762
2001.V2001 -8m	47	21.400	25.900	24.134	1.5861
2002.V2002 -7m	47	21.200	24.700	22.947	1.1281
2003.V2003 -6m	47	21.700	25.400	23.677	1.4017
2004.V2004 -2m	47	21.900	26.900	24.917	1.8865
2005.V2005 TO	47	27.500	36.900	33.002	3.4983
2006.V2006 +1m	47	17.400	25.300	23.838	2.3798
2007.V2007 +2m	47	16.900	26.400	22.896	2.5033
2008.V2008 +3m	47	22.100	32.200	24.794	3.4305
2009.V2009 +4m	47	15.900	23.700	22.098	2.2470
2010.V2010 +5m	47	17.500	30.200	23.128	3.5603
2011.V2011 +6m	47	17.100	27.700	22.711	2.8160
2012.V2012 +7m	47	17.600	28.000	22.849	2.7973
2013.V2013 +8m	47	17.900	27.200	22.591	2.4986
2014.V2014 -1m	47	5.0900	12.300	7.1681	2.4045
2015.V2015 TO	47	3.2000	10.600	6.7957	2.0190
2016.V2016 +1m	47	6.8000	11.300	8.0213	1.7179
2017.V2017 +2m	47	4.8000	9.4000	6.0319	1.5579
2018.V2018 +3m	47	4.2000	10.100	7.2489	1.5753
2019.V2019 +4m	47	5.1000	10.700	7.6489	1.5952
2020.V2020 +5m	47	5.1000	10.300	6.7213	1.7175
2021.V2021 +6m	47	3.3000	10.600	7.7255	1.8916
2022.V2022 +7m	47	3.8000	12.200	7.9638	2.2618

TABLE B-2 (CONTINUED)

DESCRIPTIVE MEASURES <3> ORG II Plant 3

VARIABLE		N	MINIMUM	MAXIMUM	MEAN	STD DEV
2000.V2000		0				
2001.V2001		0				
2002.V2002		0				
2003.V2003		0				
2004.V2004		0				
2005.V2005		0				
2006.V2006		0				
2007.V2007		0				
2008.V2008		0				
2009.V2009		0				
2010.V2010		0				
2011.V2011		0				
2012.V2012		0				
2013.V2013		0				
2014.V2014	-1m	15	6.8000	13.400	10.800	2.2402
2015.V2015	TO	15	6.6000	13.800	9.4000	2.9597
2016.V2016	+1m	15	5.9000	9.7000	7.7133	1.6570
2017.V2017	+2m	15	3.4000	10.600	7.6200	2.3066
2018.V2018	+3m	15	4.3000	13.300	9.1800	3.4501
2019.V2019	+4m	15	3.7000	10.700	6.2933	2.9908
2020.V2020	+5m	15	4.5000	10.100	7.1133	2.1387
2021.V2021	+6m	15	9.4000	13.900	10.533	2.3533
2022.V2022	+7m	15	8.1000	15.300	11.360	3.3095

TABLE B-2: (CONTINUED)

DESCRIPTIVE MEASURES <4> ORG. II Plant 4

	VARIABLE		N	MINIMUM	MAXIMUM	MEAN	STD DEV
T	2000.V2000		0				
	2001.V2001		0				
	2002.V2002		0				
V	2003.V2003		0				
	2004.V2004		0				
	2005.V2005		0				
E	2006.V2006		0				
	2007.V2007		0				
	2008.V2008		0				
	2009.V2009		0				
	2010.V2010		0				
	2011.V2011		0				
	2012.V2012		0				
	2013.V2013		0				
	2014.V2014	-1m	32	8.0000	15.400	13.534	2.0466
A	2015.V2015	TO	32	4.4000	14.400	12.103	3.7650
	2016.V2016	+1m	32	7.3000	13.500	11.544	2.5052
B	2017.V2017	+2m	32	3.7000	11.400	9.6312	2.4887
	2018.V2018	+3m	32	6.0000	12.900	10.778	2.8686
S	2019.V2019	+4m	32	4.8000	11.800	9.6000	2.9163
	2020.V2020	+5m	32	9.0000	38.400	17.484	10.006
	2021.V2021	+6m	32	5.1000	14.600	11.794	3.3762
	2022.V2022	+7m	32	1.2000	12.900	9.6344	3.6907

TABLE B-3: ORGANIZATION III

DESCRIPTIVE MEASURES ORG III

	VARIABLE	N	MINIMUM	MAXIMUM	MEAN	STD DEV
	04006.V4006 -3m	322	4.5000	19.500	9.4304	4.1998
	04007.V4007 -2m	322	2.5000	14.500	6.8227	3.4714
	04008.V4008 -1m	322	2.1000	16.400	8.1106	4.9926
T	04009.V4009 TO	322	1.8000	19.800	8.2239	5.3110
	04012.V4012 +3m	322	3.7000	21.900	9.0366	6.1422
V	04013.V4013 +4m	322	2.1000	22.700	8.7255	6.2631
	04014.V4014 +5m	322	2.9000	21.400	7.9293	6.3702
E	04015.V4015 +6m	334	2.1000	20.000	7.5135	6.2409
	04018.V4018 +9m	334	1.6000	18.900	7.1234	6.0191
	04019.V4019 +10m	327	1.1000	14.600	6.3361	4.5012
	04020.V4020 +11m	327	1.0000	15.400	6.0593	4.8980
	04021.V4021 +12m	327	1.7000	16.600	6.5914	5.0846
	04098.V4098 -3m	322	5.0000	16.100	11.134	3.1309
	04099.V4099 -2m	322	4.3000	10.900	7.0196	1.2475
A	04100.V4100 -1m	322	4.4000	9.6000	7.0453	1.5877
	04101.V4101 TO	322	3.2000	14.400	9.6161	2.8275
	04104.V4104 +3m	322	7.5000	17.400	11.974	3.2878
B	04105.V4105 +4m	322	6.8000	16.600	13.630	3.2913
	04106.V4106 +5m	322	7.4000	17.900	10.798	1.7606
S	04107.V4107 +6m	334	6.9000	15.500	12.093	2.2444
	04110.V4110 +9m	334	0.	11.800	8.8542	3.3010
	04111.V4111 +10m	327	3.5000	8.8000	7.2737	1.4770
	04112.V4112 +11m	327	5.7000	12.600	8.1914	2.3204
	04113.V4113 +12m	327	4.7000	10.900	9.2034	1.5847

TABLE B-4: ORGANIZATION IV

ORG. IV

-DESCRIPTIVE MEASURES

0	VARIABLE	N	MINIMUM	MAXIMUM	MEAN	STD DEV
0	638.5 % ST.	124	1.0000	6.0000	3.4274	1.5936
0	639.6 % NON-	124	0.	8.0000	3.8226	1.9961
0	640.7 % INDI	124	0.	8.0000	2.5000	2.8783
0	653.20 ST. C	113	1.0000	6.0000	2.7699	1.7628
0	654.21 NON-P	124	0.	8.0000	3.8226	1.9951
0	655.22 INDIR	124	0.	8.0000	2.9032	2.9347
0	669.35 ST.CO	124	2.0000	7.0000	3.6855	1.6198
0	669.36 NON-P	124	0.	7.0000	3.4435	1.7264
0	670.37 INDIR	124	0.	7.0000	2.2903	2.5622
0	683.50 ST. C	124	0.0000	7.0000	4.2435	1.2145
0	684.51 NON-P	124	0.	7.0000	3.5242	1.7272
0	685.52 INDIR	124	0.	7.0000	2.3629	2.6236
0	698.65 ST. C	124	3.0000	6.0000	3.7500	1.3143
0	699.66 NON-P	124	1.0000	8.0000	4.2823	1.7135
0	700.67 INDIR	124	0.	7.0000	2.3629	2.6236
0	711.80 ST. C	124	3.0000	6.0000	4.3952	1.1103
0	712.81 NON-P	124	1.0000	7.0000	4.2661	1.6330
0	713.82 INDIR	124	0.	7.0000	2.5242	2.8467
0	726.95 ST. C	124	2.0000	7.0000	4.3387	1.4143
0	727.96 NON-P	124	1.0000	7.0000	3.6129	1.5662
0	728.97 INDIR	124	0.	8.0000	2.0968	2.9762
0	741.110 ST.	124	2.0000	5.0000	3.6290	.85993
0	742.111 NON-	124	1.0000	6.0000	3.3952	1.2676
0	743.112 INDI	124	0.	8.0000	1.7742	2.7845
0	756.125 ST.	124	2.0000	7.0000	4.5242	2.0693
0	757.126 NON-	78	2.0000	6.0000	3.8974	1.3952
0	758.127 INDI	78	0.	7.0000	3.1154	2.7254

APPENDIX C

PERFORMANCE MONTHS:

INTERCORRELATIONS BY SITE

MISSING DATA CORRELATION CASES=SITE ORG. I

TABLE C-1: ORGANIZATION I

VARIABLE												
02001.V2001 T-6	1.0000											
0												
02002.V2002 T-5	.3896	1.0000										
0	(19)											
02003.V2003 T-4	-.0761	-.1972	1.0000									
0	(19)	(19)										
02004.V2004 T-3	-.9622	-.3202	-.1983	1.0000								
0	(19)	(19)	(19)									
02005.V2005 T-2	-.9823	-.3567	-.0483	.9886	1.0000							
0	(19)	(19)	(19)	(19)								
02006.V2006 T-1	-.7799	-.1912	-.5647	.9209	.8516	1.0000						
0	(19)	(19)	(19)	(19)	(19)							
02007.V2007 T0	.7540	.3978	-.7134	-.5466	-.6666	-.1769	1.0000					
0	(19)	(19)	(19)	(19)	(19)	(19)						
02008.V2008 T+1	.3999	.3781	-.0616	-.9660	-.9940	-.7889	.7444	1.0000				
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)					
02009.V2009 T+2	.7539	.1761	.5977	-.9043	-.8296	-.9992	.1368	.7633	1.0000			
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)				
02010.V2010 T+3	.9981	.3901	-.1366	-.9439	-.9829	-.7404	.7925	.9972	.7126	1.0000		
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)			
02011.V2011 T+4	-.6001	-.3633	.8433	.3596	.4961	-.0326	-.9779	-.5885	.0731	-.6476	1.0000	
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)		
02012.V2012 T+5	-.5335	-.3457	.8839	.2831	.4244	-.1132	-.9579	-.5213	.1534	-.5840	.9967	1.000
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	
02013.V2013 T+6	-.7540	-.3996	.7015	.5594	.6779	-.0020	-.9999	-.7545	-.1520	-.8018	.9746	.953
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02014.V2014 T+7	-.8935	-.4158	.5157	.7375	.8309	.4159	-.9686	-.8870	-.3787	-.9192	.8954	.856
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02015.V2015 T+8	.7129	.3896	-.7535	-.4959	-.6203	-.1171	.9982	.7027	.0768	.7542	-.9888	-.973
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02016.V2016 T-6	.0615	.4123	-.3471	-.8504	-.9200	-.5780	.9054	.9575	.5444	.9765	-.7957	-.745
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02017.V2017 T-5	.9260	.4095	-.6248	-.6413	-.7497	-.2915	.9930	.8178	.2525	.8588	-.9466	-.917
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02018.V2018 T-4	-.5803	-.3582	.8562	.3366	.4747	-.0571	-.9725	-.5685	.0975	-.6287	.9997	.993
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02019.V2019 T-3	-.9323	-.4158	.4317	.7985	.8801	.5007	-.9406	-.9269	-.4652	-.9525	.8489	.803
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02020.V2020 T-2	-.4252	-.3091	-.8701	.6556	.5343	.8981	.2739	-.4383	-.9152	-.3694	-.4638	-.538
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02021.V2021 T-1	.0749	.1948	-1.0000	.1995	.0495	.5657	-.7116	.0605	-.5986	.1354	-.8426	-.853
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02022.V2022 T0	.4360	.0141	.8642	-.6646	-.5443	-.9033	-.2625	.4490	.9199	.3804	.4583	.526
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02023.V2023 T+1	.9671	.3251	.1801	-.9998	-.9912	-.9135	.5620	.9707	.8963	.9498	-.3768	-.300
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02024.V2024 T+2	.9981	.3693	-.0140	-.9773	-.9981	-.8173	.7117	.9989	.7933	.9924	-.5492	-.480
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02025.V2025 T+3	.3886	-.0076	.8892	-.6249	-.5000	-.8798	-.3123	.4019	.8983	.3319	.5038	.571
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02026.V2026 T+4	.9993	.3519	.0703	-.9916	-.9998	-.8629	.6500	.9913	.8417	.9786	-.4769	-.404
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02027.V2027 T+5	.0411	-.1529	.9931	-.3116	-.1648	-.6574	-.6254	.0555	.6874	-.0198	.7746	.823
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02028.V2028 T+6	-.9901	-.3532	-.0644	.9909	.9999	.8599	-.6545	-.9921	-.8305	-.9798	.4021	.409
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
02029.V2029 T+7	-.9323	-.4158	.4317	.7985	.8801	.5007	-.9406	-.9269	-.4652	-.9525	.8489	.803
0	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)

2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012

T V E D L C

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TABLE C-1: (CONTINUED)

		2001. V2001	2002. V2002	2003. V2003	2004. V2004	2005. V2005	2006. V2006	2007. V2007	2008. V2008	2009. V2009	2010. V2010	2011. V2011	2012 V2012
DLC	02030.V2030 T+8	.9126	.4163	-.4770	-.7668	-.8548	-.4560	.9566	.9066	.4195	.9358	-.8747	-.832
	9	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
	02031.V2031 T-6	-.7175	-.1555	-.6399	.8801	.7985	.9956	-.0834	-.7275	-.9986	-.6739	-.1266	-.206
	9	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
	02032.V2032 T-5	-.6220	-.1046	-.7334	.8117	.7144	.9752	.0454	-.6333	-.9834	-.5732	-.2531	-.330
	9	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
A	02033.V2033 T-4	.4097	.3098	-.9408	-.1458	-.2933	.2514	.9081	.3964	-.2905	.4644	-.9756	-.990
	9	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
	02034.V2034 T-3	-.2754	.0574	-.9376	.5268	.3926	.8165	.4239	-.2893	-.8392	-.2164	-.6037	-.666
B	9	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
	02035.V2035 T-2	.9337	.2949	.2860	-.9959	-.9709	-.9523	.4687	.9388	.9392	.9102	-.2739	-.195
	9	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
S	02036.V2036 T-1	.9695	.4103	-.3181	-.8662	-.9316	-.6028	.8919	.9059	.5700	.9826	-.7778	-.724
	9	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
	02037.V2037 TO	-.5199	-.0537	-.8122	.7329	.6220	.9401	.1691	-.5322	-.9532	-.4670	-.3713	-.445
	9	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
	02038.V2038 T+1	-.2793	.0557	-.9362	.5302	.3963	.8188	.4202	-.2932	-.8414	-.2204	-.6005	-.663
	9	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
	02039.V2039 T+2	.4097	.3098	-.9408	-.1458	-.2933	.2514	.9081	.3964	-.2905	.4644	-.9756	-.990
	9	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)
	02040.V2040 T+3	.3698	.2975	-.9546	-.1028	-.2516	.2931	.8891	.3563	-.3316	.4256	-.9651	-.983
		(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)

TABLE C-1: (CONTINUED)

		2013. V2013	2014. V2014	2015. V2015	2016. V2016	2017. V2017	2018. V2018	2019. V2019	2020. V2020	2021. V2021	2022. V2022	2023. V2023	2024. V2024
T	02013.V2013 T+6 9	1.0000											
V	02014.V2014 T+7 9	.9723 (19)	1.0000										
E	02015.V2015 T+8 9	-.9971 (19)	-.9519 (19)	1.0000									
	02016.V2016 T-6 9	-.9118 (19)	-.9825 (19)	.8781 (19)	1.0000								
D	02017.V2017 T-5 9	-.9947 (19)	-.9912 (19)	.9841 (19)	.9491 (19)	1.0000							
	02018.V2018 T-4 9	.9433 (19)	.8842 (19)	-.9849 (19)	-.7817 (19)	-.9384 (19)	1.0000						
L	02019.V2019 T-3 9	.9457 (19)	.9955 (19)	-.9183 (19)	-.9958 (19)	-.9740 (19)	.8356 (19)	1.0000					
	02020.V2020 T-2 9	-.2591 (19)	-.0264 (19)	.3315 (19)	-.1603 (19)	.1588 (19)	-.4903 (19)	.0690 (19)	1.0000				
C	02021.V2021 T-1 9	-.7007 (19)	-.5147 (19)	.7527 (19)	.3460 (19)	.6239 (19)	-.8556 (19)	-.4306 (19)	.8707 (19)	1.0000			
	02022.V2022 T0 9	.2476 (19)	.0145 (19)	-.3203 (19)	.1720 (19)	-.1471 (19)	.4799 (19)	-.0800 (19)	-.9999 (19)	-.8648 (19)	1.0000		
	02023.V2023 T+1 9	-.5746 (19)	-.7499 (19)	.5110 (19)	.8600 (19)	.6555 (19)	-.3540 (19)	-.8095 (19)	-.6415 (19)	-.1813 (19)	.6506 (19)	1.0000	
	02024.V2024 T+2 9	-.7224 (19)	-.8639 (19)	.6679 (19)	.9426 (19)	.7894 (19)	-.5286 (19)	-.9880 (19)	-.4807 (19)	.0128 (19)	.4911 (19)	.9810 (19)	1.000
	02025.V2025 T+3 9	.2976 (19)	.0664 (19)	-.3691 (19)	.1206 (19)	-.1983 (19)	.5249 (19)	-.0290 (19)	-.9992 (19)	-.8897 (19)	.9986 (19)	.6103 (19)	.445 (19)
	02026.V2026 T+4 9	-.6616 (19)	-.8184 (19)	.6029 (19)	.9111 (19)	.7349 (19)	-.4552 (19)	-.8695 (19)	-.5528 (19)	-.0714 (19)	.5627 (19)	.9939 (19)	.996 (19)
	02027.V2027 T+5 9	.6133 (19)	.4119 (19)	-.6714 (19)	-.2350 (19)	-.5292 (19)	.7899 (19)	.3232 (19)	-.9218 (19)	-.9933 (19)	.9171 (19)	.2939 (19)	.103 (19)
	02028.V2028 T+6	.5660	.8219	-.6076	-.9135	-.7389	.4604	.8724	.5479	.0656	-.5578	-.9932	-.996
	02029.V2029 T+7 9	.9457 (19)	.9955 (19)	-.9183 (19)	-.9958 (19)	-.9740 (19)	.8356 (19)	1.0000 (19)	.0690 (19)	-.4306 (19)	-.0808 (19)	-.8095 (19)	-.908 (19)
	02030.V2030 T+8 9	-.9910 (19)	-.9990 (19)	.9873 (19)	.9898 (19)	.9843 (19)	-.8625 (19)	-.9987 (19)	-.0101 (19)	.4760 (19)	.0100 (19)	.7706 (19)	.886 (19)
	02031.V2031 T-6 9	.9987 (19)	.3294 (19)	-.9241 (19)	-.4186 (19)	-.2391 (19)	-.1599 (19)	.4169 (19)	.9365 (19)	.6408 (19)	-.0397 (19)	-.8711 (19)	-.755 (19)
A	02032.V2032 T-5 9	-.3391 (19)	.2642 (19)	.1057 (19)	-.8840 (19)	-.0725 (19)	-.2787 (19)	.2966 (19)	.9732 (19)	.7342 (19)	-.9759 (19)	-.8008 (19)	-.669 (19)
	02033.V2033 T-4 9	-.9316 (19)	-.7755 (19)	.6318 (19)	.6775 (19)	.8526 (19)	-.9897 (19)	-.7120 (19)	.6914 (19)	.9404 (19)	-.8424 (19)	.1641 (19)	.854 (19)
B	02034.V2034 T-3 9	-.9999 (19)	-.1855 (19)	.4773 (19)	-.6927 (19)	.3443 (19)	-.6231 (19)	-.9911 (19)	.9872 (19)	.9330 (19)	-.9852 (19)	-.5109 (19)	-.334 (19)
	02035.V2035 T-2 9	-.1312 (19)	-.9775 (19)	.1415 (19)	.7374 (19)	.9474 (19)	-.2592 (19)	-.7499 (19)	-.7211 (19)	-.2971 (19)	.7293 (19)	.9941 (19)	.554 (19)
S	02036.V2036 T-1 9	-.3733 (19)	-.9743 (19)	.3469 (19)	.2395 (19)	.9340 (19)	-.7621 (19)	[illegible] (19)	-.1905 (19)	.3169 (19)	.2022 (19)	.8453 (19)	.958 (19)
	02037.V2037 T0 9	-.1519 (19)	.9811 (19)	.4284 (19)	-.4453 (19)	.9519 (19)	-.9939 (19)	.1757 (19)	.6942 (19)	.8129 (19)	-.9954 (19)	[illegible]	.874 (19)
	02038.V2038 T+1 9	-.4062 (19)	-.1815 (19)	.6742 (19)	-.7048 (19)	.3495 (19)	-.6199 (19)	-.9870 (19)	.9878 (19)	.9366 (19)	-.9859 (19)	-.7104 (19)	-.336 (19)
	02039.V2039 T+2 9	-.9916 (19)	-.7756 (19)	.9318 (19)	.6445 (19)	.8526 (19)	-.9807 (19)	-.7120 (19)	.6514 (19)	.9404 (19)	-.6424 (19)	.1661 (19)	.352 (19)
	02040.V2040 T+3 9	-.9820 (19)	-.7476 (19)	.9152 (19)	.6108 (19)	.8291 (19)	-.9713 (19)	-.6809 (19)	.6837 (19)	.9542 (19)	-.6750 (19)	.1212 (19)	.311 (19)

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TABLE C-1: (CONTINUED)

02025.V2025 T+3	1.0000											
9												
02026.V2026 T+4	.5190	1.0000										
9	(19)											
02027.V2027 T+5	.9366	.1865	1.0000									
9	(19)	(19)										
02028.V2028 T+6	-.5139	-1.0000	-.1807	1.0000								
9	(19)	(19)	(19)									
02029.V2029 T+7	-.0240	-.3695	.3232	.8724	1.0000							
9	(19)	(19)	(19)	(19)								
02030.V2030 T+8	-.3219	.8432	-.3709	-.8464	-.9987	1.0000						
9	(19)	(19)	(19)	(19)	(19)							
02031.V2031 T+9	-.9206	-.8115	-.7254	-.8081	.4169	-.3701	1.0000					
9	(19)	(19)	(19)	(19)	(19)	(19)						
02032.V2032 T+5	-.9632	-.7276	-.8079	.7256	.2966	.2476	.9395	1.0000				
9	(19)	(19)	(19)	(19)	(19)	(19)	(26)					
02033.V2033 T+4	-.6813	.2721	-.8946	-.2778	-.7120	.7468	.2387	.2550	1.0000			
9	(19)	(19)	(19)	(19)	(19)	(19)	(26)	(26)				
02034.V2034 T+3	-.9928	-.4123	-.9718	.4074	-.0911	.1416	.0947	.0145	.6367	1.0000		
9	(19)	(19)	(19)	(19)	(19)	(19)	(26)	(26)	(26)			
02035.V2035 T+2	.6928	.9760	.3961	-.9747	-.7409	.7058	.4936	.3273	.2615	.4541	1.0000	
9	(19)	(19)	(19)	(19)	(19)	(19)	(26)	(26)	(26)	(26)		
02036.V2036 T+1	.1510	.9234	-.2050	-.9256	-.9925	.9850	-.2474	-.3188	.2559	.7771	.5799	1.000
9	(19)	(19)	(19)	(19)	(19)	(19)	(26)	(26)	(26)	(26)	(26)	
02037.V2037 T0	-.9891	-.6390	-.8748	.6345	.1757	-.1254	.2408	.1557	.4224	.8686	.7813	.872
9	(19)	(19)	(19)	(19)	(19)	(19)	(26)	(26)	(26)	(26)	(26)	(26)
02038.V2038 T+1	-.9933	-.4165	-.9709	.4111	-.0870	.1376	-.0847	-.0526	.4143	.3513	-.3490	-.042
9	(19)	(19)	(19)	(19)	(19)	(19)	(26)	(26)	(26)	(26)	(26)	(26)
02039.V2039 T+2	-.6813	.2721	-.8946	-.2778	-.7120	.7468	.7495	.7233	.4475	-.1381	.2210	-.510
9	(19)	(19)	(19)	(19)	(19)	(19)	(26)	(26)	(26)	(26)	(26)	(26)
02040.V2040 T+3	-.7124	.2302	-.9131	-.2359	-.6809	.7173	.8093	.8157	.5818	.0328	.4366	-.276
9	(19)	(19)	(19)	(19)	(19)	(19)	(26)	(26)	(26)	(26)	(26)	(26)
	2025. V2025	2026. V2026	2027. V2027	2028. V2028	2029. V2029	2030. V2030	2031. V2031	2032. V2032	2033. V2033	2034. V2034	2035. V2035	2036 V2036

02037.V2037 T0	1.0000			
9				
02038.V2039 T+1	-.0334	1.0000		
9	(26)			
02039.V2039 T+2	-.1406	.2211	1.0000	
9	(26)	(26)		
02040.V2040 T+3	.1225	-.0395	.9019	1.0000
9	(26)	(26)	(26)	
	2037. V2037	2038. V2038	2039. V2039	2040. V2040

TABLE C-1: (CONTINUED)

-MISSING DATA CORRELATION CASES=SITE ORG. I

VARIABLE												
02041.V2041 T+4	1.0000											
9												
02042.V2042 T+5	-.2665	1.0000										
9	(26)											
02043.V2043 T+6	.3979	.6847	1.0000									
9	(26)	(26)										
02044.V2044 T+7	-.2479	.0847	.4155	1.0000								
9	(26)	(26)	(26)									
02045.V2045 T+8	-.1173	.7812	.5296	.6180	1.0000							
9	(26)	(26)	(26)	(26)								
02046.V2046 T+9	-.6049	.6361	-.6319	.2895	.0550	1.0000						
	(14)	(14)	(14)	(14)	(14)							
02047.V2047 T+10	.1966	-.8682	.8723	-.8966	-.9428	-.3378	1.0000					
9	(14)	(14)	(14)	(14)	(14)	(25)						
02048.V2048 T+11	-.4023	.3492	-.3566	.7542	.8891	-.4423	-.6930	1.0000				
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)					
02049.V2049 T+12	-.1935	.1710	-.1749	.3815	.4530	.1505	-.5221	.4306	1.0000			
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)				
02050.V2050 T+13	.9574	-.9688	.9674	-.7479	-.5266	.8553	.7141	-.0114	-.1385	1.0000		
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)			
02051.V2051 T+14	.9743	-.9692	.9656	-.9434	-.9383	-.0990	.9700	-.8472	-.5195	.5323	1.0000	
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)	(25)		
02052.V2052 T+15	.9789	-.9640	.9662	-.9582	-.8327	-.5198	.9412	-.4839	-.2624	.8778	.8592	1.000
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)	(25)	(25)	
02053.V2053 T+16	-.2331	.2304	-.2339	.2236	.1912	.5640	-.4091	.0040	.8767	-.3861	-.2928	-.274
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02054.V2054 T+17	-.5675	.5865	-.5840	.3498	.1702	.3407	-.2087	-.1155	-.6959	-.5737	-.1257	-.502
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02055.V2055 T+18	-.1559	.1394	-.1160	.5364	.7118	-.6723	-.4697	.9593	.2610	.2380	-.6730	-.256
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02056.V2056 T+9	-.6446	.6678	-.6647	.3953	.1751	.9864	-.4962	-.3135	.2992	-.8772	-.2285	-.591
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02057.V2057 T+10	.1789	-.7004	.9694	-.9478	-.8164	-.5954	.9458	-.4367	-.3668	.9021	.8452	.989
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02058.V2058 T+11	-.1991	.1591	-.1647	.4777	.5985	-.6584	-.4144	.8777	-.0417	.1737	-.6055	-.295
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02059.V2059 T+12	-.2259	.1667	-.1749	.6466	.8379	-.4048	-.5973	.9046	.7365	.1152	.7395	-.299
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02060.V2060 T+13	.9999	-.9821	.9835	-.9301	-.7819	-.5823	.9020	-.3950	-.1942	.9166	.9010	.994
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02061.V2061 T+14	.9197	-.8038	.8052	-.8349	-.7462	-.2184	.8022	-.5618	.0863	.6874	.7873	.858
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02062.V2062 T+5	.9834	-.9722	.9738	-.9336	-.7927	-.5429	.9042	-.4261	-.1707	.8973	.8134	.995
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02063.V2063 T+16	.5923	-.6104	.6070	-.2904	-.0707	-.4696	.1500	.2668	.6865	.6217	.0308	.467
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02064.V2064 T+17	-.0139	-.0112	.0012	.1778	.2630	.1033	-.3386	.2973	.9791	.0048	-.3383	-.064

	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052

TABLE C-1: (CONTINUED)

DLC 02065.V2065 T+8	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
	.7107	-.7124	.7123	-.6064	-.4697	-.2790	.5102	-.2230	.4635	.6547	.4610	.727
9	(14)	(14)	(14)	(14)	(14)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02066.V2066 T+9	.2505	.2687	.4168	.3247	.7253	-.3559	.9533	-.6175	-.2413	.7803	.9137	.903
9	(21)	(21)	(21)	(21)	(21)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02067.V2067 T+10	-.2084	.1273	-.0921	.2532	.5651	.9025	.0279	-.7084	.1686	-.5497	.2606	-.116
9	(21)	(21)	(21)	(21)	(21)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02068.V2068 T+11	.1203	.2627	.2973	.2471	.6754	.0935	.7610	-.8256	-.8600	.1657	.8327	.497
9	(21)	(21)	(21)	(21)	(21)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02069.V2069 T+12	-.5145	.2581	-.2256	.4771	.4078	.9153	-.4750	-.2681	-.0827	-.9544	-.2632	-.713
9	(21)	(21)	(21)	(21)	(21)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02070.V2070 T+13	-.3313	.3363	-.1264	.4944	.5402	.7213	-.3764	-.2318	-.3988	-.8528	-.2067	-.666
9	(21)	(21)	(21)	(21)	(21)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02071.V2071 T+14	-.1725	.1209	-.2137	.4394	.4635	.8965	-.6872	-.0409	.1931	-.9948	-.4938	-.842
9	(21)	(21)	(21)	(21)	(21)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02072.V2072 T+15	-.6654	.7187	.0991	.5360	.4174	.4824	-.9865	.5722	.5461	-.7972	-.9187	-.951
9	(21)	(21)	(21)	(21)	(21)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02073.V2073 T+16	-.3594	.7824	.3732	.7357	.5972	-.0046	-.8274	.7633	.0366	-.5142	-.8724	-.838
9	(21)	(21)	(21)	(21)	(21)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02074.V2074 T+17	-.2709	.8862	.5264	.8638	.7937	.3856	-.7604	.3925	-.1473	-.7935	-.7000	-.911
9	(21)	(21)	(21)	(21)	(21)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
02075.V2075 T+18	.1318	.1690	.2303	-.0172	-.2293	.8741	.1602	-.8220	-.1444	-.5390	.3953	-.070
9	(21)	(21)	(21)	(21)	(21)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
9	2041.	2042.	2043.	2044.	2045.	2046.	2047.	2048.	2049.	2050.	2051.	2052
9	V2041	V2042	V2043	V2044	V2045	V2046	V2047	V2048	V2049	V2050	V2051	V2052

DLC 02065.V2065 T+8	1.0000									
9										
02066.V2066 T+9	.7463	1.0000								
9	(25)									
02067.V2067 T+10	.1143	.7871	1.0000							
9	(25)	(42)								
02068.V2068 T+11	-.1065	.9278	.8211	1.0000						
9	(25)	(42)	(42)							
02069.V2069 T+12	-.6419	.3730	.6061	.4585	1.0000					
9	(25)	(42)	(42)	(42)						
02070.V2070 T+13	-.3417	.5238	.7357	.6447	.8779	1.0000				
9	(25)	(42)	(42)	(42)	(42)					
02071.V2071 T+14	-.5789	.5436	.7957	.5548	.9033	.8327	1.0000			
9	(25)	(42)	(42)	(42)	(42)	(42)				
02072.V2072 T+15	-.4858	-.0327	.0956	-.0047	.0704	.1989	-.0081	1.0000		
9	(25)	(42)	(42)	(42)	(42)	(42)	(42)			
02073.V2073 T+16	-.7917	.3598	.1787	.2816	.1724	.3791	.1863	.6955	1.0000	
9	(25)	(42)	(42)	(42)	(42)	(42)	(42)	(42)		
02074.V2074 T+17	-.0445	.6014	.3468	.5294	.4265	.5844	.4075	.4908	.9043	1.0000
9	(25)	(42)	(42)	(42)	(42)	(42)	(42)	(42)	(42)	
02075.V2075 T+18	-.0637	-.1023	-.2931	-.1029	.3438	.0971	.0290	-.1816	-.1341	.1329	1.0000
9	(25)	(42)	(42)	(42)	(42)	(42)	(42)	(42)	(42)	(42)	
9	2065.	2066.	2067.	2068.	2069.	2070.	2071.	2072.	2073.	2074.	2075.
9	V2065	V2066	V2067	V2068	V2069	V2070	V2071	V2072	V2073	V2074	V2075

TABLE C-1: (CONTINUED)

V2053.V2053 T+16	1.0000												
?													
V2054.V2054 T+17	-.5256	1.0000											
?	(25)												
V2055.V2055 T+18	-.2151	-.1462	1.0000										
?	(25)	(25)											
V2056.V2056 T+9	.6659	.2556	-.5673	1.0000									
?	(25)	(25)	(25)										
V2057.V2057 T+10	-.4000	-.4123	-.1869	-.6769	1.0000								
?	(25)	(25)	(25)	(25)									
V2058.V2058 T+11	-.4758	.1515	.9466	-.5940	-.1893	1.0000							
?	(25)	(25)	(25)	(25)	(25)								
V2059.V2059 T+12	.3313	-.5067	.9447	-.2496	-.3094	.6366	1.0000						
?	(25)	(25)	(25)	(25)	(25)	(25)							
V2060.V2060 T+13	-.3527	-.5675	-.1654	-.6408	-.9836	-.2276	-.1982	1.0000					
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)						
V2061.V2061 T+14	.1421	-.7071	-.4339	-.2472	.8273	-.5759	-.2314	.8965	1.0000				
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)					
V2062.V2062 T+15	-.2098	-.5839	-.7952	-.6002	.9771	-.2755	-.2132	.9936	.9167	1.0000			
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)				
V2063.V2063 T+16	.4360	-.9844	.3137	-.3737	.3955	.0240	.6187	.5448	.6202	.5524	1.0000		
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)			
V2064.V2064 T+17	.4784	-.8123	.1631	.2382	-.1855	-.1602	.6590	-.0354	.2870	.0213	.7651	1.000	
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)		
V2065.V2065 T+18	.4157	-.9361	-.1431	-.2477	.6347	-.3997	.1753	.7623	.9097	.7843	.8796	.630	
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	
V2066.V2066 T+9	-.1598	-.4895	-.4134	-.4368	.9540	-.4634	-.4031	.9650	.9409	.9745	.4236	-.040	
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	
V2067.V2067 T+10	.6220	.0423	-.8703	.8686	-.2233	-.9145	-.5235	-.1831	.2227	-.1332	-.2098	.210	
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	
V2068.V2068 T+11	-.5634	.4444	-.6810	-.0709	.5365	-.4561	-.9480	.4093	.3158	.4111	-.5202	-.761	
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	
V2069.V2069 T+12	.2732	.6079	-.4013	.8837	-.7349	-.3639	-.4061	-.7792	-.5515	-.7561	-.7479	-.185	
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	
V2070.V2070 T+13	-.0977	.8937	-.3737	.6621	-.6357	-.1557	-.5057	-.7395	-.6698	-.7332	-.9361	-.518	
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	
V2071.V2071 T+14	.4665	.5065	-.2987	.9205	-.8809	-.2573	-.1264	-.8822	-.6139	-.8580	-.5688	.062	
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	
V2072.V2072 T+15	.5091	.2125	.3230	.5943	-.9737	.2607	.5069	-.9235	-.7579	-.9174	-.1818	.371	
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	
V2073.V2073 T+16	-.1834	.5288	.6597	.0633	-.7602	.7551	.4626	-.8066	-.9621	-.8359	-.4079	-.161	
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	
V2074.V2074 T+17	-.1296	.7910	.2430	.4045	-.8481	.4087	.0635	-.9265	-.9798	-.9414	-.7350	-.340	
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	
V2075.V2075 T+18	.3493	.2867	-.9454	.7950	-.1431	-.8898	-.7501	-.1587	.1601	-.1166	-.4498	-.103	
?	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	
?	2053.	2054.	2055.	2056.	2057.	2058.	2059.	2060.	2061.	2062.	2063.	2064	
?	V2053	V2054	V2055	V2056	V2057	V2058	V2059	V2060	V2061	V2062	V2063	V206	

TABLE C-2: ORGANIZATION II

VARIABLE												
2000.V2000 -9m	1.0000											
2001.V2001 -8m	.9559 (24)	1.0000										
2002.V2002 -7m	.9510 (24)	.9357 (24)	1.0000									
2003.V2003 -6m	.9253 (24)	.9759 (24)	.9298 (24)	1.0000								
2004.V2004 -5m	.8414 (24)	.8418 (24)	.8353 (24)	.7526 (24)	1.0000							
2005.V2005 -4m	.1937 (24)	.5122 (24)	.2991 (24)	.5304 (24)	.8985 (24)	1.0000						
2006.V2006 -3m	.2915 (24)	.7277 (24)	.4540 (24)	.6303 (24)	.9672 (24)	.9805 (24)	1.0000					
2007.V2007 -2m	.2405 (24)	.6302 (24)	.3872 (24)	.5904 (24)	.9403 (24)	.9943 (24)	.9959 (24)	1.0000				
2008.V2008 -1m	-.1847 (24)	.2879 (24)	.1492 (24)	.0744 (24)	.6787 (24)	.5712 (24)	.6392 (24)	.6072 (24)	1.0000			
2009.V2009 +1m	-.6753 (24)	-.5173 (24)	-.4414 (24)	-.6798 (24)	-.2149 (24)	-.2884 (24)	-.2564 (24)	-.2773 (24)	.5675 (24)	1.0000		
2010.V2010 +2m	-.4934 (24)	-.1124 (24)	-.1739 (24)	-.3264 (24)	.3040 (24)	.2239 (24)	.2721 (24)	.2464 (24)	.9060 (24)	.8598 (24)	1.0000	
2011.V2011 +3m	-.4914 (24)	-.1239 (24)	-.1696 (24)	-.3370 (24)	.2777 (24)	.1844 (24)	.2375 (24)	.2093 (24)	.8936 (24)	.8763 (24)	.9990 (24)	1.0000
2012.V2012 +4m	-.4738 (24)	-.1752 (24)	-.2629 (24)	-.3852 (24)	.2783 (24)	.2476 (24)	.2744 (24)	.2585 (24)	.8897 (24)	.8560 (24)	.9939 (24)	.9897 (24)
2013.V2013 +5m	-.6652 (24)	-.5564 (24)	-.4508 (24)	-.7057 (24)	-.2942 (24)	-.3781 (24)	-.3440 (24)	-.3661 (24)	.4939 (24)	.9955 (24)	.8099 (24)	.8299 (24)
2014.V2014 -1m	-.0996 (24)	-.5553 (24)	-.2819 (24)	-.4471 (24)	-.8894 (24)	-.9404 (24)	-.9428 (24)	-.9454 (24)	-.7041 (24)	.0920 (24)	-.4020 (24)	-.3674 (24)
2015.V2015 TD	.1819 (24)	-.3051 (24)	.0247 (24)	-.1954 (24)	-.7312 (24)	-.9134 (24)	-.8575 (24)	-.8961 (24)	-.6466 (24)	.0207 (24)	-.4184 (24)	-.3798 (24)
2016.V2016 +1m	-.3440 (24)	-.5377 (24)	-.4242 (24)	-.4974 (24)	-.5753 (24)	-.5150 (24)	-.5545 (24)	-.5396 (24)	-.3022 (24)	.2384 (24)	-.0605 (24)	-.0451 (24)
2017.V2017 +2m	-.0433 (24)	.0459 (24)	-.1234 (24)	.0896 (24)	.1422 (24)	.3500 (24)	.2646 (24)	.3084 (24)	-.1056 (24)	-.3463 (24)	-.2180 (24)	-.2408 (24)
2018.V2018 +3m	-.6210 (24)	-.5140 (24)	-.5087 (24)	-.6008 (24)	-.2542 (24)	-.1487 (24)	-.2185 (24)	-.2091 (24)	.2797 (24)	.6360 (24)	.5097 (24)	.5150 (24)

TABLE C-2: (CONTINUED)

ORG. II Plant 1 (cont'd)

2019.V2019 +4m	-.0143 (24)	-.5135 (24)	-.2147 (24)	-.[illegible]	.8833 (24)	-.9570 (24)	-.9506 (24)	-.9[illegible]9 (24)	-.7502 (24)	.0311 (24)	.4648 (24)	-.4288 (24)
2020.V2020 +5m	-.0777 (24)	-.2996 (24)	-.3066 (24)	-.3[illegible] (24)	.4644 (24)	-.7319 (24)	-.6209 (24)	-.6811 (24)	-.0067 (24)	.5760 (24)	.2577 (24)	.2969 (24)
2021.V2021 +6m	-.5177 (24)	-.2038 (24)	-.3967 (24)	-.3873 (24)	.0303 (24)	.1464 (24)	.1020 (24)	.1202 (24)	.3883 (24)	.4460 (24)	.4869 (24)	.4779 (24)
2022.V2022 +7m	-.1439 (24)	-.5358 (24)	-.2655 (24)	-.5104 (24)	-.8767 (24)	-.9988 (24)	-.9700 (24)	-.9891 (24)	-.5429 (24)	.3056 (24)	-.1999 (24)	-.1594 (24)
	2000. V2000	2001. V2001	2002. V2002	2003. V2003	2004. V2004	2005. V2005	2006. V2006	2007. V2007	2008. V2008	2009. V2009	2010. V2010	2011. V2011
2012.V2012 +7m	1.0000											
2013.V2013 +8m	.0032 (24)	1.0000										
2014.V2014 +9m	-.4162 (24)	.1919 (24)	1.0000									
2015.V2015 +10m	-.4658 (24)	.1121 (24)	.9474 (24)	1.0000								
2016.V2016 +11m	-.0434 (24)	.2799 (24)	.7084 (24)	.5610 (24)	1.0000							
2017.V2017 +12m	-.1719 (24)	-.3719 (24)	-.4760 (24)	-.5195 (24)	-.7713 (24)	1.0000						
2018.V2018 +13m	.5350 (24)	.6320 (24)	-.1138 (24)	-.2001 (24)	-.3649 (24)	.4714 (24)	1.0000					
2019.V2019 +14m	-.4834 (24)	.1249 (24)	.9134 (24)	.9036 (24)	.3674 (24)	-.1492 (24)	.1297 (24)	1.0000				
2020.V2020 +15m	.1931 (24)	.6321 (24)	.6929 (24)	.7517 (24)	.6257 (24)	-.8279 (24)	-.0227 (24)	.5390 (24)	1.0000			
2021.V2021 +16m	.5228 (24)	.4148 (24)	-.4277 (24)	-.5034 (24)	-.5965 (24)	.6822 (24)	.9362 (24)	-.1558 (24)	-.3443 (24)	1.0000		
2022.V2022 +17m	-.2284 (24)	.3949 (24)	.9322 (24)	.9182 (24)	.5039 (24)	-.3710 (24)	.1879 (24)	.9499 (24)	.7563 (24)	-.1499 (24)	1.0000	
	2012. V2012	2013. V2013	2014. V2014	2015. V2015	2016. V2016	2017. V2017	2018. V2018	2019. V2019	2020. V2020	2021. V2021	2022. V2022	

TABLE C-2: (CONTINUED)

MISSING DATA CORRELATION (2) ORG. I Part 2

VARIABLE												
2000.V2000	1.0000											
2001.V2001	.3516 (47)	1.0000										
2002.V2002	.9136 (47)	.9233 (47)	1.0000									
2003.V2003	.7461 (47)	.9693 (47)	.8908 (47)	1.0000								
2004.V2004	.1581 (47)	.5231 (47)	.5414 (47)	.6414 (47)	1.0000							
2005.V2005	.7311 (47)	.9763 (47)	.9007 (47)	.9946 (47)	.6648 (47)	1.0000						
2006.V2006	.7693 (47)	.9934 (47)	.8055 (47)	.8920 (47)	-.0693 (47)	.8926 (47)	1.0000					
2007.V2007	.5436 (47)	.7719 (47)	.4944 (47)	.7567 (47)	.1560 (47)	.7408 (47)	.9071 (47)	1.0000				
2008.V2008	.1351 (47)	.3939 (47)	.0932 (47)	.5111 (47)	.5505 (47)	.5297 (47)	.2813 (47)	.6217 (47)	1.0000			
2009.V2009	.6929 (47)	.7423 (47)	.5188 (47)	.6409 (47)	-.1239 (47)	.6374 (47)	.9933 (47)	.9250 (47)	.3123 (47)	1.0000		
2010.V2010	.1437 (47)	.5570 (47)	.2145 (47)	.6152 (47)	.2889 (47)	.6137 (47)	.6440 (47)	.8962 (47)	.8861 (47)	.6866 (47)	1.0000	
2011.V2011	.3131 (47)	.6538 (47)	.3220 (47)	.6707 (47)	.20[illegible] (47)	[illegible]71 (47)	.7834 (47)	.9629 (47)	.7919 (47)	.9172 (47)	.9299 (47)	1.0000
2012.V2012	.2752 (47)	.6330 (47)	.3043 (47)	.6677 (47)	[illegible] (47)	[illegible]71 (47)	.7480 (47)	.9489 (47)	.8240 (47)	.7831 (47)	.9894 (47)	.9983 (47)
2013.V2013	.2491 (47)	.6107 (47)	.2696 (47)	.6380 (47)	[illegible] (47)	[illegible]80 (47)	.7415 (47)	.9430 (47)	.8227 (47)	.7800 (47)	.9901 (47)	.9977 (47)
2014.V2014	.0074 (47)	.4758 (47)	.1697 (47)	.5936 (47)	[illegible] (47)	[illegible]911 (47)	.4262 (47)	.7622 (47)	.9504 (47)	.4664 (47)	.9556 (47)	.8849 (47)
2015.V2015	.2552 (47)	.6356 (47)	.3014 (47)	.6705 (47)	.2[illegible] (47)	.6726 (47)	.7259 (47)	[illegible] (47)	.8479 (47)	.7596 (47)	.9927 (47)	.9991 (47)
2016.V2016	-.5753 (47)	-.3710 (47)	-.2967 (47)	[illegible]109 (47)	.5101 (47)	.1183 (47)	-.2202 (47)	[illegible]890 (47)	[illegible]8035 (47)	[illegible] (47)	.5978 (47)	.4278 (47)
2017.V2017	-.12[illegible] (47)	.3523 (47)	.0203 (47)	.4646 (47)	.3765 (47)	.4714 (47)	.3843 (47)	.7158 (47)	.9719 (47)	.4350 (47)	.9508 (47)	.8728 (47)
	-9m	-8m	-7m	-6m	-5m	TR						

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TABLE C-2: (CONTINUED)

ORG.II Plant 2 (cont'd)

2019.V2019	.2812 (47)	.6219 (47)	.3013 (47)	.6689 (47)	.2393 (47)	.6539 (47)	.7369 (47)	.9513 (47)	.7929 (47)	.7709 (47)	.9816 (47)	.9381 (47)
2019.V2019	-.1065 (47)	.3598 (47)	.0013 (47)	.4229 (47)	.0994 (47)	.4007 (47)	.5692 (47)	.8358 (47)	.8180 (47)	.6379 (47)	.9655 (47)	.9344 (47)
2020.V2020	-.2868 (47)	.1823 (47)	.1046 (47)	.2682 (47)	.2073 (47)	.2820 (47)	.3018 (47)	.6251 (47)	.9272 (47)	.3685 (47)	.8979 (47)	.8134 (47)
2021.V2021	.3613 (47)	.6124 (47)	.3058 (47)	.5992 (47)	.0218 (47)	.5904 (47)	.8487 (47)	.9739 (47)	.6581 (47)	.8903 (47)	.9259 (47)	.9776 (47)
2022.V2022	.2235 (47)	.5047 (47)	.2451 (47)	.6252 (47)	.2196 (47)	.6196 (47)	.7142 (47)	.9349 (47)	.8271 (47)	.7574 (47)	.9934 (47)	.9929 (47)
	2000. V2000	2001. V2001	2002. V2002	2003. V2003	2004. V2004	2005. V2005	2006. V2006	2007. V2007	2008. V2008	2009. V2009	2010. V2010	2011. V2011
2012.V2012	1.0000											
2013.V2013	.9992 (47)	1.0000										
2014.V2014	.9110 (47)	.9049 (47)	1.0000									
2015.V2015	.9919 (47)	.9978 (47)	.9227 (47)	1.0000								
2016.V2016	.4779 (47)	.4834 (47)	.7729 (47)	.5092 (47)	1.0000							
2017.V2017	.8911 (47)	.9021 (47)	.9774 (47)	.9128 (47)	.8128 (47)	1.0000						
2018.V2018	.9933 (47)	.9838 (47)	.9125 (47)	.9859 (47)	.4653 (47)	.8812 (47)	1.0000					
2019.V2019	.9436 (47)	.9525 (47)	.9129 (47)	.9411 (47)	.6019 (47)	.9284 (47)	.9528 (47)	1.0000				
2020.V2020	.9361 (47)	.9447 (47)	.9089 (47)	.8503 (47)	.8230 (47)	.9746 (47)	.8101 (47)	.9171 (47)	1.0000			
2021.V2021	.9662 (47)	.9690 (47)	.7893 (47)	.9537 (47)	.2777 (47)	.7804 (47)	.9666 (47)	.9179 (47)	.7351 (47)	1.0000		
2022.V2022	.9965 (47)	.9974 (47)	.9223 (47)	.9946 (47)	.5089 (47)	.9114 (47)	.9946 (47)	.9564 (47)	.8567 (47)	.9648 (47)	1.0000	
	2012. V2012	2013. V2013	2014. V2014	2015. V2015	2016. V2016	2017. V2017	2018. V2018	2019. V2019	2020. V2020	2021. V2021	2022. V2022	

TABLE C-2: (CONTINUED)

ORG. II Plant 3

2014.V2014	1.0000								
2015.V2015	.6399 (15)	1.0000							
2016.V2016	.1924 (15)	.8762 (15)	1.0000						
2017.V2017	.3443 (15)	.8090 (15)	.6066 (15)	1.0000					
2018.V2018	.3699 (15)	.8050 (15)	.7675 (15)	.8055 (15)	1.0000				
2019.V2019	.5294 (15)	.9880 (15)	.9337 (15)	.8210 (15)	.7772 (15)	1.0000			
2020.V2020	.9523 (15)	.7303 (15)	.3507 (15)	.8088 (15)	.3216 (15)	.6573 (15)	1.0000		
2021.V2021	.4834 (15)	.9912 (15)	.9520 (15)	.8048 (15)	.8009 (15)	.9979 (15)	.6093 (15)	1.0000	
2022.V2022	.4260 (15)	.9372 (15)	.9161 (15)	.8333 (15)	.9466 (15)	.9357 (15)	.4724 (15)	.9505 (15)	1.0000
	2014. V2014	2015. V2015	2016. V2016	2017. V2017	2018. V2018	2019. V2019	2020. V2020	2021. V2021	2022. V2022

TABLE C-2: (CONTINUED)

ORG. II Plant 4

2014.V2014	1.0000								
2015.V2015	.9970 (32)	1.0000							
2016.V2016	.9203 (32)	.9052 (32)	1.0000						
2017.V2017	.8945 (32)	.9028 (32)	.9517 (32)	1.0000					
2018.V2018	.9615 (32)	.9414 (32)	.9743 (32)	.8973 (32)	1.0000				
2019.V2019	.9480 (32)	.9259 (32)	.9634 (32)	.8972 (32)	.9939 (32)	1.0000			
2020.V2020	.9636 (32)	-.9760 (32)	-.7910 (32)	-.8140 (32)	-.8533 (32)	-.8284 (32)	1.0000		
2021.V2021	.9258 (32)	.9117 (32)	.7513 (32)	.6596 (32)	.8662 (32)	.8446 (32)	-.9256 (32)	1.0000	
2022.V2022	.9441 (32)	.9638 (32)	.7672 (32)	.8205 (32)	.8181 (32)	.7919 (32)	-.9952 (32)	.8851 (32)	1.0000
	2014. V2014	2015. V2015	2016. V2016	2017. V2017	2018. V2018	2019. V2019	2020. V2020	2021. V2021	2022. V2022

TABLE C-3: ORGANIZATION III

MISSING DATA CORRELATION ORG III

VARIABLE	V4006 T-3	V4007 T-2	V4008 T-1	V4009 T0	V4012 T+3	V4013 T+4	V4014 T+5	V4015 T+6	V4018 T+9	V4019 T+10	V4020 T+11	V4021 T+12
V4006 T-3	1.0000											
V4007 T-2	.6753** (322)	1.0000										
V4008 T-1	.7854** (322)	.8240** (322)	1.0000									
V4009 T0	.7944** (322)	.8941** (322)	.7850** (322)	1.0000								
V4012 T+3	.6372** (322)	.[illegible]70** (322)	.4734** (322)	.8659** (322)	1.0000							
V4013 T+4	.5985** (322)	.7190** (322)	.5176** (322)	.8690** (322)	.9680** (322)	1.0000						
V4014 T+5	.6403** (322)	.8993** (322)	.5759** (322)	.8833** (322)	.9190** (322)	.8973** (322)	1.0000					
V4015 T+6	.4137** (322)	.3139** (322)	.5157** (322)	.9726** (322)	.9657** (322)	.9271** (322)	.9730** (322)	1.0000				
V4018 T+9	[illegible] (322)	.7797** (322)	.6085** (322)	.8726** (322)	.9285** (322)	.9212** (322)	.7851** (322)	.8545** (334)	[illegible]			
V4019 T+10	.7771** (315)	.6611** (315)	.6996** (315)	.7481** (315)	.7196** (315)	.6635** (315)	.5427** (315)	.6374** (327)	.8902** (327)	1.0000		
V4020 T+11	.7000** (315)	.9516** (315)	.7114** (315)	.9232** (315)	.9278** (315)	.8798** (315)	.8490** (315)	.8957** (327)	.9691** (327)	.8977** (327)	1.0000	
V4021 T+12	.7163** (315)	.7664** (315)	.6492** (315)	.9164** (315)	.0395** (315)	.7846** (315)	.6764** (315)	.7715** (327)	.9542** (327)	.9622** (327)	.9557** (327)	1.000
[illegible] T+3	.4[illegible]21** (322)	.4[illegible]55** (322)	.1211* (322)	.2196** (322)	.0628 (322)	.1590** (322)	.1105 (322)	.0888 (322)	.0285 (322)	-.0427 (315)	.0039 (315)	.001 (315
[illegible] T-2	[illegible] (322)	.5322** (322)	.1999** (322)	.4062** (322)	.6572** (322)	.6270** (322)	.4590** (322)	.4081** (322)	.[illegible]541** (322)	.6800** (315)	.6241** (315)	.676** (315
[illegible] T-1	.3162** (322)	.2019** (322)	.1056** (322)	.1433* (322)	-.0826 (322)	-.0384 (322)	-.0860 (322)	-.1099 (322)	-.0004 (322)	.1332* (315)	.0076 (315)	.077 (315
V4131 T0	.3523** (322)	.2270** (322)	.3458** (322)	.3942** (322)	.0324 (322)	.0576 (322)	.1744** (322)	.1141* (322)	-.0123 (322)	-.0035 (315)	.0604 (316)	-.018 (315
V4134 T+3	.1950** (322)	.4109** (322)	-.1657** (322)	.3643** (322)	.8522** (322)	.5263** (322)	.4931** (322)	.5915** (322)	.5364** (322)	.3200** (315)	.6237** (315)	.476** (315
V4135 T+4	.5240** (322)	.0226 (322)	.0161 (322)	.1411* (322)	.2331** (322)	.0308 (322)	.1782** (322)	.2402** (322)	.1690** (322)	.3335** (315)	.2951** (315)	.289** (315
V4136 T+5	-.[illegible]064 (322)	-.0214 (322)	-.0501 (322)	.0860 (322)	.1410* (322)	.0740 (322)	.2319** (322)	.1155* (322)	-.0103 (322)	-.1806** (315)	-.0003 (315)	-.155** (315
V4137 T+6	.5074** (322)	.2568** (322)	.3840** (322)	.3315** (322)	.1935** (322)	.1374* (322)	.4233** (322)	.2794** (334)	.0094 (334)	.0209 (327)	.1711** (327)	.030 (327
V4110 T+9	.4416** (322)	.5305** (322)	.6857** (322)	.4629** (322)	.1887** (322)	.3555** (322)	.2467** (322)	.2361** (334)	.3680** (334)	.4260** (327)	.3726** (327)	.352** (327
V4111 T+10	-.2623** (315)	.3390** (315)	-.0463 (315)	.1010 (315)	.3233** (315)	.4217** (315)	.2621** (315)	.3092** (327)	.3490** (327)	.1879** (327)	.2590** (327)	.275** (327
V4112 T+11	-.3111** (315)	-.1993** (315)	-.5242** (315)	-.3019** (315)	.1050 (315)	-.0058 (315)	-.0614 (315)	-.0240 (327)	-.0[illegible]3 [illegible]	-.1229* (327)	-.0815 (327)	-.039 (327
V4113 T+12	.4731** (315)	.5880** (315)	.4516** (315)	.4765** (315)	.4100** (315)	.4878** (315)	.3920** (315)	.3796** (327)	.4[illegible]51** (327)	.4774** (327)	.4521** (327)	.451** (327
	4006. V4006 T-3	4007. V4007 T-2	4008. V4008 T-1	4009. V4009 T0	4012. V4012 T+3	4013. V4013 T+4	4014. V4014 T+5	4015. V4015 T+6	4018. V4018 T+9	4019. V4019 T+10	4020. V4020 T+11	4021 V4021 T+12

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TABLE C-3: (CONTINUED)

ORG. III

PRESENCE

4099.V4099 T-3	1.0000											
	T-2											
4099.V4099 T-2	.2955**	1.0000										
	(322)	T-1										
4100.V4100 T-1	.3743**	.3137**	1.0000									
	(322)	(322)	T0									
4101.V4101 T0	.5833**	.0155	.6950**	1.0000								
	(322)	(322)	(322)	T+3								
4104.V4104 T+3	-.2944**	.3213**	-.4096**	-.2697**	1.0000							
	(322)	(322)	(322)	(322)	T+4							
4105.V4105 T+4	-.2219	.2562**	.2227**	.1538**	.3839**	1.0000						
	(322)	(322)	(322)	(322)	(322)	T+5						
4106.V4106 T+5	-.2951**	.1775**	-.4227**	-.2114**	.2985**	-.0955	1.0000					
	(322)	(322)	(322)	(322)	(322)	(322)	T+6					
4107.V4107 T+6	.4792**	.1201*	.4342**	.4734**	-.1073	.4720**	.1670**	1.0000				
	(322)	(322)	(322)	(322)	(322)	(322)	(3	T+9				
4110.V4110 T+9	.6477**	.2900**	.5315**	.4436**	-.5424**	-.2801**	-.3547**	.1779**	1.0000			
	(322)	(322)	(322)	(322)	(322)	(322)	(322)	(334)	T+10			
4111.V4111 T+10	.1966	.3900**	-.1946**	-.5159**	.1452*	-.3325**	.2609**	-.2152**	.4030**	1.0000		
	(315)	(315)	(315)	(315)	(315)	(315)	(315)	(327)	(327)			
4112.V4112 T+11	-.7177**	-.0196	-.7595**	-.8662**	.6839**	.1401**	.4146**	-.3264**	-.8435**	.0242	1.0000	
	(315)	(315)	(315)	(315)	(315)	(315)	(315)	(327)	(327)	(327)		T+12
4113.V4113 T+12	.7631**	.7607**	.7269**	.3603**	-.2369**	.0317	-.2590**	.2843**	.8805**	.5413**	-.6515**	1.000
	(315)	(315)	(315)	(315)	(315)	(315)	(315)	(327)	(327)	(327)	(327)	
	4099.	4099.	4100.	4101.	4104.	4105.	4106.	4107.	4110.	4111.	4112.	4113
	V4099	V4099	V4100	V4101	V4104	V4105	V4106	V4107	V4110	V4111	V4112	V411

ORG. IV

-MISSING DATA CORRELATION

TABLE C-4: ORGANIZATION IV

VARIABLE												
0 638.5 % ST.	1.0000											
9												
0 639.6 % NON-	.1748	1.0000										
9	(124)											
0 640.7 % INDI	.6160	.5986	1.0000									
9	(124)	(124)										
0 653.20 ST. C	.9025	.4420	.7952	1.0000								
9	(113)	(113)	(113)									
0 654.21 NON-P	.1749	1.0000	.5986	.4420	1.0000							
9	(124)	(124)	(124)	(113)								
0 655.22 INDIR	.6714	.5995	.9859	.9439	.5995	1.0000						
9	(124)	(124)	(124)	(113)	(124)							
0 668.35 ST.CO	.5572	-.3543	.2433	.7327	-.3543	.3169	1.0000					
9	(124)	(124)	(124)	(113)	(124)	(124)						
0 669.36 NON-P	.2113	.9761	.6127	.5316	.9761	.5976	-.2666	1.0000				
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)					
0 670.37 INDIR	.5926	.4870	.9833	.7631	.4870	.9508	.2279	.4671	1.0000			
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)				
0 683.50 ST. C	.5337	-.2787	.1434	.6250	-.2787	.1757	.9780	-.1156	.1345	1.0000		
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)			
0 684.51 NON-P	.0213	.9799	.4571	.2203	.9799	.4545	-.5199	.9329	.3531	-.4377	1.0000	
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)	(124)		
0 685.52 INDIR	.6569	.5464	.9964	.8383	.5469	[illegible]	.3217	.5637	.9919	.2063	.3954	1.0000
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	
0 698.65 ST. C	.6777	-.3607	.4320	.8535	-.3607	.4716	.9822	-.2397	.4671	.7505	-.5332	.504
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124
0 699.66 NON-P	.0597	.9751	.5349	.2950	.9751	.5026	-.4628	.9778	.3275	[illegible]	.0988	.472
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124
0 700.67 INDIR	.6568	.5464	.9964	.8383	.5464	.9900	.3217	.5637	.9919	.2063	.3954	[illegible]
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124
0 713.80 ST. C	.6344	-.1415	.6907	.3457	-.1415	.6522	.6935	.0860	.7052	.6912	-.2276	.729
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124
0 714.81 NON-P	.1529	.9537	.5207	.3704	.9537	.5603	-.3639	.8713	.4225	-.3970	.9560	.474
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124
0 715.82 INDIR	.7075	.5159	.9817	.8920	.5159	.9966	.4192	.5456	.9565	.3103	.3521	.993
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124
0 728.95 ST. C	.4991	-.3811	-.0744	.5337	-.3811	.0247	.9156	-.2935	-.1316	.8972	-.5116	[illegible]
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124
0 729.96 NON-P	.0442	.9750	.5359	.2203	.9750	.5246	-.5273	.9164	.4513	-.4813	.9401	.473
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124
0 730.97 INDIR	.9422	.5804	.9855	.7234	.5804	.9431	.1627	.6124	.9788	.1766	.4466	.474
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124
0 743.110 ST.	-.6310	-.5692	-.5815	-.9740	-.5692	-.6395	-.5222	-.6605	-.4378	-.6114	-.4209	-.599
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124
0 744.111 NON-	.2739	.9662	.6629	.6324	.9662	.6519	-.1924	.9266	.5376	-.1521	.9472	.619
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124
0 745.112 INDI	.3774	.5954	.9272	.5316	.5954	.8611	-.1639	.5934	.9437	-.1254	.5115	.999
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124
0 758.125 ST.	.7129	.2116	.7799	.8497	.2116	.9515	.3515	.7551	.8135	[illegible]	.2709	[illegible]
9	(124)	(124)	(124)	(113)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124
0 757.126 NON-	-.3269	.9429	.4265	-.2799	.9429	.4139	-.7675	.9722	.3871	[illegible]	[illegible]	[illegible]
9	(78)	(78)	(78)	(67)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)
0 760.127 INDI	.5967	.4487	.9117	.6645	.4487	.9675	.1526	.5049	.9115	.2226	.1171	[illegible]
9	(78)	(78)	(78)	(67)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)
0	639.	639.	640.	653.	654.	655.	668.	669.	670.	683.	684.	685.
9	5 % ST.	6 % NON	7 % INDI	20 ST. C	21 NON-P	22 INDIR	35 ST.CO	36 NON-P	37 INDIR	50 ST. C	51 NON-P	52 I

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TABLE C-4: (CONTINUED)

ORG. IV

	698. 65 ST. C	699. 66 NON-P	700. 67 INDIR	713. 80 ST. C	714. 81 NON-P	715. 82 INDIR	728. 95 ST. C	729. 96 NON-P	730. 97 INDIR	743. 110 ST.	744. 111 NON-	745. 112
698.65 ST. C	1.0000											
699.66 NON-P	.4556	1.0000										
	(124)											
700.67 INDIR	.5043	.4726	1.0000									
	(124)	(124)										
713.80 ST. C	.8379	-.0506	.7299	1.0000								
	(124)	(124)	(124)									
714.81 NON-P	-.3936	.8788	.4749	-.2053	1.0000							
	(124)	(124)	(124)	(124)								
715.82 INDIR	.5713	.4322	.9939	.7652	.4434	1.0000						
	(124)	(124)	(124)	(124)	(124)							
728.95 ST. C	.7124	-.4843	.0012	.3949	-.3631	.1163	1.0000					
	(124)	(124)	(124)	(124)	(124)	(124)						
729.96 NON-P	-.4914	.9627	.4735	-.1697	.9534	.4199	-.5633	1.0000				
	(124)	(124)	(124)	(124)	(124)	(124)	(124)					
730.97 INDIR	.3795	.5528	.9748	.7086	.4657	.9496	-.1724	.5819	1.0000			
	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124)				
743.110 ST.	-.3006	-.4957	-.5994	-.4838	-.?321	-.67??	-.5141	-.3746	-.5061	1.0000		
	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124)			
744.111 NON-	-.2102	.9583	.6199	.1595	.8571	[illegible]	-.2?93	.49??	.65??	-.7???	1.0000	
	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124)		
745.112 INDI	.1949	.5962	.8134	.57?9	.4972	.8454	-.?912	.6?1?	.9673	[illegible]	.6299	1.0000
	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	
758.125 ST.	.6934	.0428	.8181	.59??	.?832	.9340	.2792	.1515	.65?2	[illegible]	[illegible]	.576
	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124)	(124)
759.126 NON-	-.7942	.9523	.3339	-.3316	.9502	.2418	-.7073	.9943	.426?	-.?11?	.3383	.54?
	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)
760.127 INDI	.2653	.5212	.9309	.7569	.?986	.9581	.2135	.?835	.?96?	[illegible]	.?416	.?36
	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)

	758. 125 ST.	759. 126 NON-	760. 127 INDI
758.125 ST.	1.0000		
759.126 NON-	-.4684	1.0000	
	(78)		
760.127 INDI	.6472	.3465	1.0000
	(78)	(78)	

APPENDIX D

SMALLEST SPACE ANALYSES FOR PERFORMANCE MEASURES BY SITE

D1: Organization 1

D2: Organization 2

D3: Organization 3

D4: Organization 4

APPENDIX D1:- ORGANIZATION I

TVE

SSA TVE36

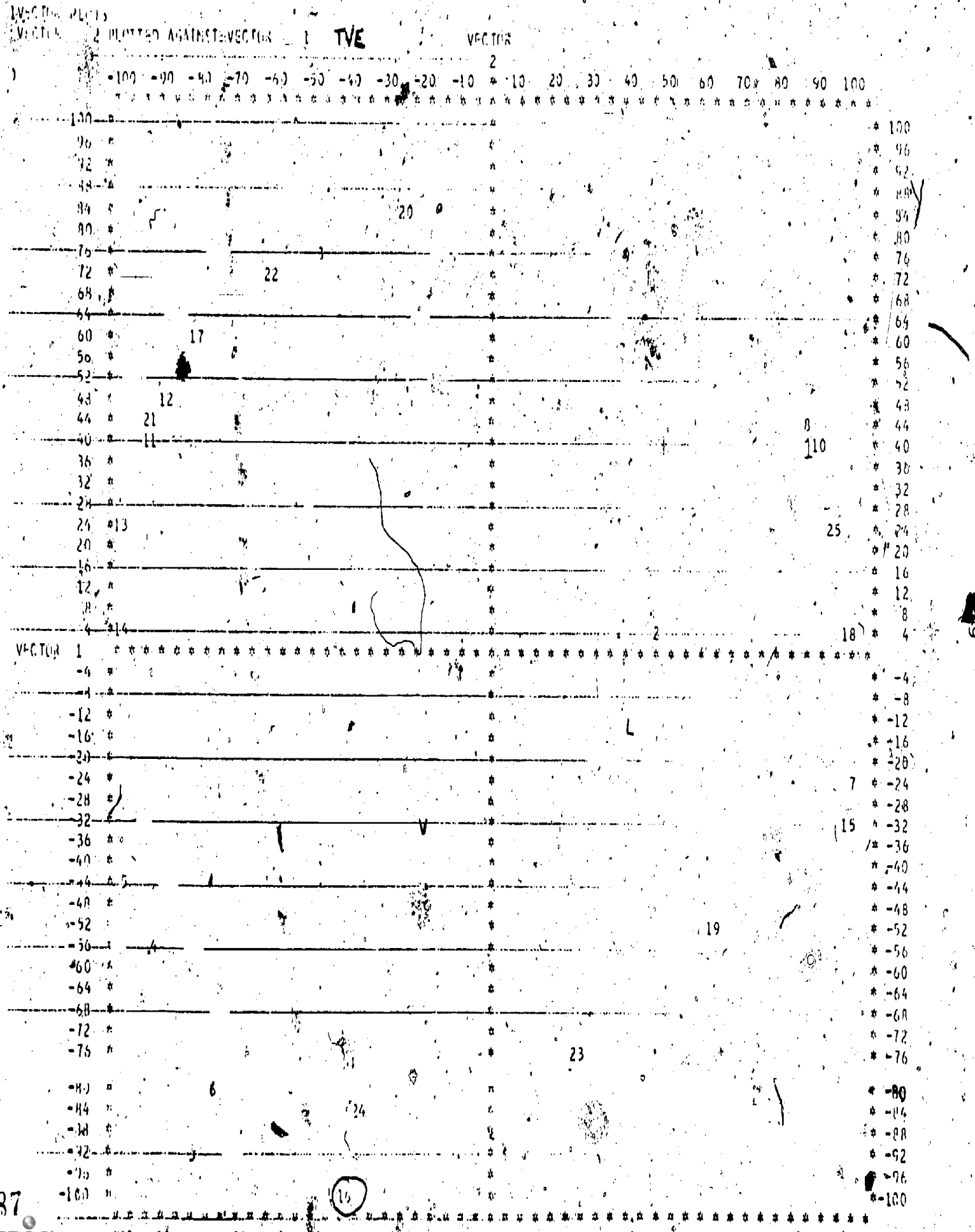
OGITTMAN-LINGOES' SMALLEST SPACE COORDINATES FOR M = .2 (SEMI-STRONG MONOTONICITY).

DIMENSION 1 2

VARIABLE	CENTRALITY INDEX		
1 T-6	99.214	87.000	40.837
2 T-5	52.282	46.833	1.133
3 T-4	81.305	-44.523	75.887
4 T-3	102.877	-88.577	-55.910
5 T-2	111.023	-94.509	-42.946
6 T-1	107.132	-70.163	-30.810
7 TO	109.257	100.000	-24.455
8 T+1	98.795	85.899	42.421
9 T+2	83.970	39.343	75.641
10 T+3	79.870	89.316	36.401
11 T+4	84.879	-87.447	39.565
12 T+5	87.984	-82.991	45.933
13 T+6	91.519	-95.078	22.497
14 T+7	94.674	-100.000	3.049
15 T+8	110.085	99.038	-30.263
16 T+9	107.126	-36.630	-100.000
17 T+10	87.815	-74.696	58.406
18 T+11	105.117	99.732	1.379
19 T+12	88.809	63.960	-51.114
20 T+13	79.915	-17.248	43.571
21 T+14	89.063	-86.57[illegible]	41.247
22 T+15	83.426	-55.46[illegible]	71.254
23 T+16	84.132	26.41[illegible]	-75.493
24 T+17	91.919	-30.34[illegible]	-83.905
25 T+18	99.867	93.246	23.551

OGITTMAN-LINGOES' COEFFICIENT OF ALIENATION = 0.12747 IN 19 ITERATIONS.

KRUSKAL'S STRESS = 0.11484


VECTOR 2 PLOTTED AGAINST VECTOR 1 TVE
VECTOR 2
-100 -90 -80 -70 -60 -50 -40 -30 -20 -10 10 20 30 40 50 60 70 80 90 100
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8
4
VECTOR 1
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-16
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-24
-28
-32
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-44
-48
-52
-56
-60
-64
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APPENDIX D1: (CONTINUED)

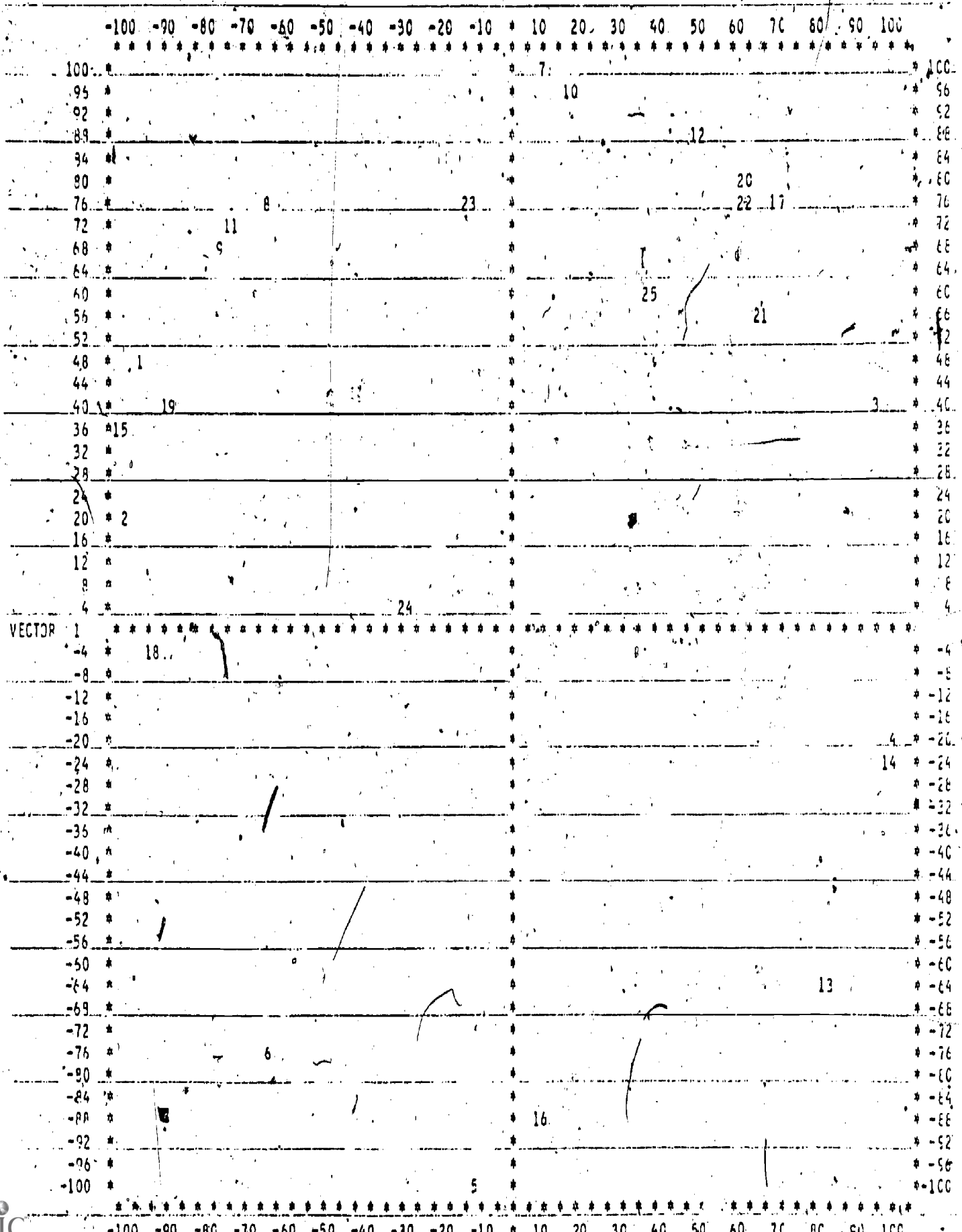
DLC
SSA DLC84

GUTTMAN-LINGOES SMALLEST-SPACE COORDINATES FOR M = 2 (SEMI-STRONG MONOTONICITY)

DIMENSION			1	2
VARIABLE		CENTRALITY INDEX		
1	-6m	92.244	-90.341	44.393
2	-5m	100.884	-100.000	19.051
3	-4m	95.191	95.333	36.079
4	-3m	110.685	100.000	-20.228
5	-2m	128.374	-6.321	-100.000
6	-1m	121.157	-59.945	-76.825
7	To	69.623	10.711	97.060
8	+1m	74.890	-58.486	74.376
9	+2m	80.700	-71.706	64.134
10	+3m	69.412	17.134	98.576
11	+4m	78.444	-66.264	69.427
12	+5m	76.817	48.944	87.785
13	+6m	121.517	80.837	-62.950
14	+7m	110.844	99.718	-21.162
15	+8m	96.067	-95.425	33.965
16	+9m	114.883	8.786	-86.388
17	+10m	84.853	70.659	75.874
18	+11m	93.728	-87.371	-4.501
19	+12m	82.737	-81.724	37.665
20	+13m	78.196	60.839	77.894
21	+14m	71.699	67.156	54.530
22	+15m	78.525	63.550	74.959
23	+16m	46.948	-7.583	74.447
24	+17m	35.749	-24.248	72.366
25	+18m	47.170	37.594	57.293

GUTTMAN-LINGOES' COEFFICIENT OF ALIENATION = 0.10920 IN 5 ITERATIONS.
KRUSKAL'S STRESS = 0.09585

VECTOR PLOTS
VECTOR 2 PLOTTED AGAINST VECTOR 1 DLC VECTOR 2



APPENDIX DT: (CONTINUED)

ABS
SSA ABS84

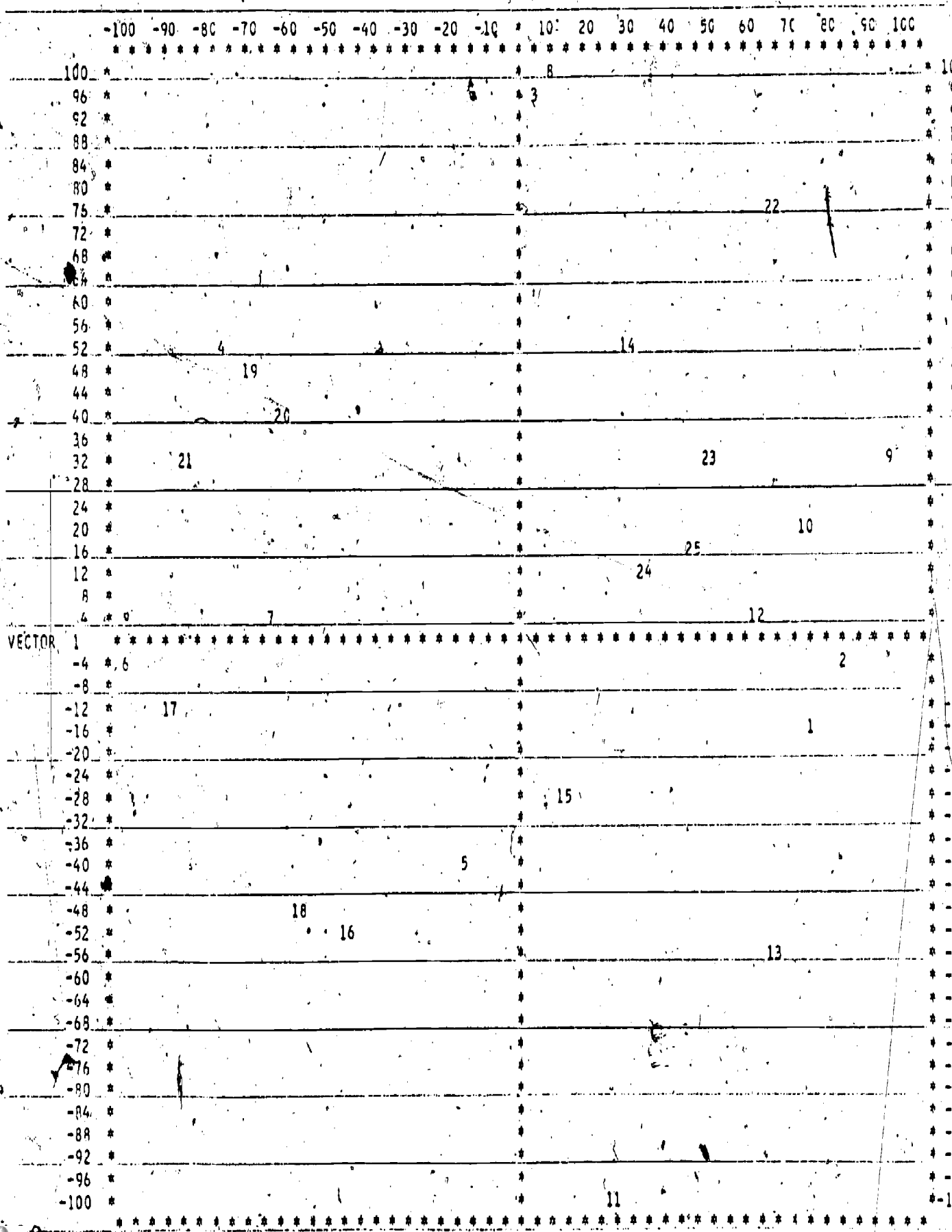
GUTTMAN-LINGOES SMALLEST SPACE COORDINATES FOR M = 3 (SEMI-STRONG MONOTONICITY).

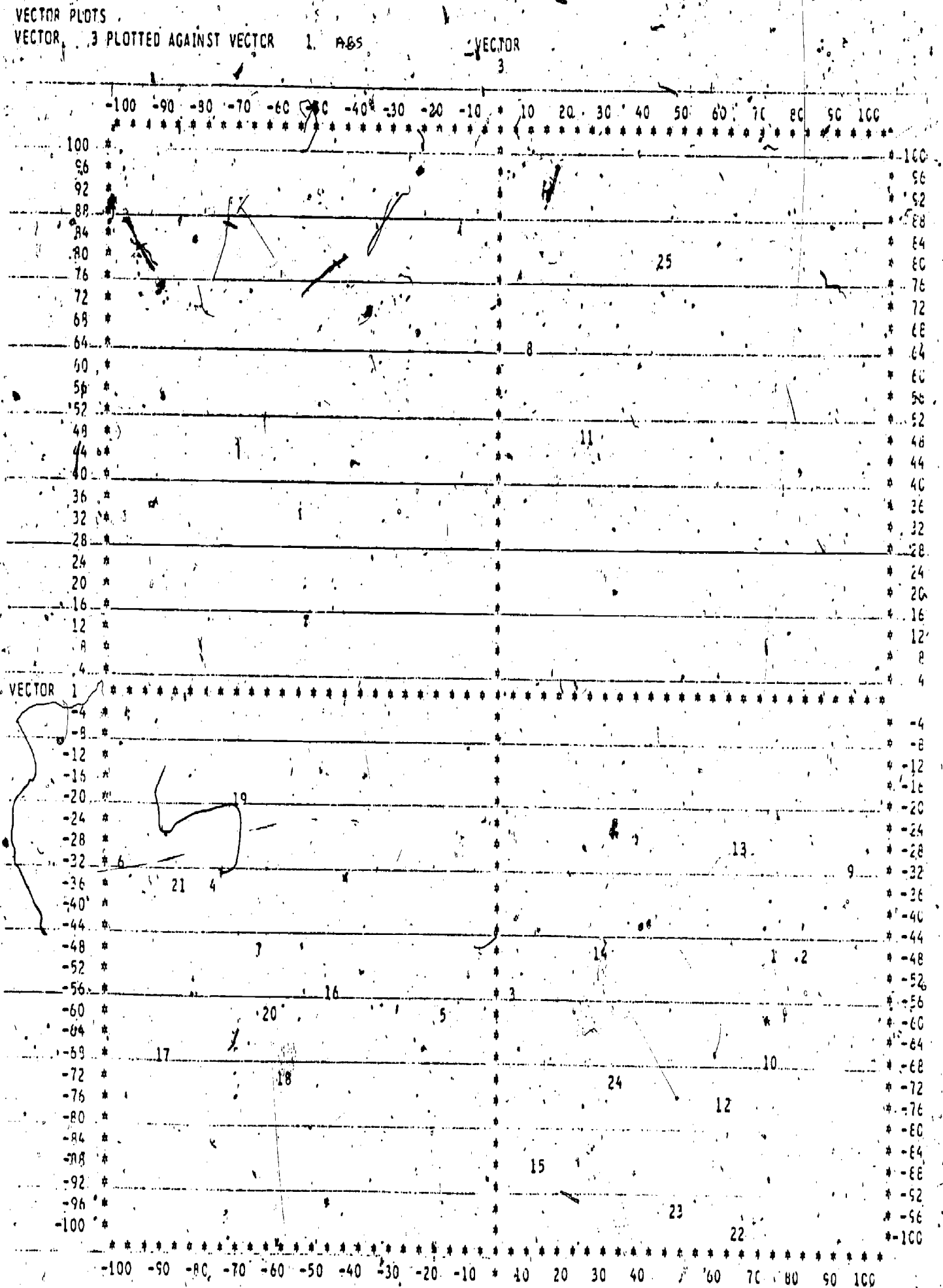
DIMENSION	CENTRALITY INDEX	1	2	3
VARIABLE				
1	71.978	72.807	-13.307	-48.666
2	77.760	81.746	-1.621	-45.238
3	83.765	5.248	92.123	-55.862
4	86.605	-70.734	51.164	-34.975
5	55.434	-9.288	-40.768	-60.777
6	106.017	-100.000	-1.062	-30.508
7	64.023	-58.600	3.624	-48.393
8	137.190	10.021	100.000	60.823
9	91.811	94.067	28.091	-31.052
10	74.156	74.265	17.559	-66.945
11	142.818	26.660	-100.000	46.924
12	65.271	61.428	-0.568	-73.092
13	89.163	64.580	-55.379	-28.955
14	47.233	28.905	49.608	-48.682
15	57.500	13.772	-26.625	-86.000
16	77.192	-19.796	-52.531	-56.544
17	91.648	-81.045	-11.639	-66.137
18	84.423	-50.161	-46.744	-72.789
19	81.420	-63.380	47.859	-19.735
20	69.506	-56.987	36.574	-59.514
21	87.012	-79.655	29.431	-36.404
22	105.811	65.117	73.479	-100.000
23	74.298	50.352	31.397	-56.838
24	40.106	32.779	10.366	-76.911
25	125.915	46.632	15.824	76.465

GUTTMAN-LINGOES' COEFFICIENT OF ALIENATION = 0.07651 IN 19 ITERATIONS.

KRUSKAL'S STRESS = 0.06789

VECTOR PLOTS
VECTOR 2 PLOTTED AGAINST VECTOR 1 ABS VECTOR 2




VECTOR PLOTS
VECTOR 3 PLOTTED AGAINST VECTOR 1. ABS
VECTOR 3
VECTOR 1
-100 -90 -80 -70 -60 -50 -40 -30 -20 -10 * 10 20 30 40 50 60 70 80 90 100
100 96 92 88 84 80 76 72 68 64 60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
-4 -8 -12 -16 -20 -24 -28 -32 -36 -40 -44 -48 -52 -56 -60 -64 -68 -72 -76 -80 -84 -88 -92 -96 -100
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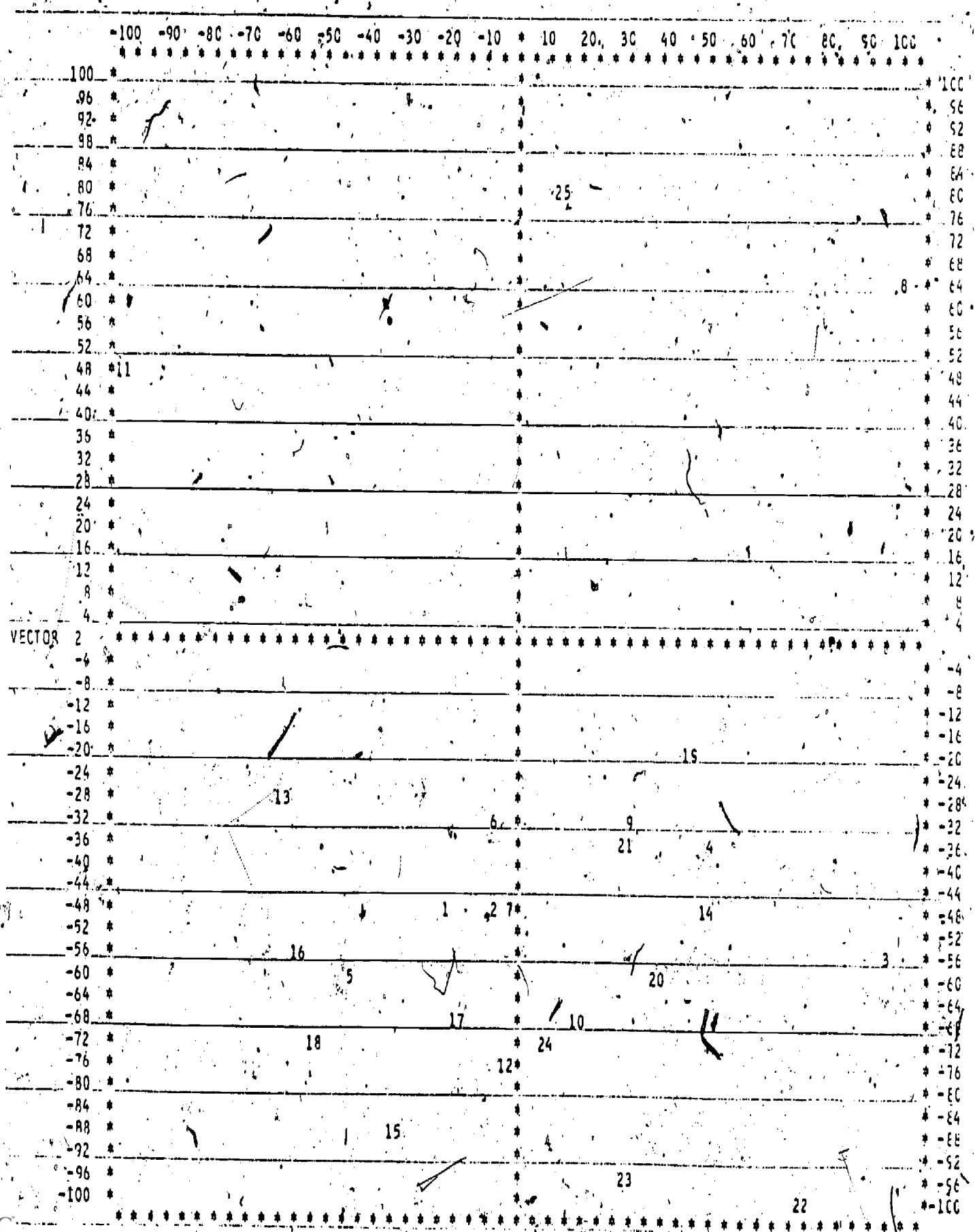
VECTOR PLOTS
VECTOR 3 PLOTTED AGAINST VECTOR 2, AGS



APPENDIX D2: ORGANIZATION II

TVE

SSA - ORG II Plant 1 TVE

OBLIQUE ROTATION OF SMALLEST SPACE COORDINATES FOR = 1 (SEMI-STRONG MONOTONICITY).

CRITERION 1

VARIABLE		
1	-4m	
2	-8m	
3	-7m	
4	-6m	
5	-2m	2.0272
6	TO	19.1552
7	+1m	
8	+2m	
9	+3m	
10	+4m	
11	+5m	
12	+6m	
13	+7m	
14	+8m	

OBLIQUE MAIN-LINGUISTIC COEFFICIENT OF ALIENATION = 0.05789 IN 30 ITERATIONS.

KRUSKAL'S STRESS = 0.30287

APPENDIX D2: (CONTINUED)

TVE

SSA-841 ORG II Plant 2 TVE

GUTTMAN-LINGOES' SMALLEST SPACE COORDINATES FOR M = 2 (SEMI-STRONG MONOTONICITY).

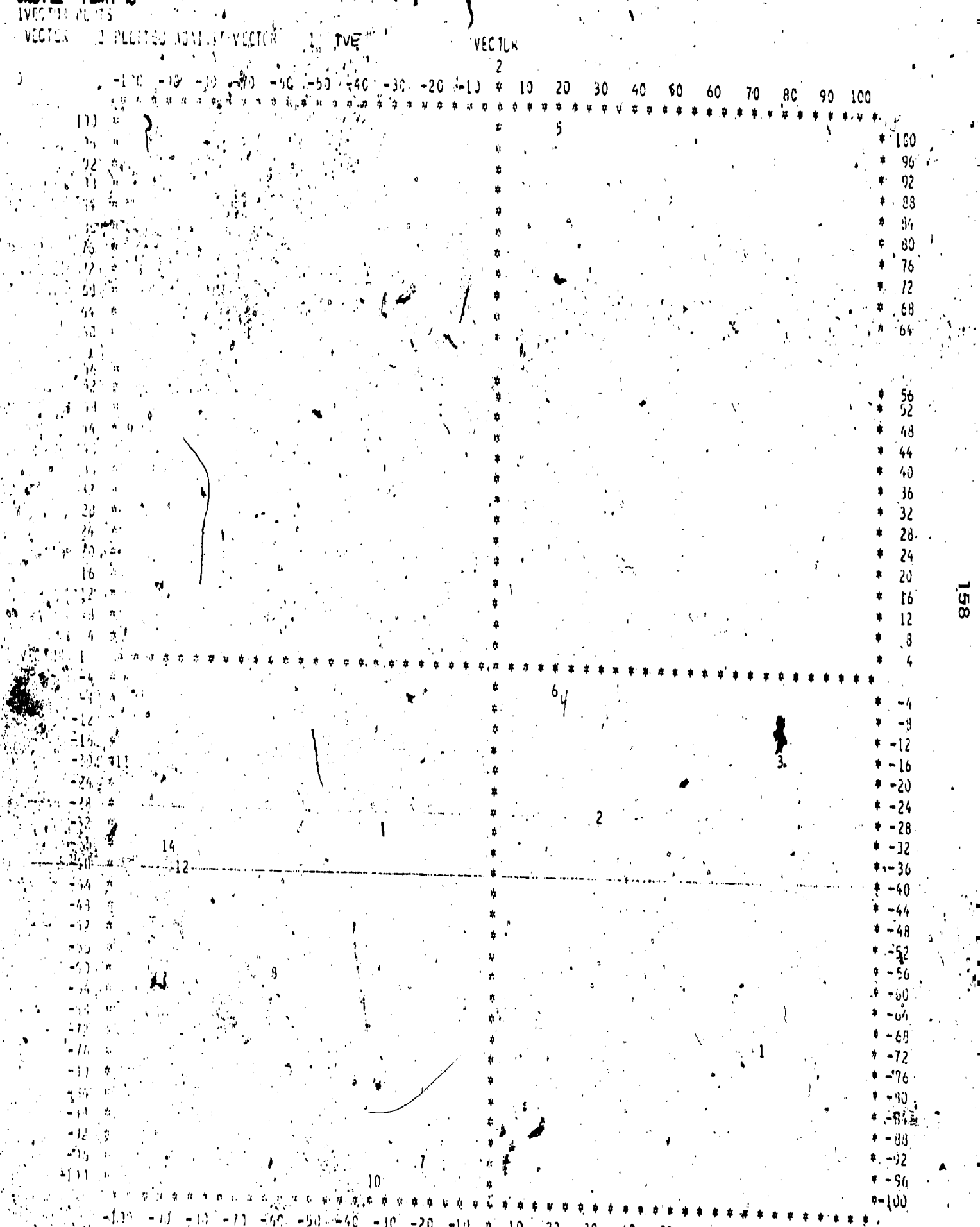
DIMENSION

VARIABLE	CENTRALITY INDEX	1	2
1 -9m	[illegible]	74.552	-72.213
2 -8m	[illegible]	[illegible]	[illegible]
3 -7m	[illegible]	[illegible]	[illegible]
4 -6m	[illegible]	[illegible]	[illegible]
5 -2m	[illegible]	[illegible]	100.000
6 TO	[illegible]	[illegible]	-1.296
7 +1m	[illegible]	[illegible]	[illegible]
8 +2m	[illegible]	[illegible]	-51.801
9 +3m	[illegible]	-100.000	[illegible]
10 +4m	[illegible]	-25.570	-100.000
11 +5m	[illegible]	[illegible]	[illegible]
12 +6m	[illegible]	[illegible]	[illegible]
13 +7m	[illegible]	[illegible]	[illegible]
14 +8m	[illegible]	[illegible]	[illegible]

GUTTMAN-LINGOES' COEFFICIENT OF ALIENATION = 0.01624 IN 13 ITERATIONS.

KRUSKAL'S STRESS = [illegible]

ORSA II Plant 2



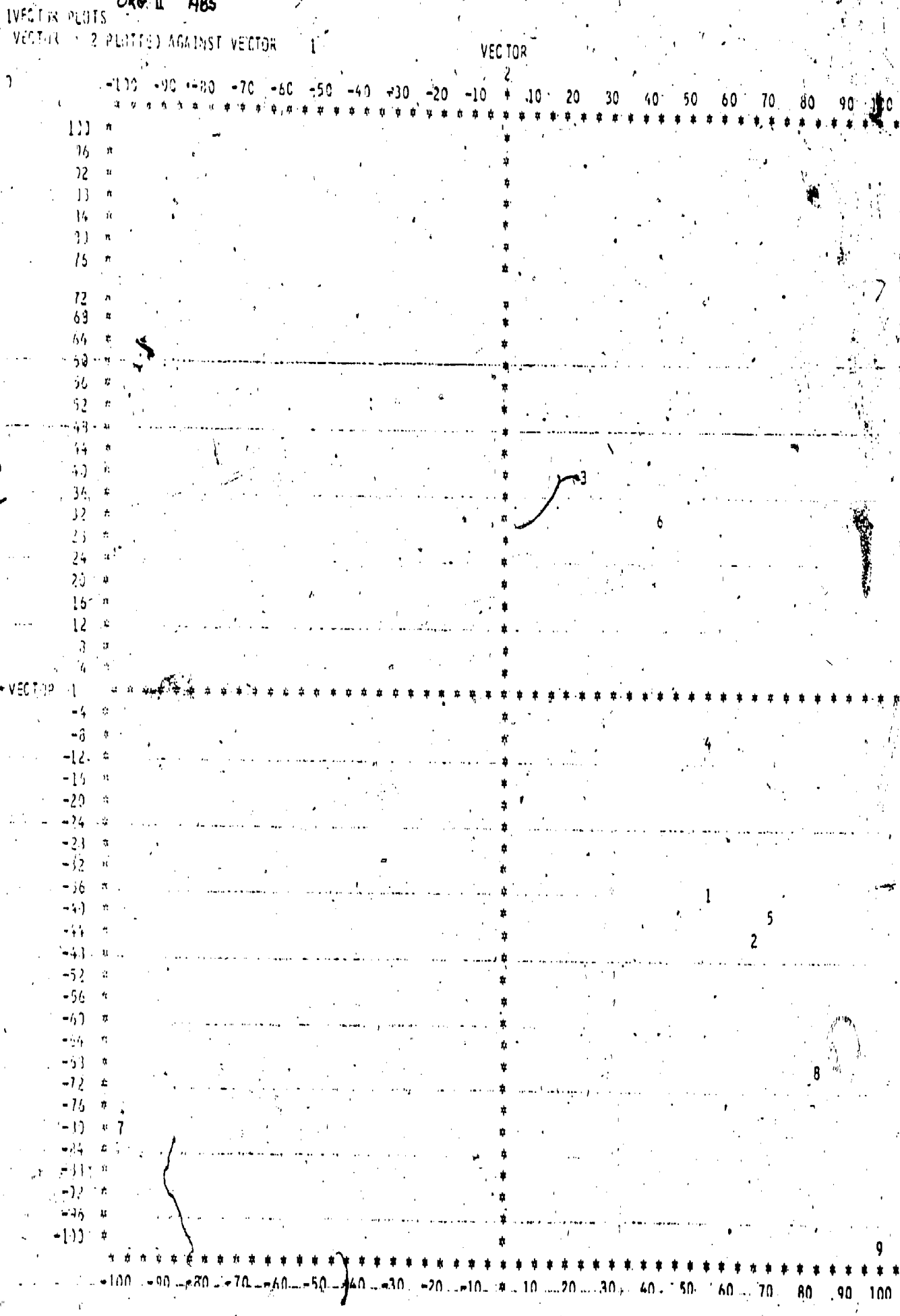
APPENDIX D2: (CONTINUED)

SSA ABS ORG. II Plants 1-4
GUTTMAN-LINGOES' SMALLEST SPACE COORDINATES FOR M = 3 (SEMI-STRONG MONOTONICITY).

DIMENSION	CENTRALITY INDEX	1	2	3
1 9/69	54.693	54.698	-33.788	24.588
2 10/69	31.102	57.636	-44.416	-12.249
3 11/69	72.599	23.183	38.378	-1.999
4 12/69	36.402	51.189	-6.362	-6.020
5 1/70	81.285	70.171	-38.740	-44.369
6 2/70	74.197	42.681	28.156	-100.000
7 3/70	151.162	-100.000	-79.846	-36.364
8 4/70	69.329	81.741	-65.768	-31.650
9 5/70	89.935	100.000	-100.000	-51.751

GUTTMAN-LINGOES' COEFFICIENT OF ALIENATION = 0.04789 IN 25 ITERATIONS.
KRUSKAL'S STRESS = 0.04912

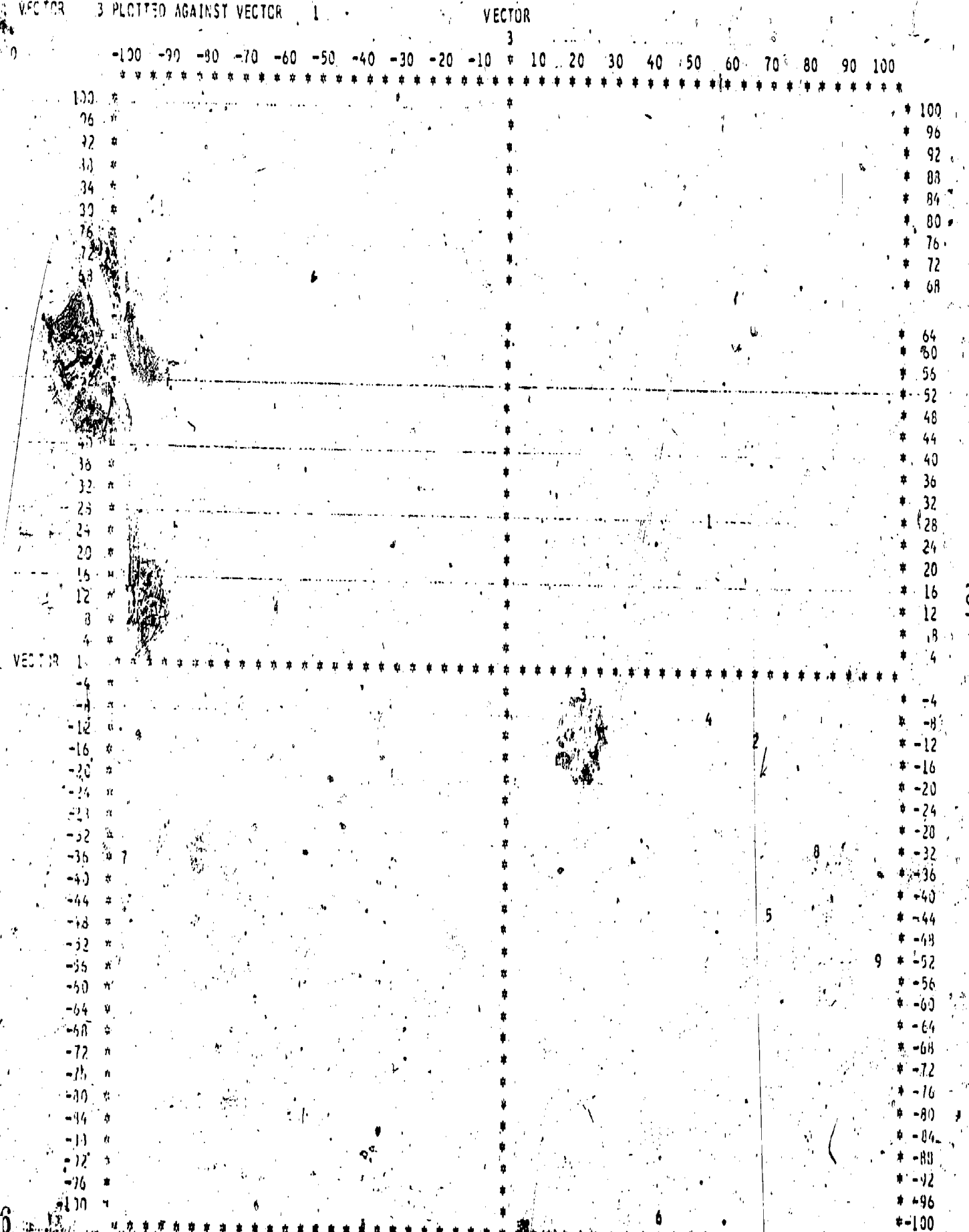
ORG II ABS


VECTOR PLOTS
VECTOR 2 PLOTTED AGAINST VECTOR 1
VECTOR 2
VECTOR 1
-100 -90 -80 -70 -60 -50 -40 -30 -20 -10 10 20 30 40 50 60 70 80 90 100

ORG II

VECTOR PLOTS AES

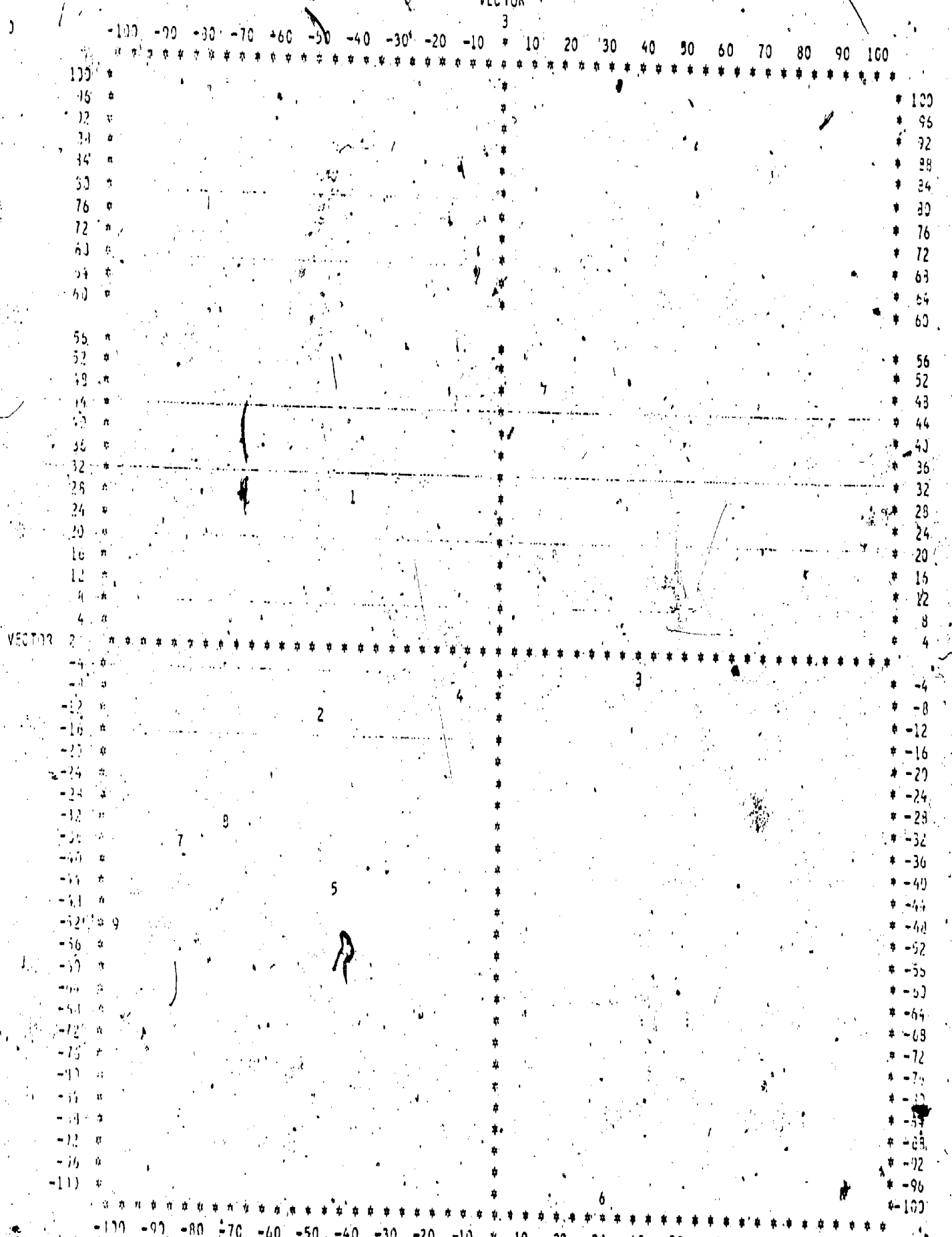
VECTOR 3 PLOTTED AGAINST VECTOR 1



ARG II.

LVEC FOR PLOTS ABS

VECTOR 3 PLOTTED AGAINST VECTOR 2



APPENDIX D3: ORGANIZATION III

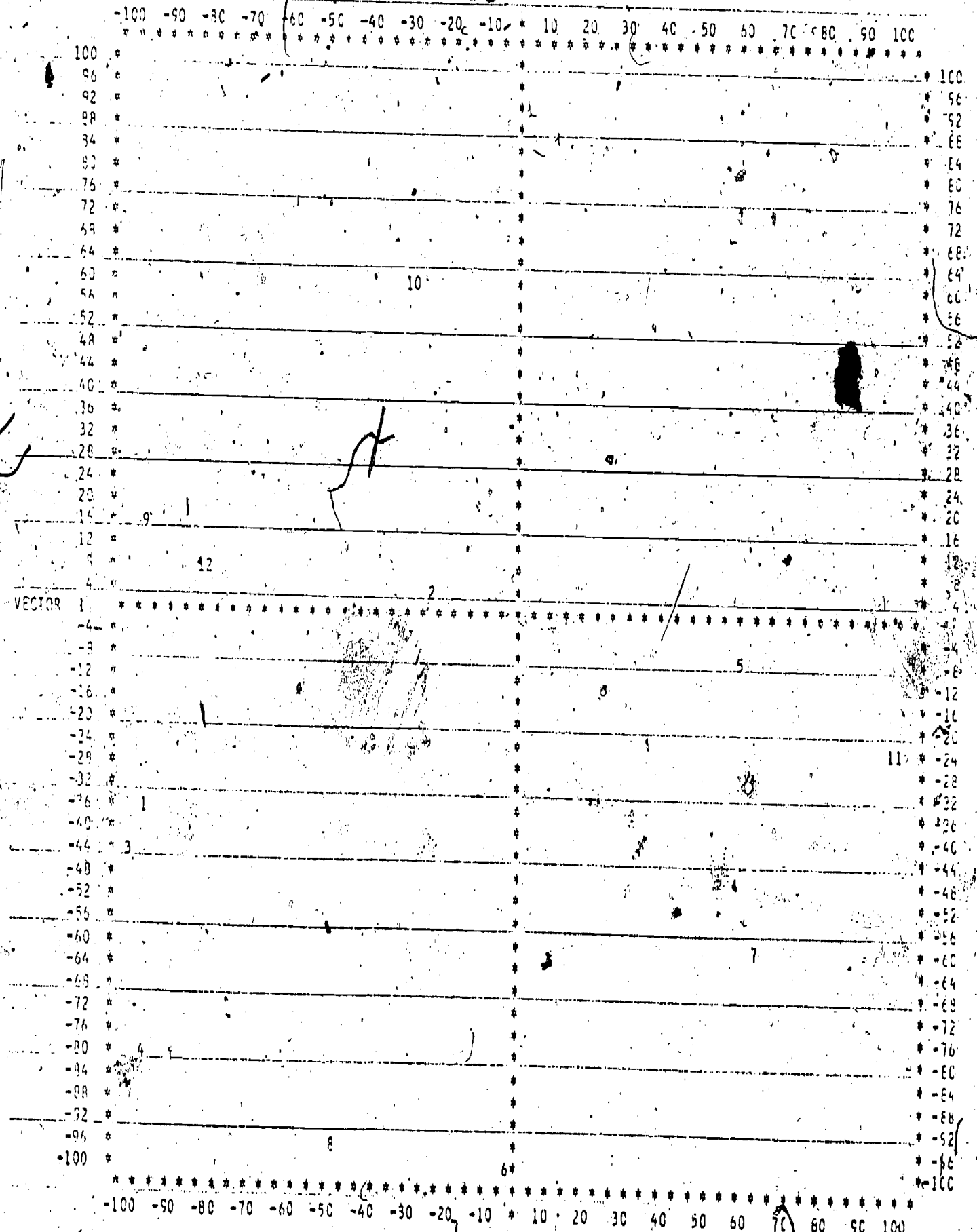
SSA ABSIO

GUTTMAN-LINGOES' SMALLEST SPACE COORDINATES FOR M = 2 (SEMI-STRONG MONOTONICITY)

DIMENSION		1	2
VARIABLE	CENTRALITY INDEX		
1	64.213	-80.665	-35.300
2	33.335	-20.231	3.317
3	74.329	-100.000	-41.852
4	81.559	-92.417	-77.715
5	86.190	-86.485	-6.907
6	75.500	-0.026	-100.000
7	92.105	60.797	-58.073
8	67.157	-44.295	-94.196
9	78.513	-91.932	14.350
10	87.221	-21.866	57.706
11	126.963	100.000	-21.607
12	62.111	-76.523	7.740

GUTTMAN-LINGOES' COEFFICIENT OF ALIENATION = 0.12937 IN 11 ITERATIONS.
KRUSKAL'S STRESS = 0.10356

ORG. III
VECTOR PLOTS
VECTOR 2 PLOTTED AGAINST VECTOR 1 ABS



APPENDIX D3: (CONTINUED)

ORG III TVE
SSA OVRT10

GUTTMAN-LINGOES' SMALLEST SPACE COORDINATES FOR M = 2 (SEMI-STRONG MONOTONICITY).

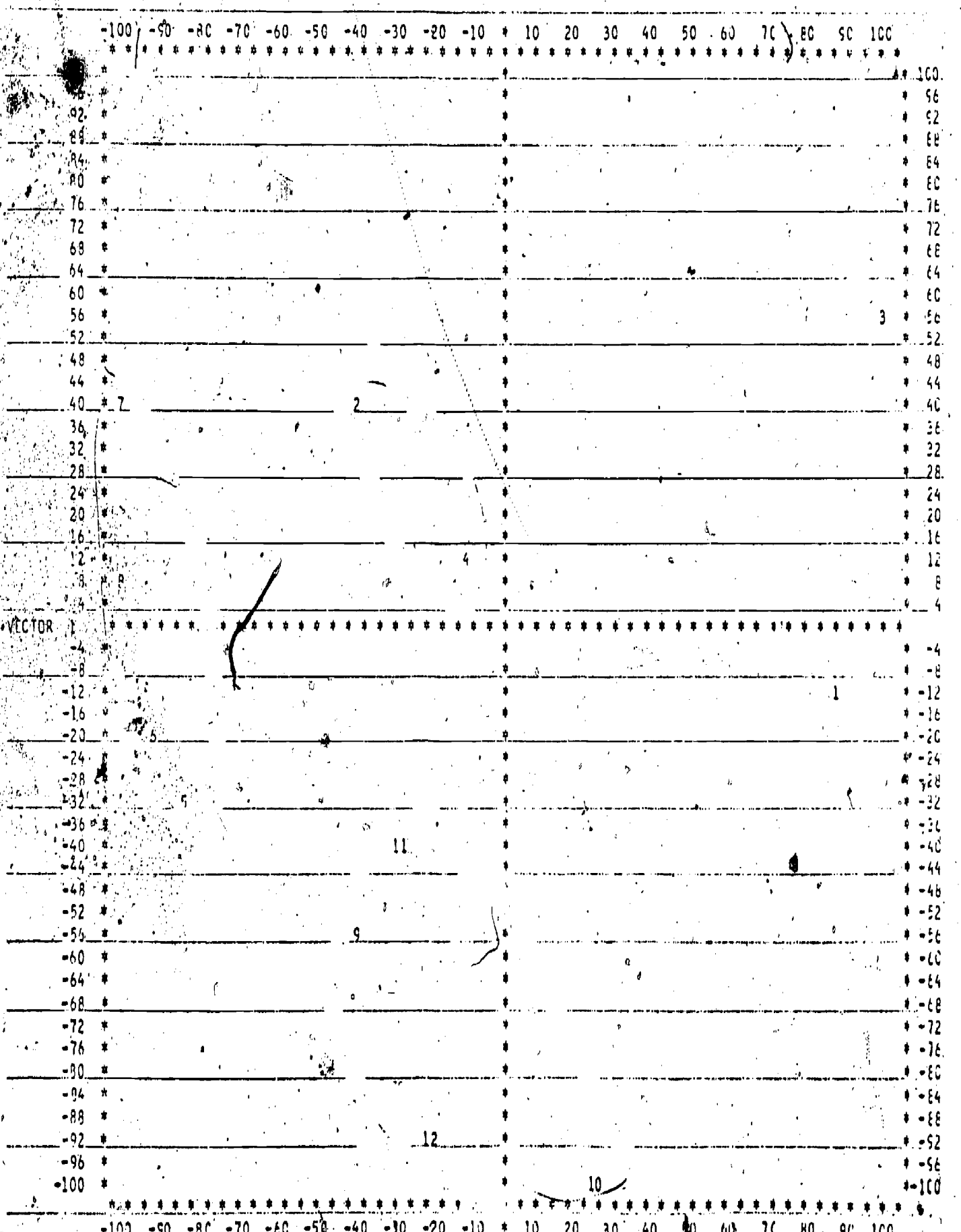
DIMENSION		1	2
VARIABLE	CENTRALITY INDEX		
1	107.162	84.673	-12.661
2	55.527	-35.828	36.985
3	141.253	-100.000	53.601
4	29.774	-7.585	8.929
5	59.601	-80.323	-30.958
6	64.014	-86.327	-20.214
7	91.690	-94.655	39.560
8	80.776	-100.000	5.551
9	40.369	-36.147	-54.852
10	95.724	25.098	-100.000
11	21.735	-22.615	-38.629
12	73.487	-15.118	-90.019

GUTTMAN-LINGOES' COEFFICIENT OF ALIENATION = 0.13077 IN 36 ITERATIONS.
KRUSKAL'S STRESS = 0.09965

ORG. III

VECTOR PLOTS

VECTOR 2 PLOTTED AGAINST VECTOR 1 TYE



APPENDIX D4: ORGANIZATION IV

ORG III
SSA COST26 TVE
GUTTMAN-LINGOES' SMALLEST SPACE COORDINATES FOR M = 1 (SEMI-STRONG MONOTONICITY).
DIMENSION 1

VARIABLE	CENTRALITY INDEX	
1	22.363	100.000
2	22.319	99.957
3	22.290	99.837
4	22.247	99.874
5	22.124	99.761
6	22.173	99.726
7	22.213	99.856
8	177.637	-100.000
9	21.962	99.600

GUTTMAN-LINGOES' COEFFICIENT OF ALIENATION = 0.00104 IN 12 ITERATIONS.
KRUSKAL'S STRESS = 0.00104

SSA COST26 DLC 1
GUTTMAN-LINGOES' SMALLEST SPACE COORDINATES FOR M = 2 (SEMI-STRONG MONOTONICITY).
DIMENSION 1 2

VARIABLE	CENTRALITY INDEX		
1	29.588	5.648	-21.353
2	30.234	5.070	-20.242
3	92.367	82.033	-43.532
4	62.006	-52.015	-50.996
5	58.791	23.366	-100.000
6	119.164	-97.255	33.970
7	67.071	-65.304	-84.639
8	110.529	100.000	-34.250
9	102.342	-100.000	-95.600

GUTTMAN-LINGOES' COEFFICIENT OF ALIENATION = 0.00134 IN 16 ITERATIONS.
KRUSKAL'S STRESS = 0.00073

SSA INDCOST26 DLC 2
GUTTMAN-LINGOES' SMALLEST SPACE COORDINATES FOR M = 1 (SEMI-STRONG MONOTONICITY).
DIMENSION 1

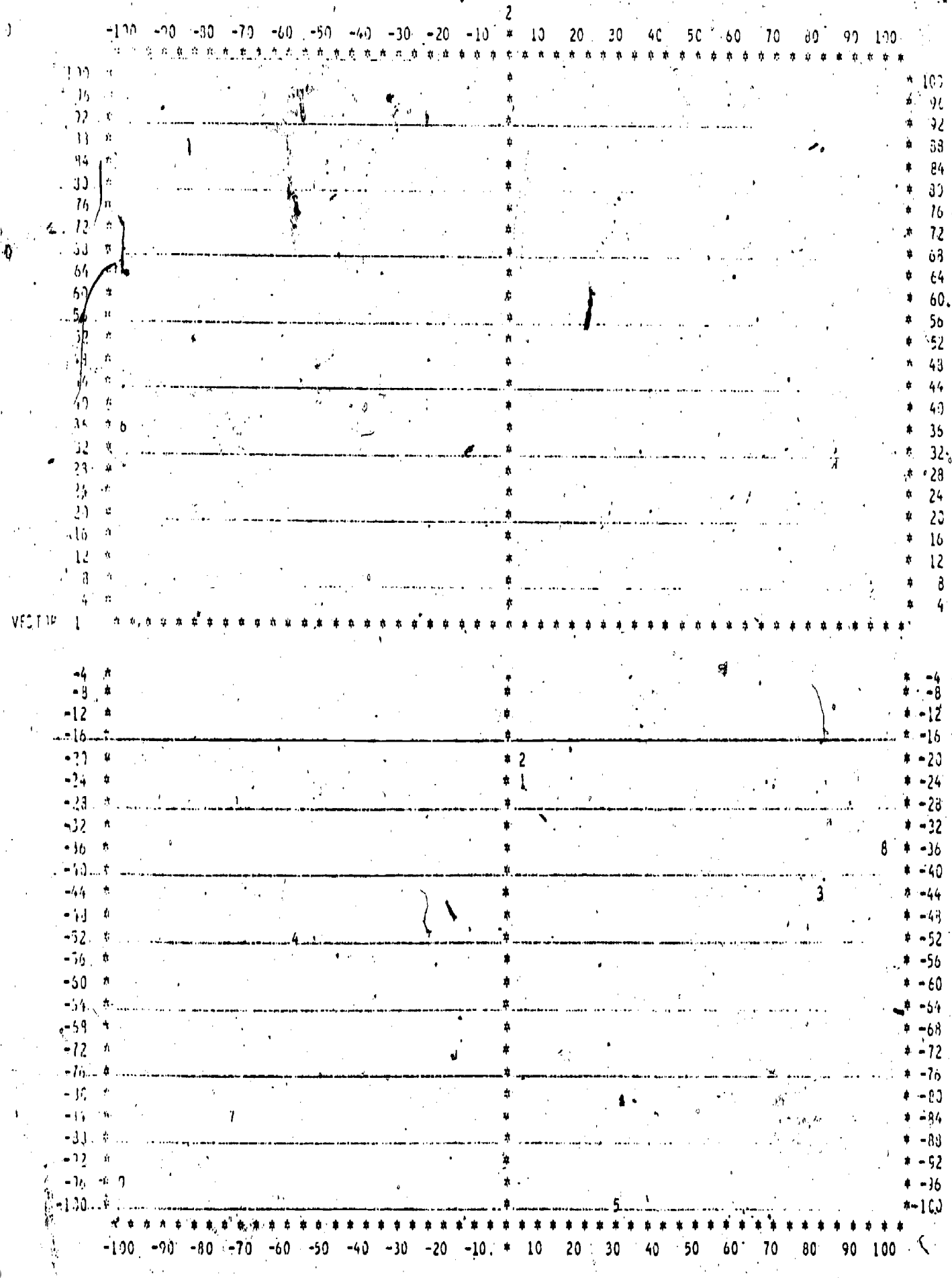
VARIABLE	CENTRALITY INDEX	
1	13.274	45.737
2	61.132	93.595
3	10.942	12.521
4	32.456	64.919
5	36.235	63.697
6	67.537	100.000
7	46.765	-14.302
8	132.464	-100.000
9	11.325	20.938

GUTTMAN-LINGOES' COEFFICIENT OF ALIENATION = 0.12492 IN 12 ITERATIONS.
KRUSKAL'S STRESS = 0.09727

ORG II

LVECT R PLOTS

VECTOR 2 PLOTTED AGAINST VECTOR 1 DLC 1 VECTOR



APPENDIX E

PERFORMANCE PERIODS:
DESCRIPTIVE STATISTICS BY SITE

E1: Organization I

E2: Organization II

E3: Organization III

E4: Organization IV

E5: Organization V

APPENDIX E1: ORGANIZATION I

DESCRIPTIVE MEASURES CASES=SITE ORG. I

VARIABLE	N	MINIMUM	MAXIMUM	MEAN	STD DEV
2.SITE NO.	69	84.000	84.000	84.000	
3001.TVE1A	19	518.00	3186.0	973.00	984.86 X
3002.TVE1B	19	476.00	716.00	541.26	93.486
3003.TVE1C	19	474.33	525.33	489.51	22.245
3004.TVE1D	19	518.25	615.50	577.43	43.333
3005.TVE1E	19	450.25	687.75	541.76	96.497
3006.TVE1F	19	500.00	678.00	615.53	73.675
3007.TVE1G	25	92.000	125.00	109.70	14.064
3008.TVE1H	25	103.00	144.00	116.56	14.703
3009.TVE1I	25	113.00	145.50	124.90	12.584
3010.TVE1J	25	104.33	185.00	122.03	32.154
3011.TVE1K	25	90.000	125.00	101.82	9.0472
3012.TVE1L	25	100.00	111.00	107.36	3.7625
3013.TVE1M	25	105.00	111.00	107.12	2.2789
3014.DLC1A	19	82.550	94.500	88.882	6.0850
3015.DLC1B	19	77.750	121.00	92.842	17.861
3016.DLC1C	19	66.250	90.000	80.526	8.4113
3017.DLC1D	19	85.167	106.83	99.553	8.9133
3018.DLC1E	19	83.000	111.50	96.184	14.288
3019.DLC1F	19	110.00	138.00	125.26	13.812
3020.DLC1G	25	92.000	136.00	114.68	18.887
3021.DLC1H	25	105.00	154.00	117.70	18.609
3022.DLC1I	25	108.50	149.00	120.44	15.294
3023.DLC1J	25	105.67	244.33	140.84	53.704
3024.DLC1K	25	96.667	128.67	106.13	10.353
3027.ABSB	26	.40000	7.2500	3.2808	1.8831
3028.ABSC	26	2.3400	22.040	4.8423	3.7556
3029.ABSD	26	.90000	3.7000	2.6846	.93667
3030.ABSE	26	.80000	6.8000	3.9481	1.4893
3031.ABSF	26	1.0000	11.000	4.6577	3.1389
3032.ABSG	26	1.9500	7.1750	3.4096	1.4950
3033.ABSH	42	2.8000	21.017	5.6341	3.1389
3034.ABSI	42	1.2000	6.3000	3.8278	1.5826
3035.ABSJ	42	0.	3.7000	2.0262	1.1359

APPENDIX E2: ORGANIZATION II

~~DESCRIPTIVE MEASURES <1>~~ ORG. II Plant 1

VARIABLE	N	MINIMUM	MAXIMUM	MEAN	STD DEV
2.SITE NO.	[illegible]	40.000	40.000	40.000	
~~3002.TVE1A~~	~~24~~	~~18.475~~	~~20.075~~	~~19.[illegible]~~	~~.7[illegible]511~~
3003.TVE1C	24	20.600	25.700	23.050	2.3063
3004.TVE1D	24	19.067	21.300	19.688	.66805
~~3005.TVE1E~~	~~24~~	~~19.067~~	~~21.300~~	~~19.688~~	~~.66805~~
3028.A99C	0				
3029.A99D	24	4.5000	6.3167	5.3062	.57297
~~3030.A99E~~	~~0~~				
3031.A99F	24	3.7000	5.3000	4.5333	.48871
3032.A99G	24	4.0000	6.0500	5.2702	.50721

DESCRIPTIVE MEASURES <2> ORG. II Plant 2

VARIABLE	N	MINIMUM	MAXIMUM	MEAN	STD DEV
2.SITE NO.	155	41.000	41.000	41.000	
3002.TVE1A	47	21.175	26.050	23.879	1.5671
3003.TVE1C	47	21.000	25.000	24.037	1.0065
3004.TVE1D	47	21.575	30.325	25.372	2.4010
3005.TVE1E	47	17.200	27.350	22.675	2.0000
3028.A99C	0				
3029.A99D	47	5.3167	10.733	7.3525	1.0002
3030.A99E	0				
3031.A99F	47	5.1000	10.300	6.7213	1.7375
3032.A99G	47	3.5500	11.400	7.8467	2.0505

DESCRIPTIVE MEASURES <3> ORG. II Plant 3

VARIABLE	N	MINIMUM	MAXIMUM	MEAN	STD DEV
2.SITE NO.	62	42.000	42.000	42.000	
3028.A99C	15	5.5500	11.717	8.5011	2.3082
~~3029.A99D~~	~~15~~	~~5.5500~~	~~11.717~~	~~8.5011~~	~~2.3082~~
3030.A99E	15	4.5000	10.300	7.1133	2.3387
3031.A99F	15	8.4500	14.500	10.967	2.7072
~~3032.A99G~~	~~0~~				

DESCRIPTIVE MEASURES <4> ORG. III Plant 4

VARIABLE	N	MINIMUM	MAXIMUM	MEAN	STD DEV
2.SITE NO.	215	43.000	43.000	43.000	
3028.A99C	32	5.0167	13.233	11.108	2.8628
3029.A99D	32	0.0000	38.400	17.404	10.006
3031.A99F	32	4.6500	17.750	10.714	3.4306

APPENDIX E3: ORGANIZATION III

ORG. III

DESCRIPTIVE MEASURES

VARIABLE	N	MINIMUM	MAXIMUM	MEAN	STD DEV
3003.TVE1C	322	3.5500	17.550	8.1469	4.0861
3004.TVE1D	322	3.1250	21.500	8.3486	6.1244
3005.TVE1E	322	3.1250	21.500	8.3486	6.1244
3009.TVE1P	327	1.5000	15.600	6.5138	5.0427
3026.ABSA	322	5.0000	16.100	11.134	3.1309
3027.ABSB	322	4.3000	10.900	7.0186	1.2475
3028.ABSC	322	6.0000	11.050	8.3307	2.0467
3030.ABSE	322	7.1500	16.000	12.802	2.7304
3031.ABSF	322	7.6000	17.000	10.798	1.7606
3032.ABSG	330	6.0000	15.500	12.093	2.2444
3033.ABSH	327	1.7500	10.100	8.1063	2.0542
3034.ABSI	327	5.7000	12.600	8.1914	2.3204
3035.ABSJ	327	4.7000	10.800	9.2054	1.9847

APPENDIX E4: ORGANIZATION IV

DESCRIPTIVE MEASURES STRAT=SITE NO.:26 CASES= ORG. IV

VARIABLE	N	MINIMUM	MAXIMUM	MEAN	STD DEV
3004.TVE1D	124	93.571	97.000	96.089	1.2209
3005.TVE1E	124	95.000	98.000	96.371	.85983
3006.TVE1F	124	93.000	98.000	95.476	2.0698
3017.DLC1D	124	.66667	7.1111	3.7256	1.6009
3053. DLC2D	124	0.0000	7.4499	2.9364	

APPENDIX E5: ORGANIZATION V

DESCRIPTIVE MEASURES <1> Regions 1 - 4

	VARIABLE		N	MINIMUM	MAXIMUM	MEAN	STD DEV	
D	2001.V2001	T+1,3	22	9.6100	15.850	11.182	1.6172	T
E	2002.V2002	T+4,6	22	9.4200	16.040	11.237	1.7952	V
F	2003.V2003	T+7,9	23	9.4800	16.230	11.268	1.7256	E
I	2004.V2004	T+10,12	25	9.3300	21.520	11.747	2.5954	1
J	2005.V2005	T+13,15	25	9.2000	22.220	11.884	2.6658	
K	2006.V2006	T+16,18	25	9.3300	21.800	11.990	2.5751	
L	2007.V2007	T+19,21	24	9.3300	21.110	11.691	2.3361	
D	2008.V2008	T+1,3	22	9.2700	14.390	11.048	1.0069	
E	2009.V2009	T+4,6	22	9.2400	14.790	11.332	1.0814	T
F	2010.V2010	T+7,9	23	8.9800	15.620	11.320	1.2908	V
I	2011.V2011	T+10,12	25	7.8500	16.510	11.245	1.6366	E
J	2012.V2012	T+13,15	25	7.7700	16.350	11.312	1.6093	2
K	2013.V2013	T+16,18	25	7.7300	16.950	11.171	1.7003	
L	2014.V2014	T+19,21	24	7.7300	16.610	11.218	1.5016	

DESCRIPTIVE MEASURES <2> Region 5

	VARIABLE		N	MINIMUM	MAXIMUM	MEAN	STD DEV	
	2001.V2001	T-9	9	9.3200	41.490	13.783	10.408	
A	2002.V2002	T-8,6	9	9.0500	39.550	13.549	9.7812	T
B	2003.V2003	T-5,3	9	9.3200	36.260	13.239	8.6679	V
C	2004.V2004	T-2,0	9	9.1900	36.710	13.341	8.8037	E
D	2005.V2005	T+1,3	9	9.3200	35.970	13.239	8.5512	1
E	2006.V2006	T+4,6	9	9.5900	31.940	12.816	7.1910	
F	2007.V2007	T+7,9	9	9.3200	32.530	12.857	7.4011	
	2008.V2008	T-9	9	7.5600	12.240	10.958	1.3650	
A	2009.V2009	T-8,6	9	7.9900	12.930	11.339	1.4037	T
B	2010.V2010	T-5,3	9	7.7900	13.340	11.530	1.5870	V
C	2011.V2011	T-2,0	9	7.5200	13.330	11.517	1.6714	E
D	2012.V2012	T+1,3	9	7.1200	13.320	11.494	1.8339	
E	2013.V2013	T+4,6	9	6.7600	13.330	11.413	1.9735	2
F	2014.V2014	T+7,9	9	7.4400	12.970	11.322	1.6477	

APPENDIX E5: (CONTINUED)

DESCRIPTIVE MEASURES <3> Regions 6+8

	VARIABLE		N	MINIMUM	MAXIMUM	MEAN	STD DEV	
	2001.V2001		19	9.7000	15.680	11.310	1.4548	
	2002.V2002		19	9.9500	15.510	11.519	1.3809	T
	2003.V2003	T-9	19	9.4700	15.060	11.691	1.3824	V
A	2004.V2004	T-8,6	19	9.6000	16.030	11.825	1.4524	E
B	2005.V2005	T-5,3	19	9.4700	16.370	11.828	1.6816	1
C	2006.V2006	T-2,0	19	9.4400	16.370	11.765	1.6996	
D	2007.V2007	T+1,3	19	9.3100	16.200	11.619	1.6924	
	2008.V2008		19	8.8700	13.890	10.615	1.2544	
	2009.V2009		19	9.1900	13.160	10.895	1.1297	T
	2010.V2010	T-9	19	9.2000	12.660	11.045	1.0589	V
	2011.V2011	T-8,6	19	9.0500	13.280	11.424	1.4309	E
	2012.V2012	T-5,3	19	8.9600	13.840	11.550	1.5569	2
C	2013.V2013	T-2,0	19	9.0300	13.900	11.777	1.6547	
D	2014.V2014	T+1,3	19	8.7300	14.290	11.926	1.5914	

DESCRIPTIVE MEASURES <3> Region 7

	VARIABLE		N	MINIMUM	MAXIMUM	MEAN	STD DEV	
	2001.V2001		9	9.7300	15.750	11.152	1.9179	T
	2002.V2002	T-9	9	10.300	14.750	11.110	1.5488	V
A	2003.V2003	T-8,6	9	9.1300	13.750	10.737	1.4559	E
B	2004.V2004	T-5,3	9	8.2300	13.250	10.269	1.5829	
C	2005.V2005	T-2,0	9	8.2300	12.370	10.141	1.2868	1
D	2006.V2006	T+1,3	9	8.6300	11.750	9.9933	.97157	
E	2007.V2007	T+4,6	10	8.8100	12.620	10.448	1.2215	
	2008.V2008		8	8.5100	15.550	11.324	2.0407	
	2009.V2009	T-9	9	9.1800	12.370	11.156	1.0686	T
A	2010.V2010	T-8,6	9	8.4000	12.670	10.597	1.5880	V
B	2011.V2011	T-5,3	9	8.2300	12.740	10.432	1.6775	E
C	2012.V2012	T-2,0	9	8.0300	12.480	10.411	1.7555	2
D	2013.V2013	T+1,3	9	7.2600	12.310	10.172	1.8216	
E	2014.V2014	T+4,6	10	7.4900	12.380	10.515	1.6391	

APPENDIX F

PERFORMANCE PERIODS:
INTERCORRELATIONS BY SITE

F1: Organization I

F2: Organization II

F3: Organization III

F4: Organization IV

F5: Organization V

MISSING DATA CORRELATION CASES=SITE ORG I

VARIABLE	A	B	C	D	E	F	G	H	I	J	K	L
3001.TVE1A	1.0000											
3002.TVE1B	-.1972 (19)	1.0000										
3003.TVE1C	-.3113 (19)	-.2890 (19)	1.0000									
3004.TVE1D	.4075 (19)	-.1327 (19)	-.9105 (19)	1.0000								
3005.TVE1E	-.4091 (19)	.7191 (19)	.4575 (19)	-.7842 (19)	1.0000							
3006.TVE1F	.4015 (19)	-.7535 (19)	-.4117 (19)	.7517 (19)	-.9987 (19)	1.0000						
3007.TVE1G	-.2594 (14)	-.5595 (14)	.7430 (14)	-.5199 (14)	-.0273 (14)	.0089 (14)	1.0000					
3008.TVE1H	-.2482 (14)	.9343 (14)	-.0102 (14)	-.4487 (14)	.9310 (14)	-.9483 (14)	-.3378 (25)	1.0000				
3009.TVE1I	.2480 (14)	-.4819 (14)	-.5945 (14)	.8702 (14)	-.9053 (14)	.8806 (14)	-.2038 (25)	-.7263 (25)	1.0000			
3010.TVE1J	-.2228 (14)	.9901 (14)	-.2261 (14)	-.2463 (14)	.8341 (14)	-.8616 (14)	-.5046 (25)	.9586 (25)	-.5004 (25)	1.0000		
3011.TVE1K	-.2416 (14)	-.2356 (14)	.0709 (14)	.0404 (14)	-.1863 (14)	.1936 (14)	.5640 (25)	-.4091 (25)	.4733 (25)	-.3124 (25)	1.0000	
3012.TVE1L	-.4998 (14)	-.5335 (14)	.5468 (14)	-.3198 (14)	-.1482 (14)	.1812 (14)	.3407 (25)	-.2087 (25)	-.4480 (25)	-.4518 (25)	-.5256 (25)	1.0000
3013.TVE1M	.4470 (14)	-.2413 (14)	-.6855 (14)	.8487 (14)	-.7282 (14)	.7033 (14)	-.6723 (25)	-.4697 (25)	.7574 (25)	-.2827 (25)	-.2151 (25)	-.1462 (25)

	A	B	C	D	E	F	G	H	I	J	K
3014.DLC1A	1.0000										
3015.DLC1B	-.9104 (19)	1.0000									
3016.DLC1C	.1139 (19)	-.5148 (19)	1.0000								
3017.DLC1D	.5299 (19)	-.1315 (19)	-.7822 (19)	1.0000							
3018.DLC1E	-.9997 (19)	.8996 (19)	-.0887 (19)	-.5513 (19)	1.0000						
3019.DLC1F	.9981 (19)	-.9344 (19)	.1757 (19)	.4760 (19)	-.9961 (19)	1.0000					
3020.DLC1G	-.1483 (14)	-.1939 (14)	.7069 (14)	-.7326 (14)	.1694 (14)	-.0965 (14)	1.0000				
3021.DLC1H	-.5051 (14)	.8306 (14)	-.9300 (14)	.5474 (14)	.4806 (14)	-.5633 (14)	-.6768 (25)	1.0000			
3022.DLC1I	.7681 (14)	-.6653 (14)	.0763 (14)	.3871 (14)	-.7693 (14)	.7624 (14)	-.5624 (25)	-.2237 (25)	1.0000		
3023.DLC1J	-.4795 (14)	.8088 (14)	-.9283 (14)	.5611 (14)	-.4549 (14)	-.5379 (14)	-.5651 (25)	.9672 (25)	-.3124 (25)	1.0000	
3024.DLC1K	.1644 (14)	.0909 (14)	-.5057 (14)	.5587 (14)	-.1797 (14)	.1264 (14)	-.1483 (25)	.2897 (25)	-.0334 (25)	.5009 (25)	1.0000

APPENDIX F1: (CONTINUED)

3027.ABSB	1.0000								
3028.ABSC	-.0037 (26)	1.0000							
3029.ABSD	-.0700 (26)	-.0139 (26)	1.0000						
3030.ABSE	.8138 (26)	-.0886 (26)	.0658 (26)	1.0000					
3031.ABSF	-.1171 (26)	-.1955 (26)	-.1556 (26)	-.1148 (26)	1.0000				
3032.ABSG	.8030 (26)	.3211 (26)	-.2434 (26)	.8498 (26)	.0061 (26)	1.0000			
3033.ABSH	.1115 (21)	.9589 (21)	-.2165 (21)	-.0713 (21)	-.1781 (21)	.3037 (21)	1.0000		
3034.ABSI	.7880 (21)	.2471 (21)	-.0090 (21)	.8311 (21)	-.4308 (21)	.8134 (21)	.4290 (42)	1.0000	
3035.ABSJ	.4356 (21)	-.3094 (21)	.4189 (21)	.2202 (21)	.3318 (21)	.0461 (21)	-.0549 (42)	-.0029 (42)	1.0000
	3027. ABSB	3028. ABSC	3029. ABSD	3030. ABSE	3031. ABSF	3032. ABSG	3033. ABSH	3034. ABSI	3035. ABSJ

	A	B	C	D	E	F	G	H	I	J	K	L	M
3014. DLC1A	.4320 (19)	-.4272 (19)	-.7465** (19)	.9548** (19)	-.9332** (19)	.9137** (19)	-.2842 (14)	-.7210** (14)	.9502** (14)	-.5573* (14)	.1161 (14)	-.1093 (14)	.8495** (14)
3015. DLC1B	-.4002 (19)	.7588** (19)	.4043 (19)	-.7463** (19)	.9983** (19)	-1.0000** (19)	-.0755 (14)	.9508** (14)	-.8857** (14)	.8658** (14)	-.1947 (14)	-.1884 (14)	-.6992** (14)
3016. DLC1C	.0659 (19)	-.9490** (19)	.5760* (19)	-.1864 (19)	-.4634 (19)	.5078* (19)	.6919** (14)	-.6000** (14)	.2347 (14)	-.9128** (14)	.2223 (14)	.6182* (14)	.0023 (14)
3017. DLC1D	.2147 (19)	.5459* (19)	-.9599** (19)	.7580** (19)	-.1897 (19)	.1395 (19)	-.7997** (14)	.3010 (14)	.3510 (14)	.5007 (14)	-.1336 (14)	-.6285** (14)	.5031 (14)
3018. DLC1E	-.4314 (19)	.3981 (19)	.7632** (19)	-.9621** (19)	.9238** (19)	-.9031** (19)	.3054 (14)	.7018** (14)	-.9477** (14)	.5335* (14)	-.1102 (14)	.1276 (14)	.8533** (14)
3019. DLC1F	.4322 (19)	-.4770* (19)	-.7036** (19)	.9344** (19)	-.9538** (19)	.9373** (19)	-.2314 (14)	-.7675** (14)	.9530** (14)	-.6135** (14)	.1301 (14)	-.0642 (14)	.8375** (14)
3020. DLC1G	-.2284 (14)	-.6035* (14)	.6442* (14)	-.3891 (14)	-.1495 (14)	.1079 (14)	.9804** (25)	-.4562* (25)	-.0411 (25)	-.5862** (25)	.6659** (25)	.2556 (25)	.5673** (25)
3021. DLC1H	-.1670 (14)	-.9912** (14)	-.2811 (14)	-.1883 (14)	.7962** (14)	-.8261** (14)	-.5954** (25)	.9458** (25)	-.4780* (25)	.9923** (25)	-.4090* (25)	-.4120* (25)	.1868 (25)
3022. DLC1I	.4589 (14)	-.2860 (14)	-.5647* (14)	.7420** (14)	-.6874** (14)	.6685** (14)	-.6482** (25)	-.4743* (25)	.6587** (25)	-.3302 (25)	-.3477 (25)	.0330 (25)	.9929** (25)
3023. DLC1J	-.2420 (14)	.9824** (14)	-.3005 (14)	-.1633 (14)	.7736** (14)	-.8042** (14)	-.5090** (25)	.8990** (25)	-.3609 (25)	.9835** (25)	-.1855 (25)	-.6053** (25)	.2334 (25)
3024. DLC1K	-.1981 (14)	.4153* (14)	-.5080** (14)	.3366 (14)	.0571 (14)	-.0863 (14)	-.2474 (25)	.0921 (25)	.5222** (25)	.3362 (25)	.6261** (25)	-.9910** (25)	.1500 (25)

APPENDIX F1: (CONTINUED)

3027.ABSB	-.1417 (19)	-.6913** (19)	.8915** (19)	-.6244** (19)	.0050 (19)	.0458 (19)	.8000** (14)	-.4582 (14)	-.1847 (14)	-.6492* (14)	.1667 (14)	.6517* (14)	-.3680 (14)
3028.ABSC	.2230 (19)	-.9977** (19)	.2230 (19)	.2001 (19)	-.7648** (19)	.7960** (19)	.5153 (14)	-.9536** (14)	.5305* (14)	-.9966** (14)	.2361 (14)	.5096 (14)	.2908 (14)
3029.ABSD	.0493 (19)	-.9362** (19)	.6071** (19)	-.2242 (19)	-.4289 (19)	.4742* (19)	.7053** (14)	-.7802** (14)	.2032 (14)	-.8984** (14)	.2195 (14)	.6252* (14)	-.0270 (14)
3030.ABSE	.3072 (19)	-.9503** (19)	-.0235 (19)	.4348 (19)	-.8997** (19)	.9208** (19)	.3657 (14)	-.9944** (14)	-.9930** (14)	-.9894** (14)	.2302 (14)	.4054 (14)	.4636 (14)
3031.ABSF	-.1540 (19)	.9940** (19)	-.3918 (19)	-.0237 (19)	.6389** (19)	-.6771** (19)	-.6044* (14)	.8965** (14)	-.4308 (14)	.9722** (14)	-.2331 (14)	-.5675* (14)	-.1809 (14)
3032.ABSG	.3207 (19)	-.9352** (19)	-.0688 (19)	.4752* (19)	-.9186** (19)	.9375** (19)	.3354 (14)	-.9965** (14)	.7198** (14)	-.9823** (14)	.2279 (14)	.3834 (14)	.4936 (14)
3033.ABSH	-.2431 (15)	-.4529 (15)	.8980** (15)	-.7635** (15)	.2212 (15)	-.1719 (15)	.8948** (25)	-.0779 (25)	-.5704** (25)	-.3314 (25)	.1502 (25)	.6341** (25)	-.7742** (25)
3034.ABSI	.2291 (15)	-.8946** (15)	.3231 (15)	.0697 (15)	-.6580** (15)	.6900** (15)	.3327 (25)	-.9088** (25)	.4401* (25)	-.9617** (25)	.0532 (25)	.5876** (25)	.4065 (25)
3035.ABSJ	-.3773 (15)	-.0578 (15)	.6540** (15)	-.6859** (15)	.4391 (15)	-.4086 (15)	.8741** (25)	.1602 (25)	-.6065** (25)	-.0443 (25)	.3693 (25)	.2467 (25)	-.9454** (25)
	3001. TVE1A	3002. TVE1B	3003. TVE1C	3004. TVE1D	3005. TVE1E	3006. TVE1F	3007. TVE1G	3008. TVE1H	3009. TVE1I	3010. TVE1J	3011. TVE1K	3012. TVE1L	3013. TVE1M

APPENDIX F1: (CONTINUED)

3027. ABSD	-.3641 (19)	-.0540 (19)	.8838** (19)	-.9828** (19)	.3876 (19)	-.3053 (19)	.7555** (14)	-.6808** (14)	-.2601 (14)	-.6982** (14)	-.5559* (14)
3028. ABSC	.4821* (19)	-.8015** (19)	.9253** (19)	-.4875* (19)	-.4598* (19)	.5359* (19)	.5748* (14)	-.9942** (14)	.3296 (14)	-.9840** (14)	-.3914 (14)
3029. ABSD	.0755 (19)	-.4814* (19)	.9993** (19)	-.8056** (19)	-.0502 (19)	.3376 (19)	.7158** (14)	-.9175** (14)	.0502 (14)	-.9167** (14)	-.5141 (14)
3030. ABSE	.6827** (19)	-.9239** (19)	.8037** (19)	-.2570 (19)	-.6640** (19)	.7270** (19)	.4308 (14)	-.9739** (14)	.4749 (14)	-.9506** (14)	-.2909 (14)
3031. ABSF	-.3196 (19)	.6831** (19)	-.9770** (19)	.8342** (19)	-.2955 (19)	-.3782 (19)	-.0446* (14)	.9769** (14)	-.2161 (14)	.9725** (14)	.4503 (14)
3032. ABSG	.7151** (19)	-.9403** (19)	.7759** (19)	-.2138 (19)	-.6972** (19)	.7574** (19)	.4249 (14)	-.9646** (14)	.4999 (14)	-.9485** (14)	-.2703 (14)
3033. ABSH	-.5568* (15)	.1641 (15)	.6548** (15)	-.8917** (15)	.5773* (15)	-.5044 (15)	.0137 (25)	-.3709 (25)	-.0826 (25)	-.4147* (25)	-.5850** (25)
3034. ABSI	.3620 (15)	-.6949** (15)	.8390** (15)	-.5346* (15)	-.3304 (15)	.4189 (15)	.3969* (25)	-.9254** (25)	.4078* (25)	-.9811** (25)	-.4944* (25)
3035. ABSJ	-.6175* (15)	.4037 (15)	.2494 (15)	-.5689* (15)	.6263* (15)	-.5937* (15)	.7950** (25)	-.1431 (25)	-.9154** (25)	-.0862 (25)	-.2502 (25)
	3014. DLC1A	3015. DLC1B	3016. DLC1C	3017. DLC1D	3018. DLC1E	3019. DLC1F	3020. DLC1G	3021. DLC1H	3022. DLC1I	3023. DLC1J	3024. DLC1K

APPENDIX F2: ORGANIZATION II

ORG. II Plant 1

MISSING DATA CORRELATION

VARIABLE				
3001.TVE1A	1.0000			
3003.TVE1C	.6932 (24)	1.0000		
3004.TVE1D	.1656 (24)	.8136 (24)	1.0000	
3005.TVE1E	.1656 (24)	.8136 (24)	1.0000 (24)	1.0000

ORG. II Plant 1

MISSING DATA CORRELATION

VARIABLE				
3001.TVE1A	1.0000			
3003.TVE1C	.6932 (24)	1.0000		
3004.TVE1D	.1656 (24)	.8136 (24)	1.0000	
3005.TVE1E	.1656 (24)	.8136 (24)	1.0000 (24)	1.0000

APPENDIX F2: (CONTINUED)

MISSING DATA CORRELATION STRAT=SITE NO.:41

VARIABLE							
3001.TVE14	1.0000						
3003.TVE1C	.4353 (47)	1.0000					
3004.TVE1D	.7353 (47)	.4457 (47)	1.0000				
3005.TVE1E	.5021 (47)	.1888 (47)	.9348 (47)	1.0000			
3029.ABSD	.2376 (47)	.3698 (47)	.8240 (47)	.9092 (47)	1.0000		
3031.ABSF	-.0303 (47)	.2073 (47)	.6472 (47)	.8019 (47)	.9463 (47)	1.0000	
3032.ABSG	.4523 (47)	.1307 (47)	.7034 (47)	.9248 (47)	.9090 (47)	.8084 (47)	1.0000
	3001. TVE14	3003. TVE1C	3004. TVE1D	3005. TVE1E	3029. ABSD	3031. ABSF	3032. ABSG

APPENDIX F3: ORGANIZATION III

[illegible] ORG III

VARIABLE												
3003.TVE1C	1.0000											
3004.TVE1D	.2008 (322)	1.0000										
3005.TVE1E	.3007 (322)	1.0000 (322)	1.0000									
3009.TVE1I	.0535 (315)	.0356 (315)	.0356 (315)	1.0000								
3026.ARSA	.2237 (322)	.1028 (322)	.1028 (322)	-.0008 (315)	1.0000							
3027.ARSB	.4539 (322)	.5721 (322)	.5721 (322)	.0098 (315)	.2055 (322)	1.0000						
3028.ARSC	.3442 (322)	.0359 (322)	.0359 (322)	.0206 (315)	.3108 (322)	.1324 (322)	1.0000					
3030.ARSE	.2376 (322)	.4519 (322)	.4519 (322)	.4506 (315)	-.1846 (322)	.3471 (322)	-.0894 (322)	1.0000				
3031.ARSF	.0064 (322)	.1442 (322)	.1442 (322)	-.0077 (315)	-.2051 (322)	.1775 (322)	-.3099 (322)	.1219 (322)	1.0000			
3032.ARSG	.4101 (322)	.2736 (322)	.2736 (322)	.0567 (327)	.4792 (322)	.1291 (322)	.4962 (322)	.2256 (322)	.1670 (322)	1.0000		
3033.ARSH	.5103 (315)	.3757 (315)	.3757 (315)	.4146 (327)	.6229 (315)	.5308 (315)	.3694 (315)	-.4972 (315)	-.1390 (315)	.0672 (327)	1.0000	
3034.ARSI	-.3774 (315)	.0180 (315)	.0180 (315)	-.0653 (327)	-.7179 (315)	-.0196 (315)	-.8880 (315)	.4932 (315)	.4146 (315)	-.3264 (327)	-.6656 (327)	1.0000
3035.ARSJ	.5356 (315)	.4208 (315)	.4208 (315)	.4723 (327)	.7631 (315)	.7603 (315)	.5314 (315)	-.1207 (315)	-.2590 (315)	.2843 (327)	.8985 (327)	-.6515 (327)
	3003. TVE1C	3004. TVE1D	3005. TVE1E	3009. TVE1I	3026. ARSA	3027. ARSB	3028. ARSC	3030. ARSE	3031. ARSF	3032. ARSG	3033. ARSH	3034. ARSI

1.0000

3035. ARSJ

APPENDIX F4:. ORGANIZATION IV

MISSING DATA CORRELATION CASES= ORG IV

VARIABLE					
3004.TVE1D	1.0000				
3005.TVE1E	-.6189 (124)	1.0000			
3006.TVE1F	.0695 (124)	-.4426 (124)	1.0000		
3017.DLC1D	.2167 (124)	.5247 (124)	-.1737 (124)	1.0000	
3053.DLC2D	-.4875 (124)	.5409 (124)	-.7772 (124)	.5416 (124)	1.0000
	3004. TVE1D	3005. TVE1E	3006. TVE1F	3017. DLC1D	3053. DLC2D

APPENDIX F5: ORGANIZATION V

SSING DATA CORRELATION (1) Regions 1-4

VARIABLE													
.V2001	1.0000												
.V2002	.9697 (22)	1.0000											
.V2003	.9542 (22)	.9868 (22)	1.0000										
.V2004	.9875 (22)	.9419 (22)	.9604 (23)	1.0000									
.V2005	.8239 (22)	.9896 (22)	.9250 (23)	.9900 (25)	1.0000								
.V2006	.9027 (22)	.9233 (22)	.9895 (23)	.9779 (25)	.9871 (25)	1.0000							
.V2007	.7356 (21)	.6593 (21)	.7078 (22)	.9022 (24)	.9044 (24)	.9327 (24)	1.0000						
.V2008	-.0937 (22)	-.0501 (22)	-.1015 (22)	-.1351 (22)	-.1787 (22)	-.2486 (22)	-.1296 (21)	1.0000					
.V2009	-.1203 (22)	-.0633 (22)	-.1377 (22)	-.2037 (22)	-.2612 (22)	-.3606 (22)	-.2854 (21)	.9310 (22)	1.0000				
.V2010	-.1140 (22)	-.0973 (22)	-.1786 (23)	-.2384 (23)	-.3537 (23)	-.4350 (23)	-.2891 (22)	.8282 (22)	.9400 (22)	1.0000			
.V2011	-.1185 (22)	-.0807 (22)	-.1599 (23)	-.4705 (25)	-.5000 (25)	-.5652 (25)	-.5454 (24)	.7836 (22)	.8840 (22)	.9534 (23)	1.0000		
.V2012	-.0220 (22)	-.0006 (22)	-.0805 (23)	-.4465 (25)	-.4815 (25)	-.5456 (25)	-.5507 (24)	.6744 (22)	.7967 (22)	.9017 (23)	.9802 (25)	1.0000	
.V2013	-.0110 (22)	.0146 (22)	-.0575 (23)	-.4304 (25)	-.4336 (25)	-.4900 (25)	-.4864 (24)	.7164 (22)	.7750 (22)	.8752 (23)	.9526 (25)	.9433 (25)	1.0000
.V2014	.0169 (21)	.0433 (21)	-.0148 (22)	-.4111 (24)	-.4356 (24)	-.4889 (24)	-.5126 (24)	.7585 (21)	.7881 (21)	.8025 (22)	.8933 (24)	.9146 (24)	.9472 (24)	1.0000
	2001. V2001	2002. V2002	2003. V2003	2004. V2004	2005. V2005	2006. V2006	2007. V2007	2008. V2008	2009. V2009	2010. V2010	2011. V2011	2012. V2012	2013. V2013	2014. V2014

Region 5

VARIABLE													
2001.V2001	1.0000												
2002.V2002	.9997 (9)	1.0000											
2003.V2003	.9993 (9)	.9998 (9)	1.0000										
2004.V2004	.9991 (9)	.9995 (9)	.9998 (9)	1.0000									
2005.V2005	.9996 (9)	.9996 (9)	.9995 (9)	.9997 (9)	1.0000								
2006.V2006	.9991 (9)	.9994 (9)	.9976 (9)	.9980 (9)	.9992 (9)	1.0000							
2007.V2007	.9979 (9)	.9972 (9)	.9956 (9)	.9958 (9)	.9975 (9)	.9991 (9)	1.0000						
2008.V2008	.9360 (9)	.9309 (9)	.9358 (9)	.9353 (9)	.9359 (9)	.9371 (9)	.9424 (9)	1.0000					
2009.V2009	.9019 (9)	.9059 (9)	.9017 (9)	.9020 (9)	.9026 (9)	.9032 (9)	.9078 (9)	.9900 (9)	1.0000				
2010.V2010	.8833 (9)	.8923 (9)	.8860 (9)	.8862 (9)	.8883 (9)	.8930 (9)	.9039 (9)	.9827 (9)	.9772 (9)	1.0000			
2011.V2011	.8860 (9)	.8913 (9)	.8854 (9)	.8845 (9)	.8859 (9)	.8898 (9)	.9023 (9)	.9610 (9)	.9453 (9)	.9876 (9)	1.0000		
2012.V2012	.8837 (9)	.8923 (9)	.8866 (9)	.8858 (9)	.8882 (9)	.8938 (9)	.9171 (9)	.9504 (9)	.9284 (9)	.9783 (9)	.9959 (9)	1.0000	
2013.V2013	.8880 (9)	.8934 (9)	.8875 (9)	.8861 (9)	.8881 (9)	.8927 (9)	.9073 (9)	.9257 (9)	.8994 (9)	.9578 (9)	.9869 (9)	.9954 (9)	1.0000
2014.V2014	.9012 (9)	.9007 (9)	.8959 (9)	.8941 (9)	.8960 (9)	.8973 (9)	.9082 (9)	.9275 (9)	.9109 (9)	.9541 (9)	.9839 (9)	.9880 (9)	.9913 (9)

	2001. V2001	2002. V2002	2003. V2003	2004. V2004	2005. V2005	2006. V2006	2007. V2007	2008. V2008	2009. V2009	2010. V2010	2011. V2011	2012. V2012	2013. V2013	2014. V2014

APPENDIX F5: (CONTINUED)

ISSING DATA CORRELATION (2) Regions 6+8

VARIABLE	2001. V2001	2002. V2002	2003. V2003	2004. V2004	2005. V2005	2006. V2006	2007. V2007	2008. V2008	2009. V2009	2010. V2010	2011. V2011	2012. V2012	2013. V2013	2014. V2014
001.V2001	1.0000													
002.V2002	.9255 (19)	1.0[illegible]												
003.V2003	.8119 (19)	.8858 (19)	1.0000											
004.V2004	.7333 (19)	.8710 (19)	.9212 (19)	1.0000										
005.V2005	.6250 (19)	.7046 (19)	.8912 (19)	.9468 (19)	1.0000									
006.V2006	.6041 (19)	.7120 (19)	.8260 (19)	.9010 (19)	.9566 (19)	1.0000								
007.V2007	.5933 (19)	.5611 (19)	.7549 (19)	.8086 (19)	.8778 (19)	.9690 (19)	1.0000							
008.V2008	.5551 (19)	.4010 (19)	.2101 (19)	.2154 (19)	.1152 (19)	.1124 (19)	.1765 (19)	1.0000						
009.V2009	.5216 (19)	.3731 (19)	.1941 (19)	.1347 (19)	.0427 (19)	.0443 (19)	.0354 (19)	.9567 (19)	1.0000					
010.V2010	.3917 (19)	.2635 (19)	.2626 (19)	.2689 (19)	.1025 (19)	.0960 (19)	.0738 (19)	.7266 (19)	.8339 (19)	1.0000				
011.V2011	.2742 (19)	.1675 (19)	.1858 (19)	.3065 (19)	.1165 (19)	.1045 (19)	.0359 (19)	.5584 (19)	.6959 (19)	.9169 (19)	1.0000			
012.V2012	.2252 (19)	.1393 (19)	.1797 (19)	.3182 (19)	.1504 (19)	.1219 (19)	.0207 (19)	.5223 (19)	.6561 (19)	.9715 (19)	.9737 (19)	1.0000		
013.V2013	.2059 (19)	.0959 (19)	.1529 (19)	.2878 (19)	.1070 (19)	.1244 (19)	.0520 (19)	.4739 (19)	.6072 (19)	.8195 (19)	.9247 (19)	.9534 (19)	.0000	
014.V2014	.2177 (19)	.0699 (19)	.0936 (19)	.2205 (19)	.0476 (19)	.1082 (19)	.0663 (19)	.5090 (19)	.6360 (19)	.7918 (19)	.8708 (19)	.8888 (19)	.9636 (19)	1.0000

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MISSING DATA CORRELATION (4) Region 3

VARIABLE													
2001.V2001	1.0000												
2002.V2002	.9937 (3)	1.0000											
2003.V2003	.9310 (8)	.8521 (3)	1.0000										
2004.V2004	.7772 (9)	.8037 (8)	.9554 (8)	1.0000									
2005.V2005	.7055 (3)	.7390 (8)	.9236 (8)	.9455 (9)	1.0000								
2006.V2006	.7427 (9)	.7405 (9)	.3691 (3)	.7955 (9)	.9118 (9)	1.0000							
2007.V2007	.7500 (8)	.7535 (8)	.4505 (3)	.4634 (9)	.4687 (9)	.5730 (9)	1.0000						
2008.V2008	-.5002 (9)	-.4767 (8)	-.2324 (3)	-.1483 (8)	-.0713 (8)	-.1721 (9)	-.5937 (8)	1.0000					
2009.V2009	-.7417 (9)	-.7237 (9)	-.3464 (3)	-.2250 (8)	-.1365 (8)	-.2461 (8)	-.7701 (8)	.8459 (8)	1.0000				
2010.V2010	-.5974 (9)	-.5756 (9)	-.1548 (8)	-.0745 (8)	-.0105 (8)	-.1679 (8)	-.7549 (8)	.8260 (8)	.9473 (8)	1.0000			
2011.V2011	-.4340 (9)	-.4763 (8)	-.1155 (8)	-.0987 (9)	-.0114 (9)	-.0859 (9)	-.7170 (9)	.8594 (8)	.9166 (8)	.9543 (8)	1.0000		
2012.V2012	-.4703 (9)	-.4652 (8)	-.1035 (3)	-.1321 (9)	-.0246 (9)	-.0533 (9)	-.6747 (9)	.8364 (8)	.9137 (8)	.9334 (8)	.9771 (9)	1.0000	
2013.V2013	-.5836 (8)	-.6141 (8)	-.3490 (8)	-.3573 (9)	-.2143 (9)	-.1664 (9)	-.7058 (9)	.8197 (8)	.8804 (8)	.8214 (8)	.9062 (9)	.9172 (9)	1.0000
2014.V2014	-.5358 (8)	-.6097 (8)	-.4802 (8)	-.5007 (9)	-.4869 (9)	-.3620 (9)	-.3982 (10)	.6008 (8)	.5604 (8)	.3886 (8)	.5670 (9)	.5965 (9)	.6937 (9)	1.0000
	2001. V2001	2002. V2002	2003. V2003	2004. V2004	2005. V2005	2006. V2006	2007. V2007	2008. V2008	2009. V2009	2010. V2010	2011. V2011	2012. V2012	2013. V2013	2014. V2014

APPENDIX G

CORRELATIONS BETWEEN SOO AND PERFORMANCE BY SITE

TABLE G1: ORGANIZATION I
(Wave 1 SOO)

MISSING DATA CORRELATION CASES=SITE ORG I

VARIABLE	3001. TVE1A	3002. TVE1B	3003. TVE1C	3004. TVE1D	3005. TVE1E	3006. TVE1F	3007. TVE1G	3008. TVE1H	3009. TVE1I	3010. TVE1J	3011. TVE1K	3012. TVE1L	3013. TVE1M
131.176 SUP S	.1148	.2756	-.5912	.4966	-.1723	.1424	-.6096	.4139	-.3880	.4773	-.4160	-.2608	.2232
	(18)	(18)	(18)	(18)	(18)	(18)	(13)	(13)	(13)	(13)	(13)	(13)	(13)
133.178 SUP GE	-.1408	.2161	.0892	-.1883	.2696	-.2710	-.0309	.3959	-.3134	[illegible]	.3722	-.2918	[illegible]
	(18)	(18)	(18)	(18)	(18)	(13)	(13)	(13)	(13)	(13)	(13)	[illegible]	(13)
135.180 SUP WE	.2622	.3075	-.4145	.2979	-.0128	-.0108	-.3993	[illegible]	-.1550	[illegible]	-.1021	.3741	-.0562
	(18)	(18)	(18)	(18)	(18)	(18)	(14)	(14)	(14)	(14)	(14)	(14)	(14)
137.182 SUP TA	-.4167	.4756	-.1361	-.0671	.3501	-.3663	-.4054	.5019	-.4247	.5436	-.4095	[illegible]	.7031
	(18)	(18)	(18)	(18)	(18)	(18)	(14)	(14)	(14)	(14)	(14)	(14)	(14)
139.184 PEER S	-.2790	-.1402	-.0182	.0807	-.1458	.1433	.6413	-.2321	-.2755	-.1931	.1434	[illegible]	[illegible]
	(18)	(18)	(18)	(18)	(18)	(18)	(13)	(13)	(13)	(13)	(13)	(13)	(13)
141.186 PEER GE	-.0981	-.1523	.1104	-.0484	-.0632	.0710	.2327	-.2500	.1337	-.2597	[illegible]	[illegible]	-.0161
	(18)	(18)	(18)	(18)	(18)	(18)	(13)	(13)	(13)	(13)	(13)	(13)	(13)
143.188 PEER WE	-.2695	.2084	-.3965	.3227	-.0933	.0726	-.4238	.0381	-.3075	[illegible]	[illegible]	-.3253	.3540
	(18)	(18)	(18)	(18)	(18)	(18)	(13)	(13)	(13)	(13)	(13)	(13)	(13)
145.190 PEER TA	-.2669	-.0438	.0665	-.0711	.0219	-.0175	.1585	-.0858	.0793	-.0774	.2186	-.0742	-.0778
	(18)	(18)	(18)	(18)	(18)	(18)	(13)	(13)	(13)	(13)	(13)	(13)	(13)
148.193 TECH	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
151.196 HUM.	.1483	-.3326	-.1408	.2935	.4176	.4195	-.1163	-.5760	.3591	-.5820	-.3972	.6179	.5543
	(18)	(18)	(18)	(18)	(18)	(18)	(13)	(13)	(13)	(13)	(13)	(13)	(13)
152.197 COMM	-.0302	.2157	-.3738	.4655	-.4776	.4575	-.3748	-.4219	.4664	-.5370	-.4085	.3208	.6706
	(18)	(18)	(18)	(18)	(18)	(18)	(13)	(13)	(13)	(13)	(13)	(13)	(13)
153.198 MOTI	-.1092	.4073	-.3165	.1516	.1533	-.1752	-.4749	.4120	-.0702	.4774	-.2167	-.3710	.1072
	(18)	(18)	(18)	(18)	(18)	(18)	(13)	(13)	(13)	(13)	(13)	(13)	(13)
154.199 DEC.	-.3592	-.0091	-.0742	.0815	-.0629	.0601	-.4052	.3419	.3345	-.3130	-.5326	.4054	.6369
	(18)	(18)	(18)	(18)	(18)	(18)	(13)	(13)	(13)	(13)	(13)	(13)	(13)
155.200 SATI	-.2735	.3978	-.2943	.1325	.1606	-.1814	-.5912	.4909	-.1290	.5527	-.3581	-.3460	.1522
	(18)	(18)	(18)	(18)	(18)	(18)	(13)	(13)	(13)	(13)	(13)	(13)	(13)
156.201 GROU	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	0.
159.204 LOWE	-.3864	.1751	-.2650	.1999	-.0245	.0139	-.3900	.0578	.0675	.0869	-.3675	.0461	.3095
	(18)	(18)	(18)	(18)	(18)	(18)	(13)	(13)	(13)	(13)	(13)	(13)	(13)

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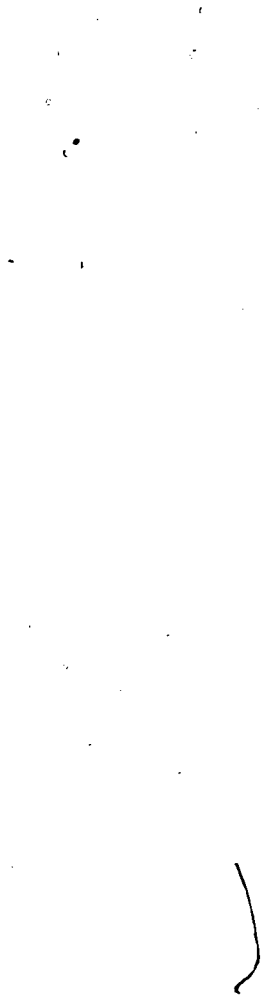

TABLE G1: (CONTINUED)

	3014. DLC1A	3015. DLC1B	3016. DLC1C	3017. DLC1D	3018. DLC1E	3019. DLC1F	3020. DLC1G	3021. DLC1H	3022. DLC1I	3023. DLC1J	3024. DLC1
131.175 SUP	.3712 (18)	-.1376 (18)	-.4264 (18)	.5947 (18)	-.3833 (18)	.3403 (18)	-.6292 (13)	.5302 (13)	.1779 (13)	.4584 (13)	.1413 (13)
133.178 SUP	-.2389 (18)	.2711 (18)	-.1548 (18)	-.0141 (18)	.2354 (18)	-.2467 (18)	-.0358 (13)	.3566 (13)	-.3252 (13)	.3119 (13)	[illegible]
135.180 SUP	.1792 (18)	.0145 (18)	-.3961 (18)	.4505 (18)	-.1900 (18)	.1520 (18)	-.3823 (14)	.3592 (14)	-.3998 (14)	.3994 (14)	[illegible]
137.182 SUP	-.2071 (18)	.3688 (18)	-.4486 (18)	.2579 (18)	.1959 (18)	-.2341 (18)	-.5423 (14)	.5877 (14)	.0331 (14)	.4776 (14)	-.[illegible] (14)
139.184 PEER	.1169 (18)	-.1456 (18)	.1133 (18)	-.0234 (18)	-.1142 (18)	.1231 (18)	.0785 (13)	-.1952 (13)	.1231 (13)	-.[illegible] (13)	[illegible] (13)
141.186 PEER	.0023 (18)	-.0723 (18)	.1850 (18)	-.1407 (18)	.0021 (18)	.0129 (18)	.2028 (13)	-.2772 (13)	-.0102 (13)	-.2449 (13)	-.0693 (13)
143.188 PEER	.2322 (18)	-.0693 (18)	-.3060 (18)	.4056 (18)	-.2408 (18)	.2103 (18)	-.3800 (13)	.1924 (13)	.2839 (13)	.2072 (13)	-.3842 (13)
145.190 PEER	-.0518 (18)	.0168 (18)	.0653 (18)	-.0830 (18)	.0527 (18)	-.0472 (18)	.1739 (13)	-.1005 (13)	-.0928 (13)	-.0533 (13)	.1918 (13)
148.193 TECH	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
151.196 HUM.	.3711 (18)	-.4197 (18)	.2371 (18)	.0247 (18)	-.3658 (18)	.3829 (18)	-.0859 (13)	-.5158 (13)	.6166 (13)	-.[illegible] (13)	-.[illegible] (13)
152.197 COMM	.5114 (18)	-.4658 (18)	.0620 (18)	.2615 (18)	-.5111 (18)	.5107 (18)	-.3298 (13)	-.2895 (13)	.6890 (13)	-.3881 (13)	-.3250 (13)
153.198 NOTI	.0144 (18)	.1787 (18)	-.4491 (18)	.3947 (18)	-.0261 (18)	-.0147 (18)	-.4864 (13)	.5059 (13)	.0646 (13)	.4790 (13)	.3114 (13)
154.199 DEC.	.0775 (18)	-.0596 (18)	-.0164 (18)	.0618 (18)	-.0781 (18)	.0757 (18)	-.3796 (13)	-.2280 (13)	.6742 (13)	-.3514 (13)	-.4271 (13)
155.200 SATI	-.0002 (18)	.1847 (18)	-.4339 (18)	.3726 (18)	-.0112 (18)	-.0281 (18)	-.6134 (13)	.5960 (13)	.1167 (13)	.5395 (13)	.2564 (13)
156.201 GROU	0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
159.204 LOWE	.1298 (18)	-.0116 (18)	-.2349 (18)	.2817 (18)	-.1362 (18)	.1134 (18)	-.3908 (13)	.1405 (13)	.3140 (13)	.0653 (13)	-.0872 (13)

TABLE G1: (CONTINUED)

131.176 SUP	-.13..	-.2088	-.7898	.1830	.3215	.1559	-.1706	-.1253	-.2169
	(22)	(22)	(22)	(22)	(22)	(22)	(18)	(18)	(18)
133.178 SUP	.2214	-.4417	-.0026	.1454	.2370	-.0058	-.3798	-.0332	.2470
	(22)	(22)	(22)	(22)	(22)	(22)	(18)	(18)	(18)
135.180 SUP	-.2650	-.2813	.0855	-.0642	.3237	-.1870	-.3560	-.3671	-.0038
	(25)	(25)	(25)	(25)	(25)	(25)	(21)	(21)	(21)
137.182 SUP	-.2918	-.2681	.1366	-.2579	.3338	-.3472	-.3624	-.4273	-.0169
	(25)	(25)	(25)	(25)	(25)	(25)	(21)	(21)	(21)
139.184 PEER	-.0895	-.2553	.0866	.0068	-.1536	-.2313	-.3223	-.3157	-.0235
	(22)	(22)	(22)	(22)	(22)	(22)	(18)	(18)	(18)
141.186 PEER	.0492	-.1973	.4247	.1602	-.0086	-.0800	-.2980	-.0077	.3414
	(22)	(22)	(22)	(22)	(22)	(22)	(18)	(18)	(18)
143.188 PEER	-.4443	-.1246	-.2008	-.2410	.1040	-.3132	-.2257	-.3290	-.3674
	(22)	(22)	(22)	(22)	(22)	(22)	(18)	(18)	(18)
145.190 PEER	-.2043	-.1337	.0955	-.2139	-.1277	-.3958	-.1773	-.2121	.0452
	(22)	(22)	(22)	(22)	(22)	(22)	(18)	(18)	(18)
148.193 TECH	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
151.196 HUM.	-.1333	.1704	.4162	.0977	-.2051	-.0013	.0484	.0960	-.1228
	(22)	(22)	(22)	(22)	(22)	(22)	(18)	(18)	(18)
152.197 COMM	-.2142	.1889	.3716	.1312	-.0527	.0689	.0858	.1050	-.2696
	(22)	(22)	(22)	(22)	(22)	(22)	(18)	(18)	(18)
153.198 MOTI	-.4685	.2460	.0567	-.3895	.3243	-.2587	.2245	-.4431	-.1800
	(22)	(22)	(22)	(22)	(22)	(22)	(18)	(18)	(18)
154.199 DEC.	-.1157	.0074	-.1110	-.0835	-.0857	-.0436	.0013	.0710	-.4694
	(22)	(22)	(22)	(22)	(22)	(22)	(18)	(18)	(18)
155.200 SATI	-.2933	-.1748	.0447	-.1660	.4267	-.2406	-.3041	-.5519	.0409
	(22)	(22)	(22)	(22)	(22)	(22)	(18)	(18)	(18)
156.201 GROU	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
159.204 LOWE	-.1475	-.0185	.2201	.0243	.2070	-.0198	-.1096	-.1698	.0091
	(22)	(22)	(22)	(22)	(22)	(22)	(18)	(18)	(18)
	3027. ABSB	3028. ABSC	3029. ABSD	3030. ABSE	3031. ABSF	3032. ABSG	3033. ABSH	3034. ABSI	3035. ABSJ

TABLE G2: ORGANIZATION I

(Wave 2 SOO)

	3001. TVE1A	3002. TVE1B	3003. TVE1C	3004. TVE1D	3005. TVE1E	3006. TVE1F	3007. TVE1G	3008. TVE1H	3009. TVE1I	3010. TVE1J	3011. TVE1K	3012. TVE1L	3013. TVE1M
451.176 SUP	.0532 (18)	-.0183 (18)	.0706 (18)	-.0657 (18)	.0344 (18)	-.0312 (18)	.1615 (25)	-.2416 (25)	.2717 (25)	-.1897 (25)	.3563 (25)	-.1836 (25)	.0957 (25)
453.178 SUP	-.1353 (18)	.1719 (18)	.2764 (18)	-.3644 (18)	.3649 (18)	-.3577 (18)	.2814 (25)	-.0798 (25)	.0188 (25)	-.0902 (25)	.2989 (25)	-.0756 (25)	-.2339 (25)
455.180 SUP	-.0572 (18)	.2960 (18)	-.1772 (18)	.0549 (18)	.1502 (18)	-.1640 (18)	-.0770 (25)	-.0200 (25)	.2086 (25)	.0024 (25)	.3005 (25)	-.3524 (25)	.0133 (25)
457.182 SUP	.0557 (18)	.0285 (18)	.0493 (18)	-.0640 (18)	.0631 (18)	-.0617 (18)	.0025 (25)	-.1489 (25)	.2288 (25)	-.0913 (25)	.2700 (25)	-.2049 (25)	.0559 (25)
459.184 PEER	.1389 (18)	.3331 (18)	-.2772 (18)	.1431 (18)	.1120 (18)	-.1306 (18)	-.1672 (25)	.0953 (25)	.0077 (25)	.1225 (25)	-.0903 (25)	-.0770 (25)	.0617 (25)
461.186 PEER	.1628 (18)	.1536 (18)	-.2274 (18)	.1701 (18)	-.0213 (18)	.0087 (18)	-.0952 (25)	-.0842 (25)	.1758 (25)	-.0334 (25)	.0582 (25)	-.1183 (25)	.1545 (25)
463.188 PEER	.1395 (18)	.3057 (18)	-.2724 (18)	.1326 (18)	.1274 (18)	-.1461 (18)	-.3520 (25)	.1105 (25)	.0779 (25)	.1695 (25)	-.2115 (25)	-.1101 (25)	.2527 (25)
465.190 PEER	.1896 (18)	.1443 (18)	-.2209 (18)	.1673 (18)	-.0253 (18)	.0132 (18)	-.1953 (25)	-.0295 (25)	.1569 (25)	.0271 (25)	-.0362 (25)	-.1160 (25)	.2057 (25)
468.193 TECH	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
471.196 HUM.	.3526 (18)	-.3566 (18)	-.3722 (18)	.5459 (18)	-.6097 (18)	.6029 (18)	-.2212 (25)	-.3298 (25)	.6494 (25)	-.1457 (25)	.3614 (25)	-.4084 (25)	.4820 (25)
472.197 COMM	-.3147 (18)	.0411 (18)	-.1287 (18)	.1164 (18)	-.0554 (18)	.0493 (18)	-.1240 (25)	-.1580 (25)	.4259 (25)	-.0212 (25)	.3337 (25)	-.4391 (25)	.2362 (25)
473.198 MOTI	.1205 (18)	-.0594 (18)	-.4547 (18)	.5013 (18)	-.3891 (18)	.3722 (18)	-.0646 (25)	-.3336 (25)	.5841 (25)	-.1765 (25)	.4547 (25)	-.4605 (25)	.3179 (25)
474.199 DEC.	.3404 (18)	.2967 (18)	-.4883 (18)	.3798 (18)	-.0770 (18)	.0507 (18)	-.6777 (25)	.1063 (25)	.3927 (25)	.2944 (25)	-.1205 (25)	-.4911 (25)	.5491 (25)
475.200 SATI	.2164 (18)	.1675 (18)	-.5353 (18)	.4057 (18)	-.2336 (18)	.2080 (18)	-.4135 (25)	-.1187 (25)	.4117 (25)	.0194 (25)	-.0165 (25)	-.2941 (25)	.4793 (25)
476.201 GROU	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
479.204 LONE	.0122 (18)	-.1303 (18)	-.5170 (18)	.5976 (18)	-.5017 (18)	.4830 (18)	-.3427 (25)	-.3371 (25)	.7710 (25)	-.1046 (25)	.3906 (25)	-.6259 (25)	.5006 (25)

TABLE G2: (CONTINUED)

	3014. DLC1A	3015. DLC1B	3016. DLC1C	3017. DLC1D	3018. DLC1E	3019. DLC1F	3020. DLC1G	3021. DLC1H	3022. DLC1I	3023. DLC1J	3024. DLC1K
451.176 SUP	-.0547 (18)	.0306 (18)	.0384 (18)	-.0667 (18)	.0558 (18)	-.0517 (18)	.2130 (25)	-.2148 (25)	.0118 (25)	-.1307 (25)	.2366 (25)
453.178 SUP	-.3869 (18)	.3564 (18)	-.0564 (18)	-.1897 (18)	.3864 (18)	-.3870 (18)	.2936 (25)	-.1293 (25)	-.2294 (25)	-.0017 (25)	.3065 (25)
455.180 SUP	-.0403 (18)	.1661 (18)	-.3093 (18)	.2409 (18)	.0323 (18)	-.0598 (18)	.6840 (25)	.0374 (25)	-.0503 (25)	.1279 (25)	.3668 (25)
457.182 SUP	-.0675 (18)	.0615 (18)	-.0082 (18)	-.0344 (18)	.0674 (18)	-.0674 (18)	.1051 (25)	-.1088 (25)	.0099 (25)	-.0393 (25)	.2515 (25)
459.184 PEER	.0293 (18)	.1336 (18)	-.3732 (18)	.3387 (18)	-.0392 (18)	.0056 (18)	-.1886 (25)	.1346 (25)	.2747 (25)	.1234 (25)	.0533 (25)
461.186 PEER	.1090 (18)	-.0067 (18)	-.2045 (18)	.2427 (18)	-.1146 (18)	.0948 (18)	-.0673 (25)	-.0265 (25)	.1325 (25)	-.0072 (25)	.1241 (25)
463.188 PEER	.0158 (18)	.1491 (18)	-.3824 (18)	.3382 (18)	-.0238 (18)	-.0090 (18)	-.3567 (25)	.2039 (25)	.2463 (25)	.1067 (25)	.0770 (25)
465.190 PEER	.1093 (18)	-.0112 (18)	-.1944 (18)	.2343 (18)	-.1147 (18)	.0958 (18)	-.1730 (25)	.0449 (25)	.1884 (25)	.0453 (25)	.1091 (25)
468.193 TECH	0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
471.196 HUM.	.6099 (18)	-.6016 (18)	.1823 (18)	.2188 (18)	-.6067 (18)	.6161 (18)	-.1133 (25)	-.1403 (25)	.3658 (25)	-.030 (25)	.5232 (25)
472.197 COMM	.0942 (18)	-.0483 (18)	-.0767 (18)	.1239 (18)	.0954 (18)	.0884 (18)	-.0499 (25)	-.0318 (25)	.1505 (25)	.0088 (25)	.0519 (25)
473.198 MOTI	.4780 (18)	-.3694 (18)	-.0972 (18)	.3777 (18)	-.4618 (18)	.4674 (18)	.0365 (25)	-.1892 (25)	.3210 (25)	-.0054 (25)	.5759 (25)
474.199 DEC.	.2575 (18)	-.0465 (18)	-.4109 (18)	.3 (18)	.2287 (18)	-.6422 (25)	.3412 (25)	.4788 (25)	.3553 (25)	.4098 (25)	
475.200 SATI	.3943 (18)	-.2043 (18)	-.3163 (18)	.5 (18)	.3703 (18)	-.3527 (25)	.0559 (25)	.4329 (25)	.2717 (25)	.2869 (25)	
476.201 GROU		-0.	-0.	-0.		-0.	-0.	-0.	-0.	-0.	-0.
479.204 LOWE	.5880 (18)	-.4810 (18)	-.0572 (18)	.4710 (18)	-.5910 (18)	.5790 (18)	.1 (25)	-.0935 (25)	.4614 (25)	.0291 (25)	.6577 (25)

TABLE G2: (CONTINUED)

	3027. ABSU	3028. ABSC	3029. ABSD	3030. ABSE	3031. ABSF	3032. ABSG	3033. ABSH	3034. ABSI	3035. ABSJ
451.176 SUP	-.2[illegible]	-.4364	.1673	-.1802	-.0946	-.4168	-.2700	-.0358	-.0400
		(24)	(24)	(24)	(24)	(24)	(41)	(41)	(41)
453.178 SUP	-.[illegible]	-.6252	.1143	-.0507	.1029	-.3136	-.3772	-.0445	.1918
	(24)	(24)	(24)	(24)	(24)	(24)	(41)	(41)	(41)
455.180 SUP	-.1887	-.6679	.0435	-.0916	.1807	-.3688	-.3695	-.0201	.0524
	(24)	(24)	(24)	(24)	(24)	(24)	(41)	(41)	(41)
457.182 SUP	-.2296	-.3884	.2646	-.1839	-.0170	-.4126	-.2707	-.0652	-.0367
	(24)	(24)	(24)	(24)	(24)	(24)	(41)	(41)	(41)
459.184 PEER	-.2620	-.1804	-.1788	-.1949	.2669	-.1902	-.0972	-.0616	-.1665
	(24)	(24)	(24)	(24)	(24)	(24)	(41)	(41)	(41)
461.186 PEER	-.3371	-.4345	.0318	-.2187	.0384	-.4148	-.3339	-.1471	-.1008
	(24)	(24)	(24)	(24)	(24)	(24)	(41)	(41)	(41)
463.188 PEER	-.4168	-.2599	.0173	-.3246	.2418	-.4019	-.2530	-.2049	-.3335
	(24)	(24)	(24)	(24)	(24)	(24)	(41)	(41)	(41)
465.190 PEER	-.3878	-.1485	.0574	-.2876	.0413	-.3618	-.1344	-.0772	-.2486
	(24)	(24)	(24)	(24)	(24)	(24)	(41)	(41)	(41)
468.193 TECH	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
471.196 HUM.	-.3983	-.4404	.3467	-.1008	-.2740	-.4609	-.3526	-.0437	-.0591
	(24)	(24)	(24)	(24)	(24)	(24)	(41)	(41)	(41)
472.197 COMM	-.3994	-.4265	.3238	-.2664	-.0266	-.5399	-.3021	-.0741	.0904
	(24)	(24)	(24)	(24)	(24)	(24)	(41)	(41)	(41)
473.198 MOTI	-.4707	-.1413	.1243	-.2098	-.1163	-.3544	-.0902	.0779	-.1124
	(24)	(24)	(24)	(24)	(24)	(24)	(41)	(41)	(41)
474.199 DEC.	-.3873	-.4039	.1060	-.1435	.2580	-.3704	-.1566	.1511	-.2656
	(24)	(24)	(24)	(24)	(24)	(24)	(41)	(41)	(41)
475.200 SATI	-.5221	-.6006	.2803	-.2785	.0345	-.6223	-.5228	-.1914	-.0582
	(24)	(24)	(24)	(24)	(24)	(24)	(41)	(41)	(41)
476.201 GROU	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
479.204 LOWE	-.3504	-.2578	.2572	.0002	-.0516	-.2441	-.2133	.1016	-.1708
	(24)	(24)	(24)	(24)	(24)	(24)	(41)	(41)	(41)

TABLE G3: ORGANIZATION II

(Wave 1 SOO)

MISSING DATA CORRELATION--<1>- ORG. II Plant 1

VARIABLE	3001. TYPE(1)	3003. TYPE(3)	3004. TYPE(4)	3005. TYPE(5)	3029. ABSO	3031. ABSF	3032. ABSG	3033. ABS H
131.175 SUP	-.3866 (24)	-.1388 (24)	.1067 (24)	.1067 (24)	.0057 (24)	.0487 (24)	.1172 (24)	.0058 (24)
133.178 SUP	-.2613 (24)	-.0065 (24)	.1802 (24)	.1802 (24)	-.0947 (24)	-.0893 (24)	.1938 (24)	.1130 (24)
135.180 SUP	-.4122* (24)	-.1305 (24)	.1091 (24)	.1091 (24)	-.0010 (24)	-.1404 (24)	.2656 (24)	-.0678 (24)
137.182 SUP	-.2675 (24)	.0035 (24)	.2922 (24)	.2922 (24)	-.1934 (24)	-.2208 (24)	.3256 (24)	-.2326 (24)
139.184 PERF	-.0515 (24)	.1141 (24)	.1712 (24)	.1712 (24)	-.1905 (24)	-.0760 (24)	.0897 (24)	-.1930 (24)
141.186 PERF	-.4010 (24)	.4698* (24)	.5972** (24)	.5972** (24)	-.5689** (24)	-.4479** (24)	.3262 (24)	-.5986** (24)
143.188 PERF	-.3416 (24)	.0816 (24)	.3781 (24)	.3781 (24)	-.2222 (24)	-.1100 (24)	.3628 (24)	-.2090 (24)
145.190 PERF	-.0331 (24)	.3368 (24)	.4946** (24)	.4946** (24)	-.4205* (24)	-.1633 (24)	.2399 (24)	-.3730 (24)
147.192 TECH	-.3026 (24)	-.0527 (24)	.2008 (24)	.2008 (24)	-.0635 (24)	.2014 (24)	.0807 (24)	.0218 (24)
149.194 MGR.	-.2817 (24)	.1470 (24)	.3719 (24)	.3719 (24)	-.2880 (24)	-.3297 (24)	.3388 (24)	-.3528 (24)
151.196 COMM	-.1300 (24)	.0513 (24)	.1699 (24)	.1699 (24)	-.1396 (24)	-.2082 (24)	.1505 (24)	-.1970 (24)
153.198 MGT	-.5927** (24)	-.2510 (24)	.0813 (24)	.0813 (24)	.1331 (24)	.0966 (24)	.3499 (24)	-.1334 (24)
154.199 DEC.	-.4023* (24)	-.1656 (24)	.0686 (24)	.0686 (24)	.0438 (24)	-.0474 (24)	.2124 (24)	.0023 (24)
155.200 STAT	-.3233 (24)	-.0301 (24)	.1701 (24)	.1701 (24)	-.0906 (24)	-.2041 (24)	.2487 (24)	-.1590 (24)
156.201 SUP	-.1597 (24)	.2821 (24)	.4775* (24)	.4775* (24)	-.4502* (24)	-.1989 (24)	.0305 (24)	-.4446* (24)
157.202 LINE	-.3795* (24)	-.0791 (24)	.2192 (24)	.2192 (24)	-.0451 (24)	.0414 (24)	.3110 (24)	-.0166 (24)

TABLE G3: (CONTINUED)

MISSING DATA CORRELATION <2> ORG.II Plant 2

VARIABLE	3001. TVOLA	3003. TVELC	3004. TVELD	3005. TVELE	3029. ABSD	3031. ABSF	3032. ABSG
131.172 SUP	.3371* (37)	.2373 (37)	.3119 (37)	.2522 (37)	.2024 (37)	.0829 (37)	.2467 (37)
133.173 SUP	.4366** (37)	.2058 (37)	.2604 (37)	.1698 (37)	.0725 (37)	-.0931 (37)	.1676 (37)
135.180 SUP	.4367** (37)	.2101 (37)	.2576 (37)	.1554 (37)	.0551 (37)	-.0949 (37)	.1460 (37)
137.182 SUP	.3861* (37)	-.0499 (37)	.1996 (37)	.1434 (37)	-.0351 (37)	-.1307 (37)	.1359 (37)
139.184 DEEP	-.0277 (37)	.0336 (37)	-.0989 (37)	-.1469 (37)	-.1438 (37)	-.1002 (37)	-.1672 (37)
141.186 DEEP	.0691 (37)	-.2007 (37)	-.1021 (37)	-.1399 (37)	-.2100 (37)	-.2191 (37)	-.1073 (37)
143.188 PLEN	.1371 (37)	.2000 (37)	.0061 (37)	-.1130 (37)	-.1096 (37)	-.1207 (37)	-.1468 (37)
145.190 DEEP	.0223 (37)	-.1393 (37)	-.0303 (37)	-.0353 (37)	-.1034 (37)	-.0665 (37)	-.0456 (37)
147.192 TROU	.1429 (37)	.3565* (37)	.2131 (37)	.1731 (37)	.2508 (37)	.1483 (37)	.1772 (37)
149.194 DEEP	.2036 (37)	.1835 (37)	-.0598 (37)	-.1749 (37)	-.1886 (37)	-.2913 (37)	-.1821 (37)
151.197 DEEP	.1171 (37)	.2232 (37)	.1597 (37)	.1385 (37)	.1793 (37)	.1017 (37)	.1441 (37)
153.199 SAFE	.1633 (37)	.0322 (37)	.0560 (37)	.0240 (37)	-.0211 (37)	-.0715 (37)	.0228 (37)
155.200 D.O.	.1599 (37)	.0237 (37)	-.0227 (37)	-.0849 (37)	-.1400 (37)	-.1913 (37)	-.0914 (37)
155.200 SAFE	.3951* (37)	.3144 (37)	.2175 (37)	.0901 (37)	.0454 (37)	.0899 (37)	.0727 (37)
156.201 SAFE	.0317 (37)	.1499 (37)	.0948 (37)	.0738 (37)	.1292 (37)	.1003 (37)	.0710 (37)
158.204 DEEP	.1002 (37)	-.1747 (37)	-.0737 (37)	-.1056 (37)	-.2376 (37)	-.2963 (37)	-.1002 (37)

TABLE G3: (CONTINUED)

[illegible] CORRELATION ORG. II Plant 3

VARIABLE	3028. ABSC	3029. ABSD	3030. ABSE	3031. ABSF	3032. ABSG
[illegible]	[illegible] (15)	[illegible] (15)	[illegible] (15)	-.[illegible]* (15)	-0.
133.178 SUP	-.4033 (15)	-.4033 (15)	-.0555 (15)	-.4700 (15)	-0.
135.180 SUP	-.4564 (15)	-.4550 (15)	-.0677 (15)	-.5458* (15)	-0.
137.182 SUP	-.2013 (15)	-.2013 (15)	.3405 (15)	-.4200 (15)	-0.
139.184 PEER	-.4761 (15)	-.4761 (15)	[illegible] (15)	-.[illegible]* (15)	-0.
141.186 PEER	-.2606 (15)	-.2606 (15)	.2240 (15)	-.1777 (15)	-0.
143.188 PEER	-.3030 (15)	-.3030 (15)	.0023 (15)	-.4602 (15)	-0.
145.190 PEER	-.2517 (15)	-.2517 (15)	.3195 (15)	-.4127 (15)	-0.
149.193 TECH	-.3071 (15)	-.3071 (15)	.4093 (15)	-.4704 (15)	-0.
151.196 [illegible]	-.3630 (15)	-.3630 (15)	.0004 (15)	-.4600 (15)	-0.
152.197 COMM	-.4534 (15)	-.4534 (15)	-.1754 (15)	-.5287* (15)	-0.
153.198 MOTI	-.5962* (15)	-.5962* (15)	-.0244 (15)	-.5956* (15)	-0.
154.199 DEC.	-.2900 (15)	-.2900 (15)	-.[illegible] (15)	-.2674 (15)	-0.
155.200 SATI	-.4850 (15)	-.4850 (15)	.3344 (15)	-.5763* (15)	-0.
156.201 [illegible]	-.3850 (15)	-.3850 (15)	.2445 (15)	-.5877* (15)	-0.
157.202 [illegible]	.1606 (15)	.1606 (15)	.0201 (15)	.0277 (15)	-0.

TABLE G3: (CONTINUED)

ORG II Plant 4

VARIABLE	3028. A33G	3029. A8GP	3030. A33F	3031. A83F	3032. A33G
[illegible]	-.0313 (32)	.0245 (32)	.0168 (32)	-0.	-0.
153.173 [illegible]	.1939 (32)	-.0552 (32)	.0809 (32)	-0.	-0.
[illegible]	.1612 (31)	-.1778 (32)	.1183 (32)	-0.	-0.
[illegible]	.2215 (32)	-.1634 (32)	.1278 (32)	-0.	-0.
[illegible]	-.[illegible] (30)	.[illegible] (32)	-.1519 (32)	-0.	-0.
161.[illegible]	-.2513 (32)	.2005 (32)	-.2762 (32)	-0.	-0.
[illegible]	[illegible]	.1760 (32)	-.1556 (32)	-0.	-0.
[illegible]	[illegible]	.2275 (32)	-.1158 (32)	-0.	-0.
[illegible]	-.13[illegible] (31)	.0159 (31)	-.2039 (31)	-0.	-0.
[illegible]	.0795 (32)	-.0990 (32)	.0992 (32)	-0.	-0.
15[illegible].197 [illegible]	.1780 (32)	.0155 (32)	-.0259 (32)	-0.	-0.
[illegible]	-.2221 (32)	.2002 (32)	-.2464 (32)	-0.	-0.
15[illegible]	-.0952 (32)	.2517 (32)	-.1369 (32)	-0.	-0.
155.[illegible]	.1740 (32)	-.0262 (32)	.0426 (32)	-0.	-0.
15[illegible]	-.1160 (32)	.2307 (32)	-.2316 (32)	-0.	-0.
151.[illegible]	-.125[illegible] (32)	-.0640 (32)	.0822 (32)	-0.	-0.

TABLE G4: ORGANIZATION II

(Wave 2 S00)

ORG.II Plant 2

	3001. TVF1A	3003. TVF1C	3004. TVF1D	3005. TVF1E	3028. ARSC	3029. ARSD	3030. ARSE	3031. ARSE	3032. ARSC
[illegible] SUP	-.0429 (39)	.1017 (39)	.0086 (39)	.0233 (39)	-0.	.0901 (39)	-0.	.0597 (39)	.0356 (39)
[illegible] SUP	.0433 (39)	.0379 (39)	-.0507 (39)	-.0524 (39)	-0.	-.0804 (39)	-0.	-.1334 (39)	-.0392 (39)
[illegible] SUP	.0737 (38)	-.0776 (38)	.0262 (38)	.0487 (38)	-0.	.0048 (38)	-0.	-.0529 (38)	.0660 (38)
[illegible] SUP	.2011 (39)	-.0567 (39)	.0456 (39)	.0158 (39)	-0.	-.0862 (39)	-0.	-.1637 (39)	.0198 (39)
[illegible] PEER	-.1510 (39)	.1560 (39)	-.1099 (39)	-.0637 (39)	-0.	-.0587 (39)	-0.	.0061 (39)	-.0590 (39)
461.136 PEER	-.0236 (39)	-.2101 (39)	-.0926 (39)	-.0491 (39)	-0.	-.1071 (39)	-0.	-.1213 (39)	-.0298 (39)
463.133 PEER	-.3416* (39)	-.1785 (39)	-.3630* (39)	-.3156* (39)	-0.	-.2481 (39)	-0.	-.1532 (39)	-.3011 (39)
465.100 PEER	.0412 (39)	-.1730 (39)	-.0929 (39)	-.0866 (39)	-0.	-.1696 (39)	-0.	-.2003 (39)	-.0753 (39)
469.133 TECH	.0939 (39)	.1268 (39)	.1876 (39)	.1972 (39)	-0.	.2229 (39)	-0.	.1697 (39)	.2035 (39)
471.136 HUP	.1336 (39)	-.1571 (39)	.1389 (39)	.1902 (39)	-0.	.1091 (39)	-0.	.0697 (39)	.2057 (39)
472.137 COM	-.1061 (39)	-.2487 (39)	-.0876 (39)	-.0020 (39)	-0.	-.0305 (39)	-0.	-.0246 (39)	.0257 (39)
473.138 MOTI	.4103** (39)	-.0685 (39)	.1822 (39)	.1228 (39)	-0.	-.0681 (39)	-0.	-.2002 (39)	.1216 (39)
474.139 DEC	.0227 (39)	-.2125 (39)	.0783 (39)	.1355 (39)	-0.	.0598 (39)	-0.	.0739 (39)	.1427 (39)
475.203 SAFE	.1559 (39)	-.0531 (39)	.0587 (39)	.0328 (39)	-0.	-.0539 (39)	-0.	-.0910 (39)	.0286 (39)
476.231 GROU	-.1033 (39)	.0096 (39)	-.1474 (39)	-.1403 (39)	-0.	-.0936 (39)	-0.	-.1014 (39)	-.1283 (39)
477.234 LIKE	-.0736 (39)	-.0177 (39)	-.0812 (39)	-.0539 (39)	-0.	-.0185 (39)	-0.	-.0352 (39)	-.0374 (39)

TABLE G4: (CONTINUED)

MISSING DATA CORRELATION. <3> ORG II Plant 3

VARIABLE	3001. TVE1A	3003. TVE1C	3004. TVE1D	3005. TVE1E	3028. ABSC	3029. ABSD	3030. ABSE	3031. ABSF	3032. ABSG
451.176 SUP	-0.	-0.	-0.	-0.	-.3860 (7)	-.3860 (7)	-.3860 (7)	-.3860 (7)	-0.
453.174 SUP	-0.	-0.	-0.	-0.	-.5562 (7)	-.5562 (7)	-.5562 (7)	-.5562 (7)	-0.
455.180 SUP	-0.	-0.	-0.	-0.	-.8082* (7)	-.8082* (7)	-.8082* (7)	-.8082* (7)	-0.
457.182 SUP	-0.	-0.	-0.	-0.	-.5042 (7)	-.5042 (7)	-.5042 (7)	-.5042 (7)	-0.
459.184 PEER	-0.	-0.	-0.	-0.	-.5596 (7)	-.5596 (7)	-.5596 (7)	-.5596 (7)	-0.
461.186 PEER	-0.	-0.	-0.	-0.	-.8954** (7)	-.8954** (7)	-.8954** (7)	-.8954** (7)	-0.
463.188 PEER	-0.	-0.	-0.	-0.	-.7074 (7)	-.7074 (7)	-.7074 (7)	-.7074 (7)	-0.
465.190 PEER	-0.	-0.	-0.	-0.	-.2637 (7)	-.2637 (7)	-.2637 (7)	-.2637 (7)	-0.
469.193 TECH	-0.	-0.	-0.	-0.	-.8495* (7)	-.8495* (7)	-.8495* (7)	-.8495* (7)	-0.
471.196 UTIL	-0.	-0.	-0.	-0.	-.1529 (7)	-.1529 (7)	-.1529 (7)	-.1529 (7)	-0.
473.197 CLERK	-0.	-0.	-0.	-0.	-.3765 (7)	-.3765 (7)	-.3765 (7)	-.3765 (7)	-0.
473.199 UTIL	-0.	-0.	-0.	-0.	-.5773 (7)	-.5773 (7)	-.5773 (7)	-.5773 (7)	-0.
474.199 DEC.	-0.	-0.	-0.	-0.	-.4475 (7)	-.4475 (7)	-.4475 (7)	-.4475 (7)	-0.
475.200 SAFE	-0.	-0.	-0.	-0.	-.8802** (7)	-.8802** (7)	-.8802** (7)	-.8802** (7)	0.
476.201 GROU	-0.	-0.	-0.	-0.	-.7001 (7)	-.7001 (7)	-.7001 (7)	-.7001 (7)	-0.
479.204 LONE	-0.	-0.	-0.	-0.	-.2796 (7)	-.2796 (7)	-.2796 (7)	-.2796 (7)	-0.

TABLE G4: (CONTINUED)

MISSING DATA CORRELATION. <4> ORG III Plant 4

VARIABLE	3001. TVE1A	3003. TVE1C	3004. TVE1D	3005. TVE1E	3028. ABSC	3029. ABSD	3030. ABSE	3031. ABSF	3032. ABSG
451.176 SUP	-0.	-0.	-0.	-0.					
453.178 SUP	-0.	-0.	-0.	-0.	.4558 (8)	-.1067 (8)	.1080 (8)	-0.	-0.
455.180 SUP	-0.	-0.	-0.	-0.	.4380 (8)	-.3770 (8)	.3775 (8)	-0.	-0.
457.182 SUP	-0.	-0.	-0.	-0.	.7718* (8)	-.3183 (8)	.3202 (8)	-0.	-0.
459.184 PEEK	-0.	-0.	-0.	-0.	.7274* (8)	-.4109 (8)	.4123 (8)	-0.	-0.
461.186 PEEP	-0.	-0.	-0.	-0.	.2402 (8)	.1782 (8)	-.1768 (8)	-0.	-0.
463.188 PEEP	-0.	-0.	-0.	-0.	.5302 (8)	-.1684 (8)	.1698 (8)	-0.	-0.
465.190 PEEP	-0.	-0.	-0.	-0.	.4043 (8)	.0400 (8)	-.0392 (8)	-0.	-0.
468.193 SECH	-0.	-0.	-0.	-0.	.3661 (8)	.0439 (8)	-.0424 (8)	-0.	-0.
471.196 [illegible]	-0.		-0.	-0.	-.2078 (8)	.2548 (8)	-.2548 (8)	-0.	-0.
472.197 GUIN	-0.	-0.	-0.	-0.	-.0699 (8)	.2544 (8)	-.2539 (8)	-0.	-0.
473.198 UDTI	-0.	-0.	-0.	-0.	.3840 (8)	-.2642 (8)	.2648 (8)	-0.	-0.
474.199 DEC.	-0.	-0.	-0.	-0.	.3121 (8)	-.0284 (8)	.0294 (8)	-0.	-0.
475.200 SATI	-0.	-0.	-0.	-0.	-.1374 (8)	.0612 (8)	-.0615 (8)	-0.	-0.
476.201 GROU	-0.	-0.	-0.	-0.	.7577* (8)	-.3419 (8)	.3436 (8)	-0.	-0.
479.204 LOAC	-0.	-0.	-0.	-0.	.3632 (8)	-.0243 (8)	.0255 (8)	-0.	-0.
					.1146 (8)	-.3953 (8)	.3945 (8)	-0.	-0.

TABLE G5: ORGANIZATION III
(Wave 1 S00)

-.1521 (261)	-.1427 (259)	-.1427 (259)	-.0910 (254)	-.2069** (260)	-.1328* (260)	-.1096** (261)	.0052 (260)	-.0208 (260)	-.0052 (260)	.1692** (254)	.1717** (254)	-.1718** (251)
.0011 (260)	-.0626 (260)	-.0626 (260)	-.0192 (254)	-.0677 (260)	.0930 (260)	-.0419 (260)	-.0070 (260)	-.0312 (260)	.0320 (260)	-.0514 (254)	.0141 (254)	-.0499 (254)
.0362 (258)	-.0656 (259)	-.0656 (258)	.0251 (252)	-.0322 (259)	-.1106 (258)	-.0147 (259)	-.0981 (259)	-.1242 (258)	.0050 (258)	.0488 (252)	-.0528 (252)	-.0056 (252)
.0259 (256)	-.0743 (256)	-.0743 (256)	.0106 (250)	-.0150 (256)	-.1020 (256)	.0222 (256)	-.0702 (256)	-.1472* (256)	.0363 (256)	.0271 (250)	-.0663 (250)	.0128 (250)
.0233 (253)	-.0709 (259)	-.0709 (259)	-.0237 (252)	-.1230 (258)	-.0935 (258)	.1578* (258)	.0134 (259)	-.0176 (259)	-.0078 (258)	-.0730 (252)	.1253* (252)	-.0749 (252)
.0445 (259)	-.0161 (259)	-.0161 (258)	.0159 (252)	.0829 (259)	-.1004 (258)	.0230 (259)	-.0648 (259)	-.1451* (258)	.1120 (258)	.0908 (252)	-.0739 (252)	.0016 (252)
.1052 (259)	-.0290 (259)	-.0290 (258)	.0628 (252)	.1366* (258)	-.0966 (258)	.0811 (259)	-.1176 (259)	-.1952** (258)	.1049 (258)	.1705** (252)	-.1552* (252)	.1349* (252)
.1913** (258)	.0590 (259)	.0580 (258)	.1359 (252)	.1683** (258)	-.0284 (258)	.1204* (259)	-.1205 (259)	-.1635** (259)	.1403* (258)	.2437** (252)	-.2031** (252)	.1977** (252)
-.1027 (259)	-.1313* (259)	-.1313* (259)	-.0631 (253)	-.2062** (259)	-.1822** (259)	-.1321* (259)	-.0565 (259)	-.0426 (259)	-.1808** (259)	-.1443* (253)	.0944 (253)	-.2135** (253)
-.2127** (259)	-.2442** (259)	-.2442** (259)	-.1005** (253)	-.1916** (259)	-.2675** (259)	-.1437** (259)	-.0514 (259)	-.1543* (259)	-.0995 (259)	-.2190** (253)	.1267* (253)	-.2337** (253)
-.211** (251)	-.1594* (259)	-.1595* (259)	-.0996 (253)	.1983** (259)	-.0808 (259)	.2224** (259)	.0530 (259)	-.0980 (259)	-.1650** (259)	-.2062** (253)	.2190** (253)	-.1745** (253)
-.1267* (259)	-.1407* (259)	-.1407* (259)	-.0734 (253)	-.0893 (259)	-.1619** (259)	-.0211 (259)	-.0241 (259)	-.1709** (259)	-.0470 (259)	-.1013 (253)	.0672 (253)	-.0809 (253)
-.0911 (259)	-.0649 (259)	-.0649 (259)	.0030 (253)	-.1701** (259)	-.1242 (259)	-.1745** (259)	.0972 (259)	-.1589* (259)	-.0675 (259)	-.1802** (253)	.1722** (253)	-.1347* (253)
-.0463 (259)	-.1444* (259)	-.1444* (259)	-.0942 (253)	-.0540 (259)	-.2244** (259)	-.0140 (259)	-.1392* (259)	-.1749** (259)	-.0018 (259)	-.0231 (253)	-.0709 (253)	-.0480 (253)
-.0127 (259)	-.0956 (259)	-.0956 (258)	.0303 (252)	-.0306 (258)	-.1367* (258)	-.0509 (259)	-.0669 (259)	-.2306** (259)	-.0340 (259)	.0184 (252)	-.0101 (252)	.0313 (252)
-.1249* (258)	-.1259* (258)	-.1259* (258)	-.0411 (252)	-.2688** (258)	-.1429* (258)	-.2004** (259)	.0096 (259)	-.0865 (258)	-.2120** (258)	-.1946** (252)	.1739** (252)	-.2220** (252)
3003. TVFIC	3004. TVFID	3005. TVFIE	3009. TVFII	3026. V3026	3027. ABSA	3028. ABSC	3029. ABSE	3031. ABSF	3032. ABSG	3033. ABSH	3034. ABSI	3035. ABSJ

(Wave 2 SOO)

ORG. III

VARIABLE	3003. TVEIC	3004. TVEID	3005. TVEEE	3009. TVELL	3026. V3026	3027. ABSA	3028. ABSC	3030. ABSE	3031. ABSF	3032. ABSG	3033. ABSH	3034. ABSI	3035. ABSJ
451.176 SUP	-.0517 (232)	-.0795 (232)	-.0795 (232)	-.0120 (237)	-.2694** (232)	-.0959 (232)	-.1010** (232)	.0401 (232)	.0272 (232)	-.0080 (244)	-.1569* (237)	.1568* (237)	-.1774** (237)
453.178 SUP	-.0133 (232)	-.0719 (232)	-.0719 (232)	-.0307 (237)	-.1791** (232)	-.1378* (232)	-.1231 (232)	-.0001 (232)	-.0320 (332)	-.0172 (244)	-.0990 (237)	.0558 (237)	-.1312* (237)
455.182 SUP	-.1344 (229)	-.1567** (228)	-.1567** (229)	-.0731 (233)	-.0763 (228)	-.1961** (229)	.0227 (229)	-.1513* (229)	-.1109 (228)	-.0033 (240)	.0050 (233)	-.0618 (233)	-.0503 (233)
457.192 SUP	.0354 (229)	-.1213 (228)	-.1213 (228)	-.0389 (233)	-.0954 (228)	-.1970** (228)	[illegible] (228)	.0271 [illegible]	-.0135 (228)	-.0358 (240)	.0457 (233)	-.0560 (233)	-.0010 (233)
459.194 DEEP	.0059 (230)	-.0547 (230)	-.0547 (230)	-.0212 (235)	.2483** [illegible]	-.0942 (230)	.1837** (230)	[illegible]	.1284* (230)	-.0059 (242)	-.0003 (235)	.1115 (235)	-.1323* (235)
461.196 DEEP	.1019 (229)	-.0854 (229)	-.0854 (229)	-.0209 (234)	[illegible]	-.1271* (229)	.0801 (229)	[illegible]	.0063 [illegible]	-.1295* (241)	.0567 (234)	-.1455* (234)	-.0077 (234)
463.198 DEEP	.1600** (229)	-.0443 (229)	-.0443 (229)	.0196 (234)	.1425 (229)	.0681 (229)	.1655** (229)	[illegible]	[illegible] (229)	-.2009** (241)	.1196 (234)	-.2264** (234)	.0457 (234)
465.190 DEEP	.1530** (229)	-.0314 (229)	-.0314 (229)	.0221 (234)	.1236 (229)	[illegible] (229)	.1560** (229)	-.2255** (229)	[illegible] (229)	.1583* (241)	.0089 (234)	-.2120** (234)	.0435 (234)
467.193 TECH	-.2016** (229)	-.2003** (229)	-.2029** (229)	-.1526** (233)	-.3669** (229)	.3184** (229)	-.2652** (229)	.0483 (229)	[illegible] (229)	.2279** (240)	-.2784** (233)	.2129** (233)	-.3142** (233)
471.196 UNIL	-.2226** (229)	-.2279** (229)	-.2279** (229)	-.1830** (234)	-.3462** (229)	.2400** (229)	-.2847** (229)	-.0460 (229)	-.0481 (229)	-.2273** (241)	-.2634** (234)	.2711** (234)	-.3026** (234)
[illegible]	-.0461 (229)	-.0516 (229)	-.0516 (229)	.0803 (234)	-.3434** (229)	.1456* (229)	-.2736** (229)	.0758 (229)	-.0459 (329)	-.1145 (241)	-.2104** (234)	.2183** (234)	-.2175** (234)
473.199 [illegible]	-.0222 (227)	-.0599 (227)	-.0599 (227)	-.0146 (232)	-.2580** (227)	-.1571* (227)	-.2463** (227)	.0023 (227)	-.0699 (227)	-.1103 (239)	-.1598* (232)	.1924** (232)	-.1819** (232)
474.199 DEC.	-.1222* (229)	-.1317* (229)	-.1317* (229)	-.0202 (234)	-.2966** (229)	-.2192** (229)	-.2527** (229)	.0458 (229)	-.1451* (229)	-.1356* (241)	-.1655** (234)	.1772** (234)	-.1733** (234)
475.200 SATI	-.0312 (227)	-.1022 (227)	-.1022 (227)	-.0486 (232)	[illegible] (227)	-.2028** (227)	-.1248 (227)	-.0769 (227)	-.1282* (227)	-.0240 (239)	-.1214 (232)	.0645 (232)	-.1462* (232)
476.201 GOOD	.1043 (227)	-.0186 (227)	-.0186 (227)	-.0559 (231)	-.0892 (227)	-.1161 (227)	-.0343 (227)	-.1031 (227)	-.0092 (227)	.0623 (238)	-.0464 (231)	-.0139 (231)	-.0003 (231)
479.204 LOVE	-.1919** (229)	-.2204** (229)	-.2204** (229)	-.1224* (234)	-.2344** (229)	-.2603** (229)	-.2159** (229)	-.1534** (229)	.0056 (229)	-.2144** (241)	-.0920 [illegible]	.0734 (234)	-.1836** (234)

TABLE 67: ORGANIZATION IV

(Wave 1 S00)

MISSING DATA CORRELATION CASES ORG IV

VARIABLE						
131.176 SUP	-.3113** (114)	.0608 (114)	-.2487** (114)	-.1557 (114)	.1809 (114)	.1809 (114)
133.178 SUP	-.2339* (114)	.1238 (114)	-.2458** (114)	-.0108 (114)	.1905* (114)	.1905* (114)
135.180 SUP	-.3163** (67)	.1192 (67)	-.2789* (67)	.1917 (67)	.0569 (67)	.0568 (67)
137.182 SUP	-.3385** (67)	.1419 (67)	-.3399** (67)	.1545 (67)	.1596 (67)	.1596 (67)
139.184 PEER	-.1340 (114)	.0623 (114)	-.2708** (114)	.0100 (114)	.1346 (114)	.1346 (114)
141.186 PEER	-.2271* (114)	.2741** (114)	-.0806 (114)	.0785 (114)	.1554 (114)	.1554 (114)
143.188 PEER	-.0918 (114)	.1195 (114)	.0261 (114)	-.0156 (114)	.0022 (114)	.0022 (114)
145.190 PEER	-.0841 (114)	.1500 (114)	.0207 (114)	.0467 (114)	.0363 (114)	.0363 (114)
148.193 TECH	-.4677** (114)	.2826** (114)	-.1970* (114)	-.1842 (114)	.1063 (114)	.1063 (114)
151.196 NUM.	-.3184** (114)	.2226** (114)	-.0705 (114)	-.0296 (114)	.1124 (114)	.1124 (114)
152.197 COMM	-.4468** (114)	-.3411** (114)	-.2180* (114)	-.0466 (114)	.2290* (114)	.2290* (114)
153.198 MOTI	-.3084** (114)	.2506** (114)	-.1726 (114)	.0431 (114)	.2535** (114)	.2535** (114)
154.199 DEC	-.3658** (114)	.2118* (114)	-.15 (114)	-.1163 (114)	.1595 (114)	.1595 (114)
155.200 SATI	-.3154** (114)	.1538 (114)	-.0830 (114)	-.1546 (114)	.1382 (114)	.1382 (114)
156.201 GROU	-.2501** (113)	.2001** (113)	.0803 (113)	.0202 (113)	.1548 (113)	.1548 (113)
159.204 LOWE	-.3667** (114)	.1933 (114)	-.2429* (114)	-.0240 (114)	.2603** (114)	.2603** (114)
	3004. TVE1D	3005. TVE1E	3006. TVE1F	5017. DLG1D	3053. DLG2D	3054. DLG2E

TABLE G8: ORGANIZATION V

(Wave 2 S00)

MISSING DATA CORRELATION CASES= ORG. V

VARIABLE						
451.176 SUP	-.1967* (110)	.1310 (110)	-.2606** (110)	.0515 (110)	.2525** (119)	.2525** (119)
453.178 SUP	-.1783 (118)	.1858* (118)	-.2694** (119)	.1053 (118)	.2247* (119)	.2247* (119)
455.180 SUP	-.2338* (110)	.1628 (110)	-.2182* (110)	.0138 (110)	.2290* (119)	.2290* (119)
457.182 SUP	-.2831** (110)	.2280* (110)	-.2278* (110)	.0251 (110)	.2313* (119)	.2313* (119)
459.184 PEER	-.1735 (110)	.1080 (110)	-.2367* (110)	.0231 (110)	.1597 (119)	.1597 (119)
461.186 PEER	-.2217* (110)	.2357* (110)	-.1434 (110)	.0457 (110)	.1575 (119)	.1575 (119)
463.188 PEER	-.1517 (110)	.1153 (110)	-.0030 (110)	-.0001 (110)	.0865 (119)	.0865 (119)
465.190 PEER	-.1662 (110)	.2203* (110)	-.0554 (110)	.0672 (110)	.1102 (119)	.1102 (119)
468.193 TECH	-.4212** (118)	.2519** (118)	-.2788** (118)	-.0820 (118)	.2372* (119)	.2372* (118)
471.196 HUM.	-.3112** (110)	.2369* (110)	-.1566 (110)	-.0201 (110)	.1753 (119)	.1759 (119)
472.197 COMM	-.4003** (110)	.2532** (110)	-.3046** (110)	-.0297 (110)	.3063** (119)	.3063** (119)
473.198 MOTI	-.2009* (110)	.2005* (110)	-.1333 (110)	.0746 (110)	.2313* (119)	.2313* (119)
474.199 DEC.	-.2437* (110)	.1808* (110)	-.1152 (110)	-.0186 (110)	.1512 (119)	.1512 (119)
475.200 SATI	-.2084* (110)	.1663 (110)	-.0746 (110)	.0028 (110)	.1475 (119)	.1475 (119)
476.201 G700	-.2334* (110)	.2262* (110)	-.1550 (110)	.0785 (110)	.2241* (119)	.2241* (119)
479.204 LOVE	-.2704** (110)	.1500 (110)	-.1263 (110)	-.0855 (110)	.1641 (119)	.1641 (119)
	3004. TVE1D	3005. TVE1E	3006. TVE1F	3017. DLC1D	3053. DLC2D	3054. DLC2E

CORRELATION (2) Region 5

[illegible] (9)	[illegible] (9)	.1539 (9)	.1369 (9)	.1731 (9)	.1447 (9)	.1097 (9)	.0080 (9)	-.0390 (9)	.1144 (9)	.1587 (9)	.1731 (9)	.1772 (9)	[illegible] (9)
[illegible] (9)	.4347 (9)	.4932 (9)	.5917 (9)	.5047 (9)	.5038 (9)	.4861 (9)	-.2154 (9)	-.1873 (9)	-.1465 (9)	-.1415 (9)	-.1951 (9)	-.2119 (9)	-.2325 (9)
.1755 (9)	.1659 (9)	.1763 (9)	.1472 (9)	.1868 (9)	.1891 (9)	.1713 (9)	.1064 (9)	.1545 (9)	.1516 (9)	.1449 (9)	.0823 (9)	.0632 (9)	.0632 (9)
.3551 (9)	.3735 (9)	.3790 (9)	.3376 (9)	.3903 (9)	.3974 (9)	.3952 (9)	-.1608 (9)	-.1757 (9)	-.1782 (9)	-.1557 (9)	-.2108 (9)	-.2403 (9)	-.2324 (9)
.3003 (9)	.2754 (9)	.3025 (9)	.2775 (9)	.2954 (9)	.3011 (9)	.2993 (9)	-.2622 (9)	-.1561 (9)	-.19[illegible] (9)	-.1880 (9)	-.1987 (9)	-.1726 (9)	-.1105 (9)
-.2575 (9)	-.2672 (9)	-.2663 (9)	-.2626 (9)	-.2673 (9)	-.2758 (9)	-.2978 (9)	.3590 (9)	.4071 (9)	.4930 (9)	.5423 (9)	.5513 (9)	.5878 (9)	.5933 (9)
.4206 (9)	.4339 (9)	.4479 (9)	.4481 (9)	.4340 (9)	.4049 (9)	.3818 (9)	-.3410 (9)	-.3492 (9)	-.2087 (9)	-.1554 (9)	-.1362 (9)	-.1357 (9)	-.1616 (9)
.1233 (9)	.1157 (9)	.1257 (9)	.1319 (9)	.1279 (9)	.1243 (9)	.1035 (9)	.1115 (9)	.1874 (9)	.2174 (9)	.2493 (9)	.2093 (9)	.2017 (9)	.2223 (9)
.7335 (9)	.7359 (9)	.7137 (9)	.7143 (9)	.7279 (9)	.7478 (9)	.7580 (9)	-.7065 (9)	-.7125 (9)	-.6988 (9)	-.6684 (9)	-.7016 (9)	-.6725 (9)	-.6563 (9)
.2555 (9)	.2413 (9)	.2517 (9)	.2626 (9)	.2434 (9)	.2709 (9)	.2666 (9)	-.3909 (9)	-.3513 (9)	-.3660 (9)	-.2963 (9)	-.2596 (9)	-.1912 (9)	-.1567 (9)
.3325 (9)	.3274 (9)	.3346 (9)	.3469 (9)	.3444 (9)	.3481 (9)	.3221 (9)	-.0440 (9)	-.1079 (9)	-.0690 (9)	-.0306 (9)	-.0613 (9)	-.0210 (9)	-.0592 (9)
-.3573 (9)	-.3551 (9)	-.3591 (9)	-.3542 (9)	-.3549 (9)	-.3555 (9)	-.3600 (9)	.4406 (9)	.5126 (9)	.4375 (9)	.4322 (9)	.4221 (9)	.4117 (9)	.4533 (9)
.1555 (9)	.1352 (9)	.1323 (9)	.1348 (9)	.1519 (9)	.1727 (9)	.1682 (9)	-.0367 (9)	-.0044 (9)	-.0160 (9)	[illegible]0118 (9)	-.0374 (9)	-.0119 (9)	.0299 (9)
-.4023 (9)	-.4059 (9)	-.[illegible]42 (9)	-.4033 (9)	-.4059 (9)	-.4049 (9)	-.4067 (9)	.4103 (9)	.4925 (9)	.4104 (9)	[illegible] (9)	.4101 (9)	.4141 (9)	.4631 (9)
.0504 (9)	.0361 (9)	.0411 (9)	.0494 (9)	.0547 (9)	.0660 (9)	.0474 (9)	.1856 (9)	.2632 (9)	.2394 (9)	.2445 (9)	.1910 (9)	.2095 (9)	.2249 (9)
.4752 (9)	.4731 (9)	.4856 (9)	.4749 (9)	.4915 (9)	.4913 (9)	.4793 (9)	-.2440 (9)	-.2041 (9)	-.2457 (9)	-.3132 (9)	-.3647 (9)	.3934 (9)	-.4394 (9)
2001. V2001	2002. V2002	2003. V2003	2004. V2004	2005. V2005	2006. V2006	2007. V2007	2008. V2008	2009. V2009	2010. V2010	2011. V2011	2012. V2012	2013. V2013	2014. V2014

TABLE G9: ORGANIZATION V
(Wave 1 SOO)

MISSING DATA CORRELATIONS (1) Regions 1-4

	2001. V2001	2002. V2002	2003. V2003	2004. V2004	2005. V2005	2006. V2006	2007. V2007	2008. V2008	2009. V2009	2010. V2010	2011. V2011	2012. V2012	2013. V2013	2014. V2014
131.176 SUP	.1524 (21)	.1757 (21)	.1254 (21)	.1312 (21)	.1307 (21)	.0546 (21)	-.0859 (20)	-.0176 (21)	-.0106 (21)	.0504 (21)	.0983 (21)	.1875 (21)	.2123 (21)	.2239 (20)
133.178 SUP	[illegible] (21)	.1222 (21)	.0018 (21)	.0371 (21)	.1348 (21)	.0911 (21)	-.1664 (20)	.1601 (21)	.1658 (21)	.2100 (21)	.2015 (21)	.2220 (21)	.2306 (21)	.3338 (20)
135.180 SUP	[illegible] (21)	.2743 (21)	.0612 (21)	.0970 (21)	.1330 (21)	.1207 (21)	-.0010 (20)	.2417 (21)	.2275 (21)	.2525 (21)	.2304 (21)	.2366 (21)	[illegible] (21)	.2767 (20)
137.182 SUP	-.2250 (21)	-.2578 (21)	-.2716 (21)	-.2909 (21)	-.2096 (21)	-.1769 (21)	-.1372 (20)	-.1034 (21)	-.0662 (21)	.0472 (21)	-.0374 (21)	.0677 (21)	-.1017 (21)	-.0179 (20)
139.184 PEER	-.1714 (21)	-.1643 (21)	-.2183 (21)	-.2517 (21)	-.2228 (21)	-.2329 (21)	-.2293 (20)	-.0694 (21)	.0797 (21)	.0912 (21)	.0944 (21)	.0745 (21)	-.2215 (21)	.0445 (20)
141.186 PEER	-.1364 (21)	-.1115 (21)	-.1531 (21)	-.1555 (21)	-.1210 (21)	-.1626 (21)	-.3003 (20)	-.0607 (21)	.0807 (21)	.1302 (21)	-.1439 (21)	.1572 (21)	.0652 (21)	.1535 (20)
143.188 PEER	-.4465 (21)	-.4072 (21)	-.4070 (21)	-.3441 (21)	-.2548 (21)	-.2341 (21)	-.3228 (20)	-.1436 (21)	-.0736 (21)	-.1313 (21)	-.1519 (21)	-.1976 (21)	-.2337 (21)	-.1328 (20)
145.190 PEER	-.4325 (21)	-.4021 (21)	-.4072 (21)	-.3920 (21)	-.2989 (21)	-.3200 (21)	-.3202 (20)	-.1103 (21)	-.0326 (21)	.0026 (21)	-.0372 (21)	-.0959 (21)	-.1452 (21)	-.0467 (20)
148.193 TECH	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	0.	-0.
151.196 HUM	-.1964 (21)	-.1337 (21)	-.1985 (21)	-.2267 (21)	-.1751 (21)	-.1800 (21)	-.1088 (20)	-.0151 (21)	.1182 (21)	.1584 (21)	.0515 (21)	.0135 (21)	-.0125 (21)	.0796 (20)
152.197 COMM	.1732 (21)	.2334 (21)	.2595 (21)	.2090 (21)	.2717 (21)	.2488 (21)	.2035 (20)	.1095 (21)	.1679 (21)	.1645 (21)	.0885 (21)	.1201 (21)	.1057 (21)	.1636 (20)
153.198 MUTI	.1555 (21)	.1742 (21)	.1894 (21)	.1773 (21)	.2514 (21)	.2578 (21)	.2963 (20)	-.0023 (21)	.0063 (21)	.0461 (21)	-.0781 (21)	-.0645 (21)	-.0029 (21)	.0123 (20)
154.199 DEC	.0801 (21)	.1093 (21)	.1627 (21)	.1433 (21)	.1921 (21)	.2452 (21)	.2503 (20)	-.0459 (21)	.0038 (21)	.0131 (21)	-.1087 (21)	-.0801 (21)	-.0212 (21)	.0222 (20)
155.200 SATI	.1020 (21)	.1791 (21)	.1637 (21)	.1543 (21)	.1711 (21)	.1832 (21)	.2399 (20)	-.0411 (21)	.0631 (21)	.1556 (21)	.0782 (21)	.1410 (21)	.1327 (21)	.3215 (20)
156.201 GROU	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
159.204 LONE	-.0532 (21)	.0096 (21)	.028[illegible] (21)	.0255 (21)	.0956 (21)	.0618 (21)	.0097 (20)	.0295 (21)	.0808 (21)	.0558 (21)	-.0611 (21)	-.1127 (21)	-.0630 (21)	.0174 (20)

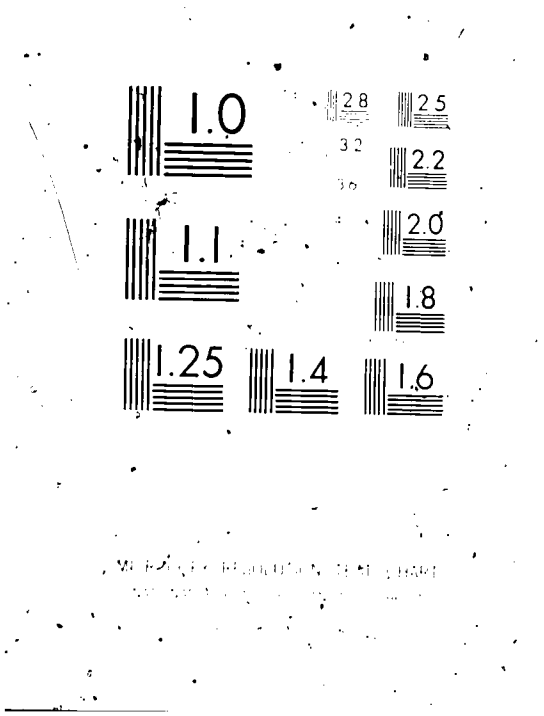
1.0
2.8
2.5
3.2
2.2
1.1
2.0
1.8
1.25
1.4
1.6

TABLE G9: (CONTINUED)

MISSING DATA CORRELATION (%) Regions 6+8

VARIABLE													
131.176 SUP	.0641 (19)	.2042 (19)	.0367 (19)	-.1248 (19)	-.1583 (19)	-.2962 (19)	-.2916 (19)	-.1098 (19)	-.1585 (19)	-.2221 (19)	-.3310 (19)	-.3833 (19)	[illegible]
133.178 SUP	.1222 (19)	.1911 (19)	.0390 (19)	-.0389 (19)	-.0913 (19)	-.1974 (19)	-.2058 (19)	.0494 (19)	-.0264 (19)	-.0897 (19)	-.1903 (19)	-.2245 (19)	[illegible]
135.180 SUP	.1079 (19)	.1346 (19)	-.1422 (19)	-.1628 (19)	-.2784 (19)	-.3468 (19)	-.3601 (19)	.1218 (19)	.0518 (19)	-.1198 (19)	-.1604 (19)	-.1696 (19)	[illegible]
137.182 SUP	-.0350 (19)	-.0173 (19)	-.0104 (19)	-.0754 (19)	-.1628 (19)	-.1545 (19)	-.1552 (19)	-.1920 (19)	-.1663 (19)	-.0339 (19)	-.0716 (19)	-.0920 (19)	-.1014 (19)
139.184 PEER	-.1311 (19)	-.1687 (19)	-.1939 (19)	-.2590 (19)	-.4132 (19)	-.4379 (19)	-.4730 (19)	-.0092 (19)	.1422 (19)	.3984 (19)	.3710 (19)	.3233 (19)	.3018 (19)
141.186 PEER	.2536 (19)	-.0714 (19)	.0695 (19)	.0990 (19)	-.1207 (19)	-.1174 (19)	-.1802 (19)	.0677 (19)	.1553 (19)	.4775 (19)	.5399 (19)	.4807 (19)	.4468 (19)
143.188 PEER	.2154 (19)	.1359 (19)	-.0422 (19)	-.2163 (19)	-.2237 (19)	-.1575 (19)	-.1451 (19)	.3971 (19)	.4746 (19)	.4605 (19)	.4533 (19)	.3845 (19)	.3330 (19)
145.190 PEER	-.1147 (19)	-.1914 (19)	-.1239 (19)	-.1259 (19)	-.2782 (19)	-.2307 (19)	-.2477 (19)	-.1071 (19)	.0484 (19)	.2882 (19)	.3339 (19)	.3119 (19)	.2963 (19)
149.193 TECH	-.0219 (19)	.0333 (19)	.1031 (19)	.0528 (19)	.1064 (19)	.0345 (19)	-.0125 (19)	-.2046 (19)	-.3254 (19)	-.3197 (19)	-.3246 (19)	-.3373 (19)	-.3331 (19)
151.196 HOM.	.2974 (19)	.4251 (19)	.3769 (19)	.3121 (19)	.1946 (19)	.1155 (19)	.0309 (19)	.1929 (19)	.1388 (19)	.2255 (19)	.2179 (19)	.2326 (19)	.2477 (19)
152.197 COMM	-.0332 (19)	.1211 (19)	.2064 (19)	.1634 (19)	.0922 (19)	-.0347 (19)	-.1421 (19)	-.1974 (19)	-.1361 (19)	.1234 (19)	.1690 (19)	.1171 (19)	.0960 (19)
153.199 HOT!	.4475 (19)	.6133 (19)	.5049 (19)	.3763 (19)	.2310 (19)	.1834 (19)	.1181 (19)	.2211 (19)	.1080 (19)	.1124 (19)	.0291 (19)	.0198 (19)	-.0334 (19)
154.199 DEC.	.2537 (19)	.3193 (19)	.3160 (19)	.1932 (19)	.2250 (19)	.1626 (19)	.1156 (19)	.1641 (19)	.1460 (19)	.1602 (19)	.0195 (19)	.0469 (19)	-.0013 (19)
155.200 SAT!	.2024 (19)	.4058 (19)	.3107 (19)	.2205 (19)	.1289 (19)	-.0570 (19)	-.1528 (19)	.074. (19)	.0810 (19)	.1512 (19)	.1036 (19)	.1017 (19)	.0325 (19)
156.201 GROU	.1033 (19)	.2379 (19)	.1710 (19)	.1185 (19)	-.0045 (19)	-.1387 (19)	-.2051 (19)	.1878 (19)	.2485 (19)	.3420 (19)	.3038 (19)	.2749 (19)	.2457 (19)
159.204 LONE	.3562 (19)	.3451 (19)	.3070 (19)	.3487 (19)	.3083 (19)	.2597 (19)	.1974 (19)	.1754 (19)	.1725 (19)	.1025 (19)	.1147 (19)	.2018 (19)	.0929 (19)
	2001. V2001	2002. V2002	2003. V2003	2004. V2004	2005. V2005	2006. V2006	2007. V2007	2008. V2008	2009. V2009	2010. V2010	2011. V2011	2012. V2012	2013. V2013	2014. V2014

TABLE G9: (CONTINUED)

MISSING DATA CORRELATIONS (4) Region 7

	2001. V2001	2002. V2002	2003. V2003	2004. V2004	2005. V2005	2006. V2006	2007. V2007	2008. V2008	2009. V2009	2010. V2010	2011. V2011	2012. V2012	2013. V2013	2014. V2014
131.176 SUP	-.35[illegible] (9)	-.3257 (8)	-.1984 (8)	-.3515 (9)	-.3790 (9)	-.4388 (9)	-.5170 (10)	.5431 (8)	.3402 (8)	.3842 (8)	.3571 (9)	.2679 (9)	.3025 (9)	[illegible] (10)
133.178 SUP	-.2195 (8)	-.1544 (8)	.2301 (8)	.3066 (9)	.1765 (9)	-.0819 (9)	-.2320 (10)	.3414 (8)	.3885 (8)	.5155 (8)	.1696 (9)	.0412 (9)	.1357 (9)	-.4904 (10)
135.180 SUP	-.2617 (8)	-.1213 (8)	.2971 (8)	.3182 (9)	.1626 (9)	-.0738 (9)	-.0393 (10)	.0812 (8)	.1318 (8)	.3396 (8)	-.0076 (9)	-.1353 (9)	.3440 (9)	-.5507 (10)
137.182 SUP	.0372 (8)	.1317 (8)	.1815 (8)	.2114 (9)	.0546 (9)	-.1365 (9)	-.0033 (10)	.3273 (8)	.0135 (8)	.1461 (8)	-.0862 (9)	-.2213 (9)	.3295 (9)	-.4422 (10)
139.184 PEER	-.[illegible] (8)	-.0182 (8)	-.7[illegible] (8)	-.6705 (9)	-.6799 (9)	-.6279 (9)	-.7086 (10)	.4986 (8)	.6850 (8)	.4913 (8)	.4774 (9)	.4534 (9)	.5740 (9)	.0662 (10)
141.186 PEER	-.2719 (8)	-.2906 (8)	.1413 (8)	.3271 (9)	.2139 (9)	.0514 (9)	-.2947 (10)	.6793 (8)	.7287 (8)	.8582 (8)	.5939 (9)	.4239 (9)	.3643 (9)	-.0359 (10)
143.188 PEER	-.1439 (8)	-.1538 (8)	.1988 (8)	.3621 (9)	.2382 (9)	.0042 (9)	-.1022 (10)	.0210 (8)	.3660 (8)	.5563 (8)	.3089 (9)	.2108 (9)	.0165 (9)	-.3039 (10)
145.190 PEER	.0264 (8)	-.0257 (8)	.2346 (8)	.4401 (9)	.1734 (9)	-.0814 (9)	.1114 (10)	-.2029 (8)	.0198 (8)	.2645 (8)	-.1286 (9)	-.2851 (9)	.4105 (9)	-.4326 (10)
148.193 TECH	.3912 (8)	.3800 (9)	.0548 (8)	.2353 (9)	-.0322 (9)	-.2209 (9)	.2619 (10)	-.4779 (8)	-.5903 (8)	-.5332 (8)	-.4720 (9)	-.5030 (9)	.5278 (9)	-.3258 (10)
151.196 HUM.	-.0533 (8)	-.1234 (8)	.0827 (8)	.1230 (9)	-.0062 (9)	-.2208 (9)	.0419 (10)	-.5483 (8)	-.1802 (8)	-.0721 (8)	-.2673 (9)	-.2670 (9)	.4615 (9)	-.5634 (10)
152.197 COMM	.0274 (8)	-.[illegible] (8)	-.1065 (8)	-.0357 (9)	-.1852 (9)	-.1727 (9)	-.0538 (10)	-.5598 (8)	-.3198 (8)	-.4489 (8)	-.3868 (9)	-.3194 (9)	.2031 (9)	-.1827 (10)
153.198 MOTI	.1441 (8)	.1700 (8)	.0278 (8)	.1350 (9)	.1411 (9)	.0307 (9)	.2918 (10)	-.6499 (8)	-.3204 (8)	-.3342 (8)	-.3213 (9)	-.1938 (9)	.3564 (9)	-.3088 (10)
154.199 DEC.	.3449 (8)	.4077 (8)	.3292 (8)	.4512 (9)	.3770 (9)	.1841 (9)	.5190 (10)	-.6029 (8)	-.4453 (8)	-.3452 (8)	-.4954 (9)	-.4701 (9)	.7301 (9)	-.[illegible] (10)
155.200 SATI	.0116 (8)	-.0263 (8)	-.1754 (8)	.0231 (9)	-.2600 (9)	-.4608 (9)	.0744 (10)	-.3632 (8)	-.2718 (8)	-.1387 (8)	-.2227 (9)	-.3111 (9)	.3840 (9)	-.2401 (10)
156.201 GROU	-.3374 (8)	-.3546 (8)	.0581 (8)	.1130 (9)	-.0961 (9)	-.0614 (9)	.3151 (10)	.7854 (8)	.7391 (8)	.8659 (8)	.6567 (9)	.5148 (9)	.3916 (9)	-.0219 (10)
159.204 LONE	-.0736 (8)	-.1037 (8)	-.1546 (8)	-.1729 (9)	-.2183 (9)	-.0113 (9)	-.1427 (10)	-.3886 (8)	-.0906 (8)	-.2133 (8)	-.1415 (9)	-.1349 (9)	.1237 (9)	.0951 (10)

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TABLE G10: ORGANIZATION V

(Wave 2 S00)

MISSING DATA CORRELATION (1), Regions 1-4

	2001. V2001	2002. V2002	2003. V2003	2004. V2004	2005. V2005	2006. V2006	2007. V2007	2008. V2008	2009. V2009	2010. V2010	2011. V2011	2012. V2012	2013. V2013	2014. V2014
451.176 SUP	[illegible] ([illegible])	[illegible] ([illegible])	[illegible] (23)	.2099 (25)	.3210 (25)	.3723 (25)	.3981 (24)	-.3549 (22)	-.3823 (22)	-.2869 (23)	-.3618 (25)	-.3206 (25)	[illegible] (25)	[illegible] (24)
453.178 SUP	-.0546 (22)	[illegible] (22)	-.0629 (23)	.2216 (25)	.2522 (25)	.2689 (25)	.2846 (24)	-.1015 (22)	-.0762 (22)	-.0220 (23)	-.1378 (25)	-.1048 (25)	[illegible] (25)	-.0137 (24)
455.180 SUP	[illegible] (22)	-.0167 (22)	.0180 (23)	.2100 (25)	.2293 (25)	.2465 (25)	.2473 (24)	-.0581 (22)	-.0370 (22)	-.0107 (23)	-.1480 (25)	-.1553 (25)	-.1125 (25)	-.0530 (24)
457.182 SUP	-.2249 (22)	-.2411 (22)	-.2650 (23)	.0246 (25)	.0713 (25)	.0862 (25)	.1795 (24)	-.1417 (22)	-.0921 (22)	.0153 (23)	-.1573 (25)	-.1828 (25)	[illegible] (25)	[illegible] (24)
459.184 PEER	-.2934 (22)	[illegible] (22)	-.2946 (23)	.2025 (25)	.2293 (25)	.2331 (25)	.2627 (24)	-.0822 (22)	.0459 (22)	.1120 (23)	-.1004 (25)	-.1298 (25)	-.1376 (25)	-.1057 (24)
461.186 PEER	-.4723 (22)	-.5042 (22)	-.5179 (23)	-.2092 (25)	-.1526 (25)	-.1582 (25)	-.0460 (24)	.1098 (22)	.2286 (22)	.3535 (23)	.1935 (25)	.1371 (25)	.1013 (25)	.0643 (24)
463.188 PEER	-.5013 (22)	-.5426 (22)	-.5328 (23)	-.0760 (25)	-.0160 (25)	-.0117 (25)	-.0850 (24)	-.0959 (22)	-.0083 (22)	.0737 (23)	-.1379 (25)	-.2096 (25)	-.2435 (25)	-.2815 (24)
465.190 PEER	-.5073 (22)	-.5010 (22)	-.4857 (23)	.0500 (25)	.0301 (25)	.0274 (25)	.0650 (24)	-.0451 (22)	-.0121 (22)	.0490 (23)	-.0873 (25)	-.1466 (25)	-.1649 (25)	-.1737 (24)
468.193 TECH	-.4244 (22)	-.4376 (22)	-.4104 (23)	-.1979 (25)	-.1454 (25)	-.1238 (25)	-.0707 (24)	-.1519 (22)	-.1171 (22)	-.0211 (23)	-.1870 (25)	-.2108 (25)	-.1775 (25)	-.1623 (24)
471.196 HUM	-.2234 (22)	-.2465 (22)	-.2108 (23)	.0260 (25)	.0721 (25)	.1253 (25)	.1627 (24)	-.2094 (22)	-.2218 (22)	-.1908 (23)	-.3996 (25)	-.4010 (25)	-.3852 (25)	-.3421 (24)
472.197 COMM	-.2755 (22)	-.2342 (22)	-.2822 (23)	.1145 (25)	.1400 (25)	.1765 (25)	.3224 (24)	.0192 (22)	.0060 (22)	.0276 (23)	-.2261 (25)	-.2492 (25)	-.1544 (25)	-.1256 (24)
473.198 MOTI	-.1473 (22)	-.2085 (22)	-.1940 (23)	.0257 (25)	.0582 (25)	.1203 (25)	.2270 (24)	-.1076 (22)	-.0934 (22)	.0295 (23)	-.2259 (25)	-.2278 (25)	-.1748 (25)	-.1317 (24)
474.199 DECI	-.2949 (22)	-.3732 (22)	-.3534 (23)	.0852 (25)	.1357 (25)	.1832 (25)	.3314 (24)	-.0172 (22)	-.0782 (22)	.0160 (23)	-.2998 (25)	-.3438 (25)	-.2640 (25)	-.2279 (24)
475.200 SATI	-.1327 (22)	-.1357 (22)	-.1179 (23)	.1293 (25)	.1914 (25)	[illegible] (25)	.1622 (24)	-.2121 (22)	-.1374 (22)	-.0493 (23)	-.1234 (25)	-.1074 (25)	-.0921 (25)	-.0459 (24)
476.201 GROU	-.1919 (22)	-.2105 (22)	-.1830 (23)	.0475 (25)	[illegible] (25)	.1218 (25)	.1240 (24)	-.1431 (22)	-.0092 (22)	.0015 (23)	-.1157 (25)	-.1222 (25)	-.0758 (25)	-.0375 (24)
479.204 LOWE	-.2337 (22)	-.3023 (22)	-.2745 (23)	.0307 (25)	.0910 (25)	.1438 (25)	.2215 (24)	-.1129 (22)	-.1167 (22)	-.0190 (23)	-.3414 (25)	-.3962 (25)	-.3547 (25)	-.3574 (24)

MISSING DATA CORRELATION (2): Region 5

451.176 SUP	.7055 (8)	[illegible] (8)	.6487 (8)	-.6411 (8)	.6659 (8)	.5558 (8)	.2256 (8)	.2753 (8)	.1001 (8)	.3583 (8)	.3146 (8)	.2991 (8)	.2753 (8)	.0613 (8)
453.178 SUP	.2880 (8)	.1302 (8)	.1706 (8)	-.2624 (8)	.3877 (8)	.4939 (8)	.3221 (8)	.5981 (8)	.4251 (8)	.4454 (8)	.3988 (8)	.2897 (8)	[illegible] (8)	.1773 (8)
455.180 SUP	.4221 (8)	.5034 (8)	.5916 (8)	.6580 (8)	.7221 (8)	.6121 (8)	.2421 (8)	.3664 (8)	.1529 (8)	.3503 (8)	.3409 (8)	.3255 (8)	.2859 (8)	.0715 (8)
457.182 SUP	.4477 (8)	.3202 (8)	.2679 (8)	.2920 (8)	.3899 (8)	.5502 (8)	.4071 (8)	.3382 (8)	.2049 (8)	.2925 (8)	.2695 (8)	.1756 (8)	.1570 (8)	.0732 (8)
459.184 PEER	-.0061 (8)	-.0780 (8)	-.1030 (8)	-.0081 (8)	.0393 (8)	.1030 (8)	.0671 (8)	-.4093 (8)	-.4523 (8)	-.2816 (8)	.0259 (8)	.0932 (8)	.1917 (8)	.2357 (8)
461.186 PEER	.1670 (8)	.0269 (8)	.0925 (8)	.1192 (8)	.1738 (8)	.0870 (8)	-.1551 (8)	.3423 (8)	.1169 (8)	.4621 (8)	.6024 (8)	.6072 (8)	.5876 (8)	.4029 (8)
463.188 PEER	.3014 (8)	.2000 (8)	.3956 (8)	.2903 (8)	.3663 (8)	.0888 (8)	-.2565 (8)	.2268 (8)	.0279 (8)	.4352 (8)	.5728 (8)	.6331 (8)	.6174 (8)	.4560 (8)
465.190 PEER	.3032 (8)	.1503 (8)	.1491 (8)	.2401 (8)	.3729 (8)	.5369 (8)	.2508 (8)	.2735 (8)	.0669 (8)	.2778 (8)	.3635 (8)	.3314 (8)	.3312 (8)	.2571 (8)
468.193 TECH	-.1668 (8)	-.3066 (8)	-.4098 (8)	-.3237 (8)	-.1576 (8)	.1870 (8)	.2606 (8)	-.0708 (8)	-.2052 (8)	-.0849 (8)	.1110 (8)	.0666 (8)	.1407 (8)	.2037 (8)
471.196 HOM	-.0511 (8)	-.1606 (8)	-.3039 (8)	-.2923 (8)	-.1927 (8)	.1212 (8)	.2624 (8)	.0322 (8)	-.0059 (8)	.0313 (8)	.1360 (8)	.0508 (8)	.0321 (8)	.1949 (8)
472.197 COMM	.1152 (8)	.0315 (8)	-.0045 (8)	.0243 (8)	.0887 (8)	.1902 (8)	-.0358 (8)	-.1351 (8)	-.2863 (8)	.0558 (8)	.2624 (8)	.3190 (8)	.3516 (8)	.3537 (8)
473.198 SATI	.2937 (8)	.2189 (8)	.1479 (8)	.1427 (8)	.2678 (8)	.4168 (8)	.3778 (8)	.1048 (8)	-.0789 (8)	.0405 (8)	.0010 (8)	-.0565 (8)	.2551 (8)	-.1595 (8)
474.199 DEC	.3777 (8)	.2034 (8)	.2174 (8)	.3474 (8)	.4848 (8)	.6840 (8)	.4503 (8)	.4627 (8)	.3171 (8)	.3364 (8)	.3473 (8)	.2495 (8)	.2350 (8)	.1496 (8)
475.200 SATI	.1826 (8)	.0552 (8)	.0589 (8)	.1164 (8)	.2211 (8)	.3888 (8)	.1139 (8)	.3939 (8)	.2309 (8)	.4054 (8)	.4369 (8)	.3930 (8)	.4351 (8)	.3339 (8)
476.201 GROU	.0915 (8)	-.0462 (8)	-.0357 (8)	-.0380 (8)	.0935 (8)	.2670 (8)	.1318 (8)	.1216 (8)	-.0985 (8)	.1742 (8)	.3136 (8)	.2939 (8)	.3496 (8)	.2376 (8)
479.204 LOWE	.3520 (8)	.2840 (8)	.3695 (8)	.4512 (8)	.5281 (8)	.4600 (8)	.1097 (8)	.1542 (8)	-.0522 (8)	.1489 (8)	.1698 (8)	.2078 (8)	.2335 (8)	.0203 (8)
	2001. V2001	2002. V2002	2003. V2003	2004. V2004	2005. V2005	2006. V2006	2007. V2007	2008. V2008	2009. V2009	2010. V2010	2011. V2011	2012. V2012	2013. V2013	2014. V2014

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TABLE G10. (CONTINUED)

MISSING DATA CORRELATION (4) Region 7

451.176 SUP	.0153 (7)	.0430 (7)	-.0616 (7)	-.0374 (8)	-.1803 (8)	-.2639 (8)	-.0806 (9)	.2307 (7)	-.1436 (7)	-.1560 (7)	-.2274 (8)	-.3382 (8)	-.2611 (8)	-.2544 (9)
453.178 SUP	-.0649 (7)	-.2018 (7)	-.0055 (7)	.0754 (8)	-.0429 (8)	-.1830 (8)	-.0998 (9)	.2116 (7)	-.0207 (7)	-.1049 (7)	-.2022 (8)	-.2575 (8)	-.2575 (8)	-.3837 (9)
455.180 SUP	.0536 (7)	.0307 (7)	-.0871 (7)	-.0459 (8)	-.2301 (8)	-.3117 (8)	.1219 (9)	-.1706 (7)	-.4249 (7)	-.4659 (7)	-.5020 (8)	-.4564 (8)	-.5034 (8)	-.5271 (9)
457.182 SUP	-.1769 (7)	-.1374 (7)	-.1455 (7)	-.1213 (8)	-.1651 (8)	-.1518 (8)	-.0156 (9)	.3458 (7)	.0667 (7)	-.0380 (7)	-.0684 (8)	-.2434 (8)	-.1475 (8)	-.1331 (9)
459.184 PEER	-.2703 (7)	-.2089 (7)	-.1676 (7)	-.0095 (8)	.0918 (9)	.1683 (8)	.1774 (9)	.4741 (7)	.3676 (7)	.2360 (7)	.0120 (8)	-.1142 (8)	.0022 (8)	.0449 (9)
461.186 PEER	-.3755 (7)	-.2933 (7)	-.1246 (7)	.2991 (8)	.1441 (8)	.1630 (8)	-.0816 (9)	.6044 (7)	.5234 (7)	.3863 (7)	.1962 (8)	.0517 (8)	.1826 (8)	.1324 (9)
463.188 PEER	.1014 (7)	.0429 (7)	-.3562 (7)	.2152 (8)	.0403 (8)	-.0476 (8)	.1375 (9)	.4473 (7)	.0663 (7)	.2371 (7)	.0069 (8)	-.1110 (8)	-.0734 (8)	.0994 (9)
465.190 PEER	.2457 (7)	.2935 (7)	.0929 (7)	.2123 (8)	.0774 (8)	.0045 (8)	.3005 (9)	.0723 (7)	-.3045 (7)	-.3329 (7)	-.3549 (8)	-.5221 (8)	-.3413 (8)	-.2764 (9)
463.193 TECH	.6453 (7)	.5924 (7)	.4758 (7)	.3677 (8)	.2486 (8)	.3900 (8)	.5767 (9)	-.8353 (7)	-.8882 (7)	-.9507 (7)	-.8930 (8)	-.9114 (8)	-.8773 (8)	-.7446 (9)
471.196 MATH	-.0317 (7)	.0459 (7)	-.0139 (7)	-.0725 (8)	-.0918 (8)	-.1228 (8)	.2064 (9)	-.2748 (7)	-.3308 (7)	-.4580 (7)	-.6329 (8)	-.6006 (8)	-.6216 (8)	-.5919 (9)
472.197 CHEM	-.1331 (7)	-.0829 (7)	-.1051 (7)	-.0115 (8)	-.2100 (8)	-.3709 (8)	-.1767 (9)	-.2186 (7)	-.2404 (7)	-.3444 (7)	-.4802 (8)	-.5259 (8)	-.5132 (8)	-.3652 (9)
473.198 MATH	-.6234 (7)	-.6063 (7)	-.4770 (7)	-.2474 (8)	-.1820 (8)	-.1504 (8)	-.0811 (9)	.0019 (7)	.4354 (7)	.2636 (7)	.0362 (8)	.0496 (8)	.0779 (8)	.1912 (9)
474.199 DEC.	-.1812 (7)	-.1672 (7)	-.2029 (7)	-.3195 (8)	-.2009 (8)	-.1172 (8)	-.0251 (9)	-.3717 (7)	-.2555 (7)	-.4516 (7)	-.6098 (8)	-.5661 (8)	-.4339 (8)	-.3095 (9)
475.200 SATI	-.6056 (7)	-.6222 (7)	-.4908 (7)	.0429 (8)	-.0827 (8)	-.1124 (8)	.0084 (9)	.1944 (7)	.4092 (7)	.1836 (7)	-.1441 (8)	-.2728 (8)	-.1626 (8)	-.1523 (9)
476.201 GRAD	-.2733 (7)	-.2581 (7)	-.2418 (7)	-.1838 (8)	-.1031 (8)	-.0458 (8)	.1003 (9)	.6851 (7)	.5370 (7)	.6687 (7)	.3597 (8)	.2020 (8)	.1193 (8)	.1949 (9)
479.204 LOWE	.7275 (7)	.6388 (7)	.5735 (7)	.3796 (8)	.2598 (8)	.3547 (8)	.5002 (9)	-.5416 (7)	-.8085 (7)	-.8194 (7)	-.6895 (8)	-.7043 (8)	-.5315 (8)	-.6040 (9)
	2001. V2001	2002. V2002	2003. V2003	2004. V2004	2005. V2005	2006. V2006	2007. V2007	2008. V2008	2009. V2009	2010. V2010	2011. V2011	2012. V2012	2013. V2013	2014. V2014

TABLE G10: (CONTINUED)

MISSING DATA CORRELATION <3> Regions 6+8

451.176 SUP	.0336 (19)	.1132 (19)	.0213 (19)	-.0731 (19)	-.1227 (19)	-.2403 (19)	-.2739 (19)	-.0443 (19)	-.1071 (19)	-.0140 (19)	-.1157 (19)	-.1545 (19)	-.2024 (19)	-.22 (19)
453.178 SUP	.1929 (19)	.2395 (19)	.0172 (19)	-.0577 (19)	-.1457 (19)	-.2224 (19)	-.2285 (19)	.1885 (19)	.1343 (19)	.0824 (19)	-.0458 (19)	-.0964 (19)	-.1[illegible] (19)	[illegible] (19)
455.180 SUP	.1564 (19)	.1709 (19)	-.1181 (19)	-.1110 (19)	-.2317 (19)	-.3152 (19)	-.3413 (19)	.3341 (19)	.3147 (19)	.1638 (19)	.1450 (19)	.1119 (19)	.1[illegible] (19)	[illegible] (19)
457.182 SUP	-.2559 (19)	-.1334 (19)	-.1411 (19)	-.1193 (19)	-.1214 (19)	-.1115 (19)	-.1189 (19)	-.0451 (19)	-.0976 (19)	.0203 (19)	.0078 (19)	-.0112 (19)	.[illegible] (19)	-.[illegible] (19)
459.184 PEER	.2187 (19)	-.0774 (19)	-.1264 (19)	-.0828 (19)	-.2239 (19)	-.2493 (19)	-.2623 (19)	.0691 (19)	.1647 (19)	.3078 (19)	.3625 (19)	.3055 (19)	.1[illegible] (19)	.1[illegible] (19)
461.186 PEER	-.1333 (19)	-.0556 (19)	-.1267 (19)	-.0177 (19)	-.1744 (19)	-.2534 (19)	-.3440 (19)	.1777 (19)	.3309 (19)	.5228* (19)	.6490* (19)	.6197* (19)	.5[illegible]* (19)	.4[illegible] (19)
463.188 PEER	-.1066 (19)	-.0394 (19)	-.2765 (19)	-.2024 (19)	-.3311 (19)	-.3713 (19)	-.3894 (19)	.4465* (19)	.5330* (19)	.4727* (19)	.5355* (19)	.4912* (19)	.3911 (19)	.405 (19)
465.190 PEER	-.1319 (19)	-.2972 (19)	-.3063 (19)	-.2236 (19)	-.3510 (19)	-.3421 (19)	-.3704 (19)	.0676 (19)	.1860 (19)	.4137 (19)	.5204* (19)	.4707* (19)	.3315 (19)	.412 (19)
467.193 TECH	-.1711 (19)	-.2972 (19)	-.3363 (19)	-.2518 (19)	-.3495 (19)	-.2743 (19)	-.2662 (19)	-.0087 (19)	.0545 (19)	.1145 (19)	.2219 (19)	.2187 (19)	.2494 (19)	.219 (19)
471.196 HUM	-.1793 (19)	-.1559 (19)	-.1426 (19)	-.0038 (19)	-.1365 (19)	-.1163 (19)	-.1394 (19)	-.1205 (19)	-.0471 (19)	.1365 (19)	.2304 (19)	.2016 (19)	.2132 (19)	.175 (19)
472.197 CRIM	-.1233 (19)	-.0191 (19)	-.0239 (19)	-.0106 (19)	-.0835 (19)	-.1972 (19)	-.2524 (19)	-.0058 (19)	.0174 (19)	.1690 (19)	.1989 (19)	.2037 (19)	.0867 (19)	.0334 (19)
473.198 MATH	-.0035 (19)	.0598 (19)	-.0098 (19)	-.0064 (19)	-.0779 (19)	-.1605 (19)	-.2311 (19)	.1583 (19)	.2203 (19)	.3204 (19)	.3292 (19)	.3355 (19)	.2732 (19)	.1741 (19)
474.199 DEC	-.0420 (19)	-.0051 (19)	-.0321 (19)	-.0073 (19)	-.0542 (19)	-.0909 (19)	-.1688 (19)	.0457 (19)	.1369 (19)	.2124 (19)	.2474 (19)	.2681 (19)	.2439 (19)	.2012 (19)
475.200 SATI	-.2137 (19)	-.1725 (19)	-.1752 (19)	-.0722 (19)	-.1721 (19)	-.2637 (19)	-.3495 (19)	-.0665 (19)	-.0389 (19)	.1975 (19)	.3071 (19)	.2876 (19)	.1[illegible] (19)	.0523 (19)
476.201 GROU	-.1722 (19)	-.1929 (19)	-.2049 (19)	-.1660 (19)	-.2327 (19)	-.3247 (19)	-.3632 (19)	.1471 (19)	.2137 (19)	.4013 (19)	.4379 (19)	.4041 (19)	.2632 (19)	.2120 (19)
479.204 LOWE	-.0032 (19)	-.0979 (19)	-.1647 (19)	-.0432 (19)	-.1872 (19)	-.0963 (19)	-.0979 (19)	.2518 (19)	.3108 (19)	.3062 (19)	.4243 (19)	.4329 (19)	.5440* (19)	.5425* (19)
	2001. V2001	2002. V2002	2003. V2003	2004. V2004	2005. V2005	2006. V2006	2007. V2007	2008. V2008	2009. V2009	2010. V2010	2011. V2011	2012. V2012	2013. V2013	2014. V2014

APPENDIX H

ORGANIZATION II:

CORRELATIONS BETWEEN SOO AND PERFORMANCE

FOR PLANTS 1 - 4 COMBINED

TABLE H1: SOO WAVE 1 AND TVE

ORG. II Plants 1+2

MISSING DATA CORRELATION TVE

VARIA

VARIABLE	3991. TVE1A	3992. TVE1B	3993. TVE1C	3994. TVE1D	3995. TVE1E
131.176 SUP	-.1942 (61)	-0.	-.0511 (61)	-.1197 (61)	-.0149 (61)
133.178 SUP	-.1962 (61)	-0.	-.0176 (61)	-.1300 (61)	-.0503 (61)
135.180 SUP	-.2374 (61)	-0.	-.1217 (61)	-.2559 (61)	-.1422 (61)
137.182 SUP	-.2425 (61)	-0.	-.1561 (61)	-.2456* (61)	-.1341 (61)
139.184 PEER	-.2799* (61)	-0.	-.0798 (61)	-.2850* (61)	-.2478* (61)
141.186 PEER	-.4725 (61)	-0.	-.1393 (61)	-.4978** (61)	-.3623** (61)
143.188 PEER	-.5394 (61)	-0.	-.1667 (61)	-.5133** (61)	-.3953** (61)
145.190 PEER	-.5039* (61)	-0.	-.1770 (61)	-.4823** (61)	-.3286** (61)
148.193 TECH	-.5177 (61)	-0.	-.2079 (61)	-.5658** (61)	-.3641** (61)
151.196 HUM.	-.5479** (61)	-0.	-.1799 (61)	-.5835** (61)	-.4683** (61)
152.197 COMM	-.5488 (61)	-0.	-.1869 (61)	-.5998** (61)	-.3272** (61)
153.198 MOTIV	-.5065** (61)	-0.	-.3233** (61)	-.4697** (61)	-.3310** (61)
154.199 DEC.	-.5859** (61)	-0.	-.3392** (61)	-.5777** (61)	-.4337** (61)
155.200 SATI	-.2918* (61)	-0.	-.0618 (61)	-.2947* (61)	-.2068 (61)
156.201 GROW	-.5727** (61)	-0.	-.1271 (61)	-.5153** (61)	-.3346** (61)
159.204 LOVE	-.4748** (61)	-0.	-.3335** (61)	-.4392** (61)	-.3966** (61)

TABLE H2: SOO WAVE 2 AND ABSENCE

ORG II Plants 1-4
MISSING DATA CORRELATION ABS

VARIABLE						
131.176 SUP	.0368 (47)	.0265 (108)	.1244 (47)	-.2548* (76)	-.0457 (61)	.0058 (24)
133.178 SUP	.0478 (47)	-.0642 (108)	.1406 (47)	-.3232** (76)	-.0754 (61)	-.1139 (24)
135.180 SUP	.1117 (46)	.0527 (107)	.2179 (46)	-.2995** (76)	-.1533 (61)	-.0678 (24)
137.182 SUP	.2181 (47)	-.0477 (108)	.2817* (47)	-.3840** (76)	-.1524 (61)	-.2326 (24)
139.184 PEER	-.0635 (47)	.0012 (108)	.0040 (47)	-.3006** (76)	-.3010* (61)	-.1039 (24)
141.186 PEER	-.1014 (47)	.0450 (108)	-.0532 (47)	-.4077** (76)	-.4027** (61)	-.5086** (24)
143.188 PEER	-.0370 (47)	.0006 (108)	.0211 (47)	-.3762** (76)	-.4316** (61)	-.2000 (24)
145.190 PEER	-.0776 (47)	-.0248 (108)	.0440 (47)	-.3006** (76)	-.3829** (61)	-.3750 (24)
147.192 TECH	-.0760 (46)	.0407 (107)	.0700 (46)	-.3350** (76)	-.4226** (61)	.0210 (24)
151.196 HOUS.	-.0180 (47)	-.0828 (108)	.0066 (47)	-.3767** (76)	-.5002** (61)	-.3528 (24)
153.198 COMM	.0876 (47)	.0577 (108)	.0673 (47)	-.2976** (76)	-.3684** (61)	-.1970 (24)
155.200 MOTI	-.1766 (47)	-.0058 (108)	.0188 (47)	-.3870** (76)	-.3364** (61)	.1334 (24)
156.202 DEC.	-.0142 (47)	-.0023 (108)	-.0637 (47)	-.3456** (76)	-.4558** (61)	.0023 (24)
158.204 SATI	.0056 (47)	-.0613 (108)	.1006 (47)	-.4783** (76)	-.2310 (61)	-.1590 (24)
160.206 GROU	-.1312 (47)	.0016 (108)	-.0202 (47)	-.3821** (76)	-.4136** (61)	-.4446* (24)
162.208 LOVE	.0795 (47)	-.1849 (108)	.0495 (47)	-.3025** (76)	-.3752** (61)	-.0166 (24)
	3028. ABS	3029. ABS	3030. ABS	3031. ABS	3032. ABS	3033. ABS

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ABSTRACT

Thirty-five second-grade learning disabled children participated in a visual information processing training program designed to teach analysis of visual material into component parts, systematic scanning of visual arrays, pick-up, description, and memory storage of distinctive information, and efficient solution of visual match-to-sample problems. After eight weeks in this experimental program, the treatment group was superior to contrast and control groups on a battery of visual information processing tasks, the Embedded Figures Test, the Matching Familiar Figures Test, and two reading achievement measures. Results from a delayed posttest indicated that the gains were maintained throughout two months of summer vacation. (Author)

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Visual Information Processing: Evaluation of a Training Program for Children with Learning Disabilities[1]

Byron Egeland Robert Wozniak Vicki Schrimpf
Jami Hage Valerie Johnson Amy Lederberg
University of Minnesota

Recent research strongly suggests that there are important developmental trends and individual variations in young children's ability to process information presented to them in a visual display. One of the most important variables of visual information processing is the efficiency with which attention is deployed over the surface of the display. Most of the studies in this area have measured attentional deployment by monitoring eye movements during tasks in which children are asked to scan a visual array for task relevant information (cf., Day, 1975, for a thorough review of this research).

In a variety of tasks, clear developmental changes (Vurpillot, 1968; Zinchenko and Ruzskaya, 1969; Nodine and Lang, 1971) and wide individual differences (Drake, 1970; Siegelman, 1969) in task relevant systematicity and exhaustiveness of visual scanning have been found in children between the ages of four and eight years. Furthermore, these differences appear to be highly related to the child's overall level of accuracy on the visual task. For example, children who are most accurate in making visual match-to-sample judgments have consistently been found to sample more information and to sample information more systematically prior to response than children whose performance in such tasks is relatively less accurate. As might be expected, there is a tendency for children's ability to perform accurately on certain of these visual tasks (most notably the MFF) to be related to proficiency in a number of academic

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[1]Rough copy of paper presented at 1976 American Educational Research Association Convention, San Francisco, April 19-23, 1976. This research was funded by a grant from the Bureau of Education for the Handicapped, Division of Research to the Minnesota Research, Development & Demonstration Center in Education of Handicapped Children.

areas (Messer, 1970; Kagan, 1965a, 1965b, 1966; Kagan, Pearson and Welch, 1966).

In addition to effective spatial deployment of attention, a child who is to profit from the information in a visual display must be sensitive to the variables of that information. He/She must attend to the relationships among the features of the display which constitute its informational base.

Analysis of the basic structure of such visual information suggests that it is of at least two types. The first type of information has been characterized by Gibson (1969) in terms of "distinctive features,"--properties or patterns of stimulation unique to an object or class of objects in relation to another object or class. Information of this type provides the figurative basis for simple logical classification discussed by Piaget and Inhelder (1958). Differences along many dimensions (e.g., size, contour, internal spatial relations) may constitute distinguishing features; and the child must be sensitive to these dimensions of difference if he/she is to extract the information embedded in a visual display.

A second type of basic visual information is that which is constituted by the relationships which exist between whole objects and their parts--parts which may themselves be whole objects of a lower order. Information of this type, hierarchical structure, provides the figurative basis for infralogical operations (Piaget, 1958). In other words, whereas distinctive features underlie visual discriminations and judgments of similarity and difference, part-whole hierarchical relationships provide figurative support for visual analysis and synthesis. Presumably a child must also be sensitive to the hierarchical structure within which distinctive features are embedded if he/she is to process visual information effectively.

Relatively little research has attempted directly to assess the extent to which there are individual differences in young children's sensitivity to distinctive features or to part-whole hierarchic information. Nonetheless, extensive research by Gibson (1969) and her colleagues on distinctive feature extraction and studies by Elkind, Koegier and Go, 1964; Furth, 1963; Corah and Gospodinott, 1966 on part-whole perception suggests that there are developmental changes in these abilities during the pre-school and early primary years. In addition, work in progress by the current authors (Brandl, Egeland, and Wozniak, 1975; Clarke, Wozniak, and Egeland, 1975) and indirect evidence from the literature on individual differences in analytic-synthetic cognitive style (Kagan, Moss and Sigel, 1963) support the existence of wide individual differences in these abilities in early primary grade children. Most importantly, as with variations in scanning ability, individual differences in sensitivity to distinctive feature and part-whole hierarchical information also appear to be related to school achievement.

On the basis of the information currently available, therefore, it seems reasonable to suppose that some children who do poorly in school, particularly those with intelligence well within the normal range, may do poorly at least in part because they have not yet developed the ability to process visual information encountered in the classroom (in a workbook, on a blackboard, on the printed page) effectively. As part of a long range research project designed to test the implications of this supposition, a detailed program of training and transfer of the three fundamental visual skills, systematic scanning, sensitivity to dimensional differences, and part-whole hierarchical analytic ability, was developed. The study to be reported in this paper was an evaluation of the effectiveness of this program in improving and

maintaining improvement in these skills and in fostering transfer to other visual tasks.

Method

Selection of Subjects: Second-grade teachers from 15 classes in six inner-city Minneapolis Schools were asked to identify children who were having academic problems. Of a total sample of 345 children, 218 were so identified. This sample was screened with Kagan's (1964) Matching Familiar Figures Test (MFF) and four subtests from a Visual Information Processing Test Battery developed within the project (Wozniak, Egeland, Hage, Schrimpf, Lederberg, and Brandl, 1975). On the basis of this screening, 153 children were identified as poor visual information processors. This group was then tested with the Gilmore Oral Reading Test, four additional subtests of the Visual Information Processing Test Battery, the Metropolitan Achievement Test, and the Embedded Figures Test. Based on the results of this additional screening, a final sample of 105 children consisting of those children with the lowest overall level of academic achievement, lowest reading scales, and poorest visual information processing abilities was obtained. These children were randomly assigned to either a treatment group, a contrast group, or an in-class control group.

Measures: Data from the screening administration was used as the present data; the two equivalent forms of the screening measures were developed for post- and delayed posttesting. As indicated above, the evaluation instruments consisted of two standard Visual Processing Measures, the MFF, and the Embedded Figures Test; the Primary Form of the Metropolitan Achievement Test and the Gilmore Oral Reading Test; and eight subtests of a Visual Information Processing Test Battery which was developed within the project. The MFF is a match-to-sample visual discrimination task consisting of a

picture of a common object shown along with six similar variants. Children who respond quickly and make a large number of errors are described as having an impulsive conceptual tempo, while those responding more slowly and making fewer errors are labeled as reflective. The Embedded Figures Test requires a child to locate a simple figure embedded in a complex one. This test is designed to measure a cognitive style dimension initially labeled by Witkin et al., 1962, as field dependence-independence and, more recently, as psychological differentiation or complexity. Complexity is viewed as the extent to which perception of part of a stimulus field is influenced by the entire field, or the ability to overcome embedded contexts in perception.

The eight subtests from the Visual Information Processing Test Battery are as follows: (1) Part-Whole Analysis--assesses the child's understanding of the concepts part and whole. (2) Sentence Repetition--assesses the child's ability to recall hierarchical part-whole relationships presented in a series of sentences. (3) Hierarchical Analysis--assesses the child's ability to analyze a picture by constructing an ordered hierarchy of parts and wholes. (4) Ambigious Configuration--tests the child's ability to visualize an efficient scanning path to organize a configuration of colored pictures. (5) Pair-Description of Geometric Figures--assesses the child's ability to locate and describe features which distinguish members of a pair of geometric figures. (6) Pair-Description of Real Objects--measures a child's verbal recall of distinctive feature differences among real objects. (8) Construction from Memory--assesses the child's ability to recall and reproduce a geometric design. Since the beginning of the project these tests have undergone a number of revisions based on the results of pilot studies and clinical use. In addition, extensive

reliability (Brandl, Egeland, and Wozniak, 1975) and validity data (Clarke, Wozniak, and Egeland, 1975)have been collected. A description of the tests and the instructions for administering, scoring, and interpreting the results are presented in the test manual (Wozniak and Egeland, 1975).

Visual Information Processing Training Program: Following is a brief description of the goals of each of the three units of the training program. Unit I of the program focuses on increasing the child's sensitivity to hierarchical structure of visual displays. The child is taught the concepts "part", "whole" and the nature of the "part-whole" relationship; and is shown how to analyze a whole picture in terms of successive levels of parts and wholes and to synthesize a whole picture from a collection of parts. In addition, the children are shown that something at one level of a hierarchy is a "part" and may at a lower level of the hierarchy be a whole with parts of its own. Similarly, something at one level of a hierarchy is a whole and may at a still higher level be a part of a more inclusive whole.

In Unit II, the child is taught to organize deployment of attention across the surface of the visual display. Both systematicity and exhaustiveness of visual scanning are taught. The child's attention is drawn to the overall configuration of the display and he/she is shown how to use contiguity, and a starting and ending point to plot a path to follow in looking at each aspect of an array. Children are taught to pre-organize movement from one object to another (in a picture or around physical space) through identification of the configuration in which the objects are placed, choice of starting and ending point and selection of a path before moving.

In Unit III, the child is exposed to a carefully designed succession of

feature constructs between objects involving a progessively greater number of dimensions of difference. These dimensions of difference include form, size, spatial organization, number, etc. The child is taught how to describe these differences, how to encode them mnemonically using a imagery procedure, and how to employ feature analysis in combination with systematic attentional deployment in hierarchical analysis to solve match-to-sample and recall problems. One of the general theoretical orientations of the program is that children's mastery of "terms" to represent concepts (e.g. part and whole) which they are learning is essential to the further use and generalization of these concepts. Another thread running through every lesson is the importance of the child's learning to describe what it is that he/she is going to do. Even though the visual skills taught in this program are felt to be basic, attempts were made to facilitate the generalization of concepts and strategies learned in the lessons to the broader context of the classroom, home and neighborhood. Detailed instructions and materials are available in Wozniak and Egeland (1975).

Procedure: Six female graduate students, blind as to subject assignment, served as examiners. Six different females, five of whom are certified elementary school teachers, served as program tutors. Children in the treatment group were taught in groups of three for approximately 25 minutes a day, five days/week, for approximately eight weeks. The length of training was allowed to vary in response to the child's progress. However, no child completed the program in fewer than seven or more than ten weeks. Each tutor taught two treatment groups of three children each and two contrast groups of three children each. Children in the contrast group left their classrooms for the same amount of time as the children in the treatment group. The contrast children used curriculum materials in a

variety of tasks such as story telling, coloring, etc., but were not specifically instructed in the visual processing techniques taught the treatment group. The purpose of the contrast group was to control for both the individual attention children receive in the small groups and for exposure to the training materials. Children in the control group remained in the classroom for instruction except for pre-, post-, and delayed posttesting.

The posttest was administered within five school days of the completion of the training program and the delayed posttest was given during the middle of summer vacation, two months after the completion of training and of the regular school year.

Results and Conclusions

Mean error and response time scores for each group on the MFF are presented in Table 1. During the eight-week training period, two children from the training and contrast groups moved. In order to equate the sample size in the three groups, two children chosen at random were dropped from the control group. A three treatment (training, contrast, control) X three time at testing (pre-, post-, and delayed post-) repeated measures yielded a significant treatment ($F = 3.00$, $df = 2/96$, $p < .05$), and time of testing ($F = 6.61$, $df = 2/192$, $p < .01$) main effects as well as a treatment X time of testing interaction ($F = 3.68$, $df = 4/192$, $p < .01$). Simple 1 X 3 ANOVAs were used to look at changes within a group across time and post hoc comparisons were used to evaluate differences between two means within the interaction. The results of these comparisons showed a significant increase in response time for the treatment group with no change for the contrast and control groups. It should be noted that in subsequent analyses simple mean effects and post hoc comparisons were computed even if the interactions were non-significant. These comparisons were justified on the basis of the a priori experimental hypothesis.

Analysis of the MFF error scores yielded a significant time of testing main effect ($F = 35.2$, $df = 2/192$, $p < .001$). However, the main treatment and interaction effects were nonsignificant. These results indicate that although treatment was successful in increasing response latency, there was

no corresponding decrease in errors.

Embedded Figures Test scores yielded a significant time of testing main effect ($F = 46.21$, $df = 2/192$, $p < .001$) and treatment by time of testing interaction ($F = 2.89$, $df = 4/192$, $p < .05$). The between groups main effect was not significant. As can be seen in Table 2, the training group showed a large improvement between the pretest and delayed posttest in ability to overcome a perceptual embedding context. Furthermore, all three groups showed significant gains, even though the increase was greatest for the training group.

Tables 3-8 contain the mean scores for the Visual Information Processing subtests for which significant results were obtained. The Part-Whole Concept subtest consists of a series of four pictures of familiar objects and six questions designed to assess the child's understanding of part-whole analysis. For example, the child is shown a whole picture (e.g., stove) and is asked why it is a whole stove. His/Her response is scored 0-3; 0 for a nonsense response 1 for a functional response ("because you can cook on it"); 2 for a concrete response ("it has burners"); and 3 for an abstract response ("because it has all its parts").

The mean score on the Part-Whole subtest for each group is presented in Table 3. Significant main effects and interactions were found for the total score. Simple ANOVAs and post hoc comparisons indicated that each of the three groups showed significant improvement across time; however, the training group had higher scores on the post- and delayed posttest than either of the two control groups. These results suggest that children in the training group have a greater understanding of part-whole relationships after training.

Table 4 presents the data from the Hierarchical Analysis subtest. Both the time of testing ($F = 32.81$, $df = 2/192$, $p < .001$) and treatment ($F = 6.81$,

df = 2/96, $p < .01$) main effects were significant and the interaction approached significance ($F = 2.33$, df = 4/192, $p < .06$). As can be seen in Table 4, the performance of the training group showed a large improvement over the course of the program. In addition, group differences on the posttest and delayed posttest showed that the children in the treatment group saw more part-whole hierarchical relationships than did children in either of the other two groups. These results are most encouraging since the concept of hierarchical levels is a difficult one for children at this age and achievement level to understand. Whereas children in the control group would often present relationships between parts and wholes on the same level (e.g., nose, mouth, eyes, and ears, in a picture of a person) rather than at successive levels of the hierarchy; children in the training group were quite successful at noting that the "whole eye is part of the whole face, and the whole face is part of the whole body."

Mean scores on the Ambiguous Configuration subtest are presented in Table 5. On this task the child is shown an array of colored pictures of familiar objects arranged on a page. He/She is then presented with four paths and asked to judge whether each path connects all the pictures on the page. Analysis of the scores from the subtest indicated that treatment by time of testing interaction effect ($F = .61$, df = 4/192, ns) and the treatment main effect ($F = .19$, df = 2/96, ns) were nonsignificant whereas the time of testing across time main effect was significant ($F = 10.41$, df = 2/192, $p < .001$). Comparisons among simple main effects showed that only the training group made significant gains between pre- and posttest. However, for the training group the decrease between the post- and delayed posttest was significant as well. The fact that all three groups showed a decline on the delayed posttest suggests that this form of the test may not have been as equivalent to the pre- and posttest forms as originally thought. For the posttest at

least, training was effective in improving the child's ability to scan a visual array in an organized fashion.

In the Paired Description Geometric subtest the child is shown two designs made up of geometric lines and shapes, five of which are exactly the same on both pictures and five of which vary. Each variation is along one of the dimensions of form, size, number, orientation contour, presence/absence of a line or position. Two scores are derived: the number of differences the child observes, and how specifically the child is able to accurately describe the differences. The specificity and difference scores are presented in Table 6. Analysis of the specificity score yielded, significant time of testing ($F = 36.90$, $df = 2/192$, $p < .001$) and treatment ($F = 10.05$, $df = 2/96$, $p < .001$) main and interaction ($F = 5.87$, $df = 4/192$, $p < .01$) effects. Similar results were obtained for the difference scores of the Paired Description Geometric subtest. For both scores the training group showed significant increases from pre- to post- and delayed posttesting; and the scores at post- and delayed posttesting were significantly greater for the training group than for the two control groups.

The Paired Description Real subtest is identical to the Paired Description Geometric except that pictures of real objects rather than geometric designs are used as stimuli. Results from this subtest are presented in Table 7. Analysis of mean changes for this subtest also showed the training group making significant gains across time and having significantly higher scores on the post-and delayed posttesting than the two control groups. According to the results from both of the Paired Description subtests children in the training group were better able to detect slight differences between two figures and once they had identified these differences they were better able to more accurately describe their location and the dimension on which the variation occurred.

corrected error and comprehension scores of the Gilmore. The failure to find a differential treatment effect on the Gilmore may have been due to practice effect and familiarity with the examiner. Since all children showed large changes over time, it is likely that initial performance on this oral reading test was negatively affected by having to read out loud to a strange examiner. On the post- and delayed posttesting the children were most likely more at ease in this situation and consequently their scores improved drastically.

In summary, children who had received approximately eight weeks of tutoring in small groups performed better on a variety of visual information processing tasks and a reading test than children in either an attentional-materials or a non-treatment control group. On both an immediate posttest and a two month follow-up, the treatment group showed superior performance in their ability to better understand part-whole relationships, see the hierarchical nature of this relationship; and accurately describe this hierarchical relationship. In addition, the ability of trained children to scan a visual array systematically and exhaustively improved as did their ability to recall and reproduce geometric shapes. Improvement was also noted in ability to see small differences between both geometric designs and real pictures and to accurately describe these differences. Results from the Pair Description subtests and clinical observations clearly indicated that the children were better able to identify and focus on relevant distinctive features used to distinguish two similar designs or pictures. Finally, perhaps most noteworthy was the generalization of training effects to MFF latency and Word Analysis and Competency subtests of the group achievement test, since performance on these measures received no direct training during the program.

Table 1

Means for Response Time and Errors on the MFF

Group N = 33	Total Response Time (Seconds)			Total Error Score		
	MFF Form I Pretest	MFF Form II Posttest	MFF Form III Delayed Posttest	MFF Form I Pretest	MFF Form II Posttest	MFF Form III Delayed Posttest
Treatment	99.8	152.4	158.9	12.9	8.6	8.8
Contrast	99.7	105.3	110.8	13.6	9.0	9.6
Control	100.6	101.9	104.5	12.9	10.2	9.1

Table 2

Mean Number Correct on the Children's Embedded Figures Test

Group N = 33	Pre	Post	Delayed Posttest
Treatment	7.6	8.2	13.0
Contrast	9.2	10.1	12.5
Control	9.4	11.0	12.5

Table 3

Mean Scores on the Part-Whole Analysis Subtest of the Visual Information Processing Test Battery

Group N = 33	Pretest	Posttest	Delayed Posttest
Treatment	7.0	11.2	11.7
Contrast	8.3	9.8	10.5
Control	8.0	7.4	10.1

Table 4

Mean Number Correct on the Hierarchical Analysis Subtests of the Visual Information Processing Test Battery

Group N = 33	Hierarchical Analysis		
	Pretest	Posttest	Delayed Posttest
Treatment	2.3	4.2	3.6
Contrast	2.2	2.9	2.9
Control	1.9	3.1	2.9

Table 5

Mean Scores on the Ambiguous Configuration Subtest of the Visual Information Processing Test Battery

Group N = 33	Pretest	Posttest	Delayed Posttest
Treatment	7.2	8.8	7.6
Contrast	7.3	8.3	7.8
Control	7.3	8.1	7.7

Table 6

Mean Scores on the Paired Description Geometric Subtest of the Visual Information Processing Test Battery; Specific and Difference Scores

Group N = 33	Paired Description Geometric-Specific			Paired Description Geometric Difference		
	Pretest	Posttest	Delayed Posttest	Pretest	Posttest	Delayed Posttest
Treatment	10.7	17.3	16.6	20.7	26.4	24.6
Contrast	9.4	11.8	13.5	19.4	22.1	22.1
Control	11.0	12.2	13.1	19.4	22.2	21.2

Table 7

Mean Scores on the Paired Description Real Subtest of the Visual Information Processing Test Battery: Specific and Difference Scores

Group N = 33	Paired Description Real-Specific			Paired Description Real-Difference		
	Pretest	Posttest	Delayed Posttest	Pretest	Posttest	Delayed Posttest
Treatment	10.4	11.2	13.7	16.3	19.4	21.1
Contrast	9.1	9.7	11.2	15.2	16.9	17.6
Control	10.6	10.8	12.0	13.3	17.9	18.3

Table 8

Mean Number of Errors on the Construction from Memory Subtest of the Visual Information Processing Test Battery

Group (N = 33)	Pretest	Posttest	Delayed Posttest
Treatment	11.4	9.3	10.9
Contrast	11.4	10.0	10.9
Control	11.1	9.6	11.2

Table 9

Mean Scores on the Metropolitan Achievement Test-

Word Association and Reading Comprehension Subtests

Group N = 33	Word Association			Reading Comprehension		
	Pretest	Posttest	Delayed Posttest	Pretest	Posttest	Delayed Posttest
Treatment	20.7	23.5	22.8	6.3	7.9	8.0
Contrast	20.5	23.6	21.4	6.6	8.2	7.3
Control	22.8	23.4	22.8	7.5	8.3	8.1

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