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A Taxonomization of Internal Controls and Errors for Audit Research

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The Foreign Corrupt Practices Act (FCPA) of 1977 and the advent of increased electronic data processing in organizations have focused increased attention on management's responsibility to establish and maintain adequate systems of internal accounting controls.

The Act requires organizations to maintain a system of internal accounting controls to provide reasonable assurances that

- transactions are authorized
- transactions are recorded to
 - a) permit preparation of financial statements
 - b) maintain accountability for assets
- access to assets is restricted
- assets are accounted for

These requirements are similar in nature to the definition of accounting control codified in SAS #1 (AICPA, 1973).

The advent of widespread use of electronic data processing led to changes in the nature of accounting controls prompting increased scrutiny and further formalization. Manual systems had allowed for informal controls of a pattern recognition nature by human information processors. Special emphasis was given to the examination of processing consistency and supervision. Automated systems partially changed the nature of control systems. The emphasis now is on system design and integrity as consistency is substantially assured.

These two major developments led to a series of procedural reactions by major CPA firms (e.g. Arthur Andersen & Co., 1978; Deloitte, Haskins & Sells, 1979; Peat, Marwick, Mitchell & Co., 1978), to statements of position and proposed rules by the AICPA and other standard setting bodies (e.g. AICPA, 1979; SEC, 1979), and to the renewed interest of the academic accounting profession in the theoretical issues surrounding internal accounting controls.

Among the expressions of interest by the academic profession is the research

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proposal by the author (Vasarhelyi and Ginzberg, 1978) which suggests a set of experiments for the measurement of internal controls. This project is composed of eight steps, the first two of which examine the literature and construct schemae for classifying types of internal controls and errors. These two steps are discussed in this paper. The remaining steps will encompass a more complete analytical formulation of the categories specified in the schemae of this paper, and the development and utilization of typical but simplified cases in both computer and behavioral laboratory simulations for internal control evaluation purposes. Yet these subsequent steps first require the taxonomic specification criteria developed in the next section.

Definitions, Criteria, and Objectives

Cushing (1971) attempted, as one of his objectives, "to describe a means of representing internal control in mathematical terms," showing the usefulness of this approach and pointing out "implications of this approach for future research" (p.24).

Cushing's emphasis was on the utilization of reliability theory for the evaluation of internal control procedures. Bodnar (1975) expanded Cushing's work by incorporating the problems of human reliability in a chain of controls (Meister, 1971) and the issues relating to control redundancy (serial vs. parallel components) and complementarity. Bodnar also raised, but did not satisfactorily resolve, the issues surrounding the validity of simple multiplicative probability models and the statistical independence of multiple controls and errors. Carmichael (1970, p. 238) is mentioned as asserting that "an assumption of independence is necessary in internal control because of the commonly expressed opinion that an internal control system collapses with collusion" (Bodnar, p. 753). A third issue that may be raised concerning Cushing's approach is that it does not discriminate between different types of controls and errors.

We shall start with Cushing's formulation and notation but will not use reliability theory in our development. Cushing's basic statements and presentation are of great value as foundations for the work here presented. It is necessary, however, to define a few basic concepts to place the internal control problem in context.

Churchman (1968) points out five basic considerations to be kept in mind while thinking about a system: 1) Objectives, 2) Environment, 3) Resources, 4) Components, and 5) Management. The business organization's objectives are to be met by its management utilizing efficiently the organization's components and resources within its corporate environment.

The business organization is the macro-system where internal controls are located. Internal controls are sub-systems within it. These sub-systems may be considered as a whole, or in part with different resulting environmental boundaries, system interactions and available components.

"Control is a function through which the executive is able to identify change, discover its causes, and provide decisive action in order to maintain a state of equilibrium. . ." (Strong & Smith, 1968, pp. 2-3).

It is necessary to identify the mechanisms through which organizations exert controls.

"An internal control procedure (ICP) is a single control measure, such as the checking of a control total" (Cushing, 1974, p.25).

We shall differ slightly from Cushing by defining: An *internal control cluster* (ICC) consists of one or more internal control procedures related to one or more types of error or activity, while an *internal control system* (ICS) is a set of ICCs that constitute a particular cycle of the business organization.

Figure 1 displays the five dimensions of the internal control process within the organization. The cycles of a business entity are simply subsystems of the ICS as defined by the auditor. The department or function is another type of component to be set in the systems design stage. Finally, numerous types of ICPs and errors can be found in the literature with a varied array of features. These ICPs or errors must be classified on the basis of similar nature into a more restrictive set of categories if they are to be adequately represented in analytic formulations.

Figure 1
EXAMPLES OF THE
FIVE DIMENSIONS OF THE INTERNAL CONTROL PROCESS

Dimension 1 Entity	Dimension 2 Department or Function	Dimension 3 Internal Control Procedures	Dimension 4 Types of Errors & Irregularities
I. Transactions II. Physical Assets III. Payroll IV. Customers V. Revenue VI. Financial Reporting	A. Authorization B. Accounting C. Transaction Processing D. Classification E. Substitution F. Segregation	1. Order Entry 2. Shipping 3. Billing 4. Credit & Collection 5. Maintenance of Receivables Records Etc.	a. Lack of Approval b. Bad Total c. Incorrect Pricing d. Incorrect Amount e. Unauthorized Adjustment f. Missing Transaction g. Duplicate Transaction h. Missing Assets Etc.
		6. Segregation of duties 7. Physical assets restriction 8. Direct Supervision 9. Indirect Supervision 10. Periodic Compliance Audit 11. Backups 12. Insurance & Fidelity Bonds 13. Rates, etc. 14. Bank Totals 15. Controlled Custody 16. Pre-numbering 17. Accounting for Pre-numbering 18. Physical Counts 19. Organizational Charts 20. Job Descriptions Etc.	

In order to further clarify issues relating to ICPs and their features we shall use Cushing's (1974) multiple-control multiple-error case to introduce a general formulation of the problem (see Figure 2).

The formulations in Figure 2 may be expanded by assuming an infinite population E of potential errors that may exist in a system.

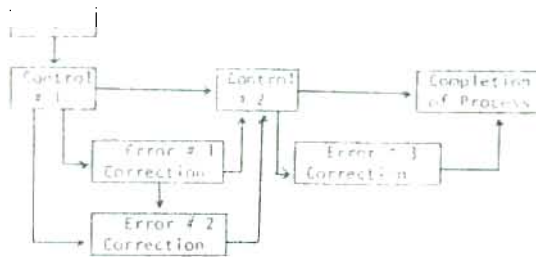
An error may be defined as a discrepancy between the empirical relational system (ERS) (containing all transactions, economic entities, and levels within the system) and its numerical relational system (NRS) (representing the measurements of these entities made within a framework of measurement rules). When there is a discrepancy between the "real" value of an entity within the ERS and its measured value in the NRS under the established rules of measurement and coding (in this case GAAP) an error is said to exist.

The population E of potential errors is infinite, reflecting the fact that any measurement of the value of an entity may be incorrectly stated with an infinite number of variations. Despite this set being infinite, in practice internal control systems are developed considering three main aspects: (1) designer's (or management's) perception of exposures due to errors, (2) corporate experience with er-

Level 2

Reliability of the System

Subject: Internal Control Systems



$$R_i^j = R_i^{j-1} P(S_{ij}) + R_i^{j-1} (1-P(S_{ij})) P(d_{ij}) + (1-R_i^{j-1}) P(e_{ij}) P(c_{ij})$$

where R_i^j = Reliability of the system with respect to the i^{th} error at the completion of the j^{th} control step

$P(S_{ij})$ = Probability that the control step j will not signal an error i given that none exists.

$P(c_{ij})$ = The probability that the correction step j will correct an error i given that one exists and has been signaled.

$P(d_{ij})$ = The probability that a failure of the control step j will be detected and no correction made given that the control signals an error i when none exists.

$$R_i^1 = P(S_{i1}) + P(d_{i1})$$

$$R_i^2 = R_i^1 P(S_{i2}) + R_i^1 (1-P(S_{i2})) P(d_{i2}) + (1-R_i^1) P(e_{i2}) P(c_{i2})$$

where R_i^1 = Reliability of the system with respect to error i after the first

control step, and (3) the cost/benefits of internal controls.

However, not *all* errors and irregularities can be predicted by the designers. With the passage of time new errors are experienced and new controls will have to be enacted. Therefore the set of errors that a particular ICS may attempt to cover is E' (a subset of E).

This population of errors can be represented by a vector E' (e_1, e_2, \dots, e_n) where each e is a particular type of error which may assume different magnitudes and characteristics. This vector has a definable length commensurate with the designer's perception of potential errors within any group of designed controls, but still a subset of vector E .

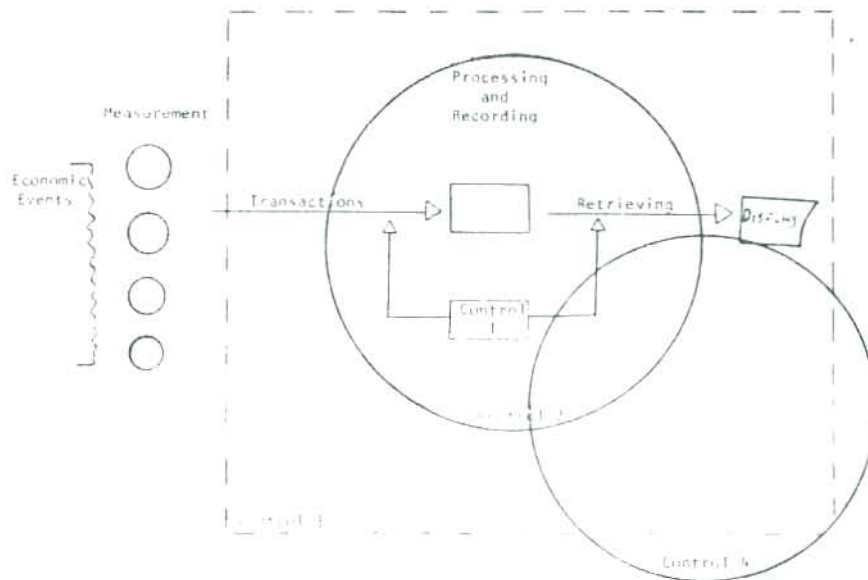
The same reasoning can be extended to ICSs. An ICS is composed of ICCs which may or may not be the "cycles" as defined by the auditors. ICCs are composed of ICPs. Therefore we have a global population C of potential controls, of which the population C' is formally implemented. C' can be represented as a vector C' (C_1, C_2, \dots, C_n) of the types of internal control procedures used within the

ICS. Each of these types of ICPs may assume a value (if ordinal, interval or ratio) or a nature (if nominal) within an ICC. As internal control procedures are mainly nominal in measurement nature the element C_{ij} (say separation of duties) may assume different values (for example at different levels of the organization). Therefore C' can be represented as $C'(C_{ij}, \dots)$ where j represents the different values for ICP C_i .

The question that follows concerns the relationship between controls and errors, both at general and specific levels. In general Figure 3 can represent a control phenomenon:

FIGURE 3

A Control Phenomenon



In order to clarify, let us suppose that control 1 is a system of batch totals, control 2 is separation of duties, control 3 encompasses a good organizational chart and careful job descriptions, while control 4 is supervision. Controls 2 and 3 will be effective against collusion and control 1 ineffective in this dimension. On the other hand in the case of errors in amounts, or bad client numbers, or incorrect posting to accounts, control 1 may prove effective while others are ineffectual. Using this example as a base and considering the assertions in some of the scholarly literature, [for example, (Cushing, (1974,1975); Bodnar, (1975); Toba (1975)], the following assertions may be made:

Each control will have a potentially different effect upon each type of error.

Cushing states: "The probabilities pertaining to the control procedure and to the error correction procedure should be unique for each control procedure."

Each transaction will be controlled by different sets of controls and may generate a multiplicity of errors of identical and/or different types.

Each cluster of controls may have different effects upon different errors

The finer the focus of a control upon a particular error type the more likely it is to be ineffectual in relation to other errors

The combination of controls may have additive, counteractive, multiplicative and neutral effects upon particular error types

Bodnar (1975) criticizes Cushing's multiplicative probability modeling and shows differences in the effects of parallel and serial controls. The problem is still rather simple if it can be represented in these terms. The difficulty lies in dealing with the lack of independence between controls and between errors (collusion) as well as in defining the configural relationships between controls.

In consequence the relationships between controls and error types should be represented in two types of matrices. The first would relate each type of ICP to each type of error. The second would relate internal control clusters and types of errors. The entries in the matrix may be expressed as the probabilities of an error of the particular type being detected. These matrices are represented in Figure 4.

Figure 4

Illustration of
Control & Error Interrelationships

		Error Type 1	Error Type 2	Error Type 3
ICC 1	{	ICP 1*			
		ICP 2			
ICC 2	{	ICP 3*			
		ICP 4			
		ICP 5			
		ICP N*			

* These controls are part of ICC n

Figure 1 represented the five dimensions of the internal control process. Any combination of its elements (e.g. II.A.3.a.iv) may describe a type of internal control and error. The limited number of categories considered already allows for 18000 (6x5x5x15x8). The consideration of ICCs versus ICPs, described while discussing Figure 4 above, further expands the number of alternatives that may be

considered. Methodologies are necessary for the evaluation of clusters as well as of the independent effect of an individual control upon a given error type.

Clearly some combinations are nonsensical, others may make sense but are not currently implemented and finally a few are currently in use. This leads to the conclusion that comprehensive formulations are infeasible and that analysts should pursue two main routes:

- (1) use of a building block type of approach for simplifying their analyses and
- (2) construction of taxonomies of internal controls and errors that will summarize and add parsimony to the number of possible combinations.

This study addresses the second of these routes.

Some Existing Classifications

Arthur Andersen & Co. (1978) divides controls into preventive and detective controls. Cushing (1975) uses three categories: structural, feedforward and feedback. Mair, Wood and Davis (1976) divide controls into: preventive, detective and corrective controls.

We would define *preventive* controls as those that reduce the probability of an error (or irregularity) occurring.

A *detective* control reduces the actual frequency of errors in the system.

A *corrective* control changes the nature of the probability distribution in the discrepancies between the ERS and the NRS.

Other classifications also cited by Mair, Wood and Davis (1976) include logical vs. technical controls or vertical vs. horizontal controls.

SAS #3 divides controls into general and application controls. The first relate to all EDP activities while the latter refer to specific accounting tasks. Within general controls one would include six general classifications: (1) Organization, (2) Operations, (3) Documentation, (4) System development and programming, (5) Hardware and systems software, and (6) Access and library. Application controls are, on the other hand, divided into: (1) Input controls, (2) Processing controls and (3) Output controls.

SAS #1 states that the "essential characteristics of internal accounting controls include:" (AICPA, 1973, Secs. 320.30 and 320.35.48)

- Personnel
- Segregation of functions
- Execution of transactions
- Access to assets
- Comparison of recorded accountability with assets

Recent internal studies at Peat, Marwick and Mitchell have proposed the classification of controls into six categories:

- 1) Authorizations
- 2) Validity
- 3) Population
- 4) Transfer
- 5) Process
- 6) Segregation

Additional classifications may be found in the literature relating to internal controls. On the other hand, classifications of types of errors are somewhat less

frequent in the literature. Touche Ross and Co. (1979) classifies control weaknesses and resultant risks into four categories:

- 1) A flaw that will always result in error
- 2) A flaw that has produced occasional error
- 3) A probable flaw signaled by skewed analytical results
- 4) Universal and improbable flaws (p. 15)

Yu and Neter (1973) classify errors into two categories: monetary and non-monetary. Each ICS is classified by whether it has one of these two errors. ICSs range from $s_1 = (0,0)$ (no errors of any type) to $s_4 = (1,1)$ indicating the presence of both monetary and nonmonetary errors.

In order to simplify the difficult task of providing an evaluation, which compares each type of ICP combination to every other type of ICP combination and to ICCs, and then of relating this evaluation to all error types, we shall next attempt to provide summary taxonomies of controls and errors. We shall aim to develop classifications that allow:

1. Development of a matrix of ICP combinations
2. Development of a matrix relating ICC classes to error classes
3. Development of control combination rules for evaluating the impact of combinations of controls
4. Usage of analytical representation
5. Usage of a common measurement method for evaluation

And we shall also try to:

6. Devise precise, mutually exclusive classifications
7. Develop a comprehensive set of classifications

This paper is restricted to logical and conjectural developments in objectives 1 thru 5 since their quantification requires the experimental and analytical work to be pursued in the later stages of this research (Vasarhelyi and Ginzberg, 1978).

Two Taxonomies of Controls

The control and error taxonomies were developed through successive element listings followed by successive iterations attempting to improve the classification schema. Elements were drawn mainly from professional publications (e.g. Touche Ross and Co., 1978) while starting schemata were based on some of the classifications discussed in the previous section.

The Pear, Marwick and Mitchell classification was modified into an 8 class framework, one of which divided into four subclasses. These classes and subclasses are:

1. Authorizations
2. Validity Controls
3. Population and Transfer Controls
4. Process Controls
5. Coverage Controls
 - a. Segregation
 - b. Supervision
 - c. Rules and Procedures
 - d. Insurance

- 6 Access Controls
- 7 Audit (ex post facto) Controls
- 8 Compliance with GAAP Controls

A distinction was made between internal accounting controls and exclusively management oriented controls. The first were considered to be directly related to the types of controls mentioned in the FCPA while the second were mainly oriented towards quality and efficiency issues. These management controls were excluded from the study.

Authorization Controls prevent the occurrence of exchanges, allocations, or valuations not in accordance with company policy (e.g. a credit check may be required before a sale is completed).

Processing Controls ensure accuracy when data has changed form through aggregation or disaggregation, content through processing, or mode of presentation through different formats of presentation and timing (e.g. calculation of depreciation controls, footing, etc.)

Coverage Controls are generic in nature, applicable to one particular process or set of transactions.

Segregation of Duties ensures that certain activities or responsibilities are assigned to separate individuals. It implies the need for collusion to override controls as well as the application of sequential controls on tasks

- 1. Custody *vs* recordkeeping for an asset
- 2. Activity *vs* control over that activity (sales/credit approval)
- 3. Interrelated activities (credit/approval/bad debt writeoffs)

Supervision Controls refer to the supervision by a superior of a task being performed. It does not imply authorizations or specific approvals

Rules and Procedures refers to the formalization and documentation of control steps.

Insurance Controls relate to the expenditure of resources, to counter balance potential losses related to a particular event

Access Controls ensure limitations placed on access to physical or informational entities in the system (e.g. passwords).

Audit Controls serve to ex post facto find errors and irregularities in the control and accounting data (e.g. visual checks for authorization on a sample bases).

Compliance with GAAP Controls cover procedures used to verify whether transactions are being registered in accordance with current accounting rules.

Appendix I lists controls drawn from several publications (Arthur Andersen & Co., 1978, p. 43-44; Touche Ross & Co., 1978, p. 75 and p. 100; Peat, Marwick & Mitchell, 1978, p. 33 and p. 40; Ernst & Ernst, 1978, p. 24, among many) and classified into the above categories. The taxonomy seemed to fit the controls in the list but often controls were found in the boundary of two classes.

An additional taxonomy of controls with very similar characteristics was developed and can be found in Appendix II. The choice between these will be based on the ease of developing analytic formulations.

A Taxonomy of Errors

After a series of classification attempts a feasible classification of seven categories was developed for errors:

- I. *Procedural Errors* (violations or lack of internal controls)
- II. *Computation Errors* errors in the numerical processing of transactions)
- III. *Accounting Errors* (incorrect accounting transactions)
- IV. *Integrity Errors* (addition, deletion of unauthorized transactions or duplication of authorized transactions)
- V. *Timing Errors* (transaction registered at the wrong time)
- VI. *GAAP Errors* (transactions not measured in accordance to accounting practice)
- VII. *Irregularities* (fraudulent & deliberate transactions)
- VIII. *Legal Errors* (transactions or events that violate legal clauses)

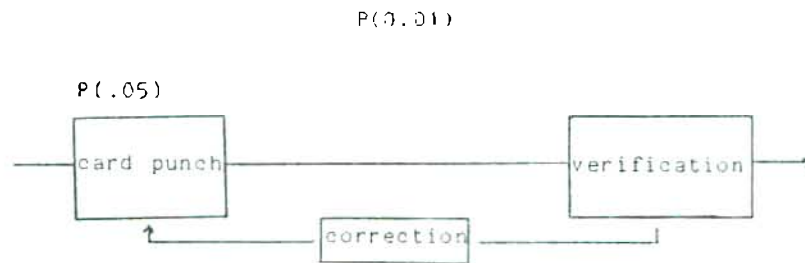
Appendix III lists a series of errors within each class of the taxonomy developed along similar lines to the classifications of internal controls described earlier.

These two taxonomies, which allow for the classification of the ICPs and errors, seem to present some of the previously mentioned desirable features.

Composite Modeling

The complexities involved in the assessment of the reliability of internal controls, even if process consistency over time is assumed, are overwhelming. Let us consider a simple key stroke verification of card punching preparation of worked hours, as diagrammed in Figure 5.

Figure 5



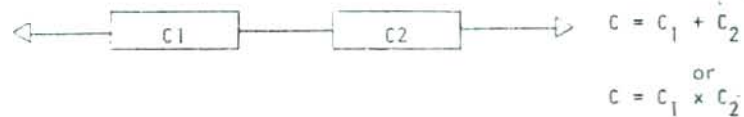
The probability of error (in other data preparation) at the punch step is 0.05 but is reduced to .01 with keystroke verification. The real difficulty, of course, arises with the combining of controls. Figure 6 displays some potential inter relationships of controls. Finding the rules for control combination becomes an empirical question to be answered by future research.

FIGURE 6

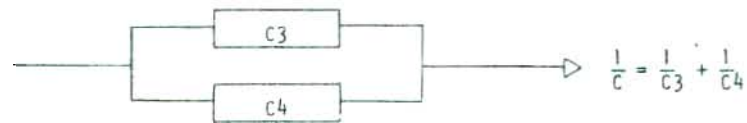
Sample

Control Relationships

I. Sequential Controls



II. Parallel Controls



III. Independent Controls (Venn Diagram)



IV. Overlapping Controls



V. Redundant Controls (different boundaries)



Conclusions

This paper examines the nature and multiplicity of internal control procedures and errors. It shows that a nearly infinite number of combinations of alternatives may be used in the attempt to decrease or eliminate a wide set of errors of different nature. In order to simplify the formulation of the problem, two taxonomies were developed that reduce the number of ICPs and errors to eight each.

These simpler sets lead to a smaller group of combinations for composite modeling where combination rules are to be developed on the basis of empirical data. Future research entails empirical laboratory developing of combination rules, analytic modeling, and field testing of the results obtained.

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Appendix I

ICP'S (Ordered)

I. AUTHORIZATIONS

1. Approval of Master File maintenance reports
2. Proper procedures of authorization
3. Customers must receive advanced approval for returns
4. Written authority required for removing assets from premises

II. VALIDITY

5. Control over unused and voided billing forms
6. Approved list of suppliers
7. Preprinted official order forms
8. Matching invoice to receipt
9. Goods counted and inspected before acceptance
10. Unmatched receiving reports and invoices investigated

III. POPULATION AND TRANSFER CONTROLS

11. Unissued checks numerically accounted for
12. Batch totals
13. Prenumbering
14. Accounting for prenumbering
15. Records maintained of costs incurred under product warranty
16. Verification and validation of data entered in EDP system
17. Scanning data for reasonableness before entry
18. Reconciliation of interface amounts exiting one system and entering another
19. Algorithms, check digits
20. Transmission verification techniques
21. Written requisitions and purchase orders with multiple copies

IV. PROCESS CONTROLS

22. Reconciliation of balances (subsidiary to general ledgers)
23. Transaction-by-transaction balancing

24. Depreciation calculations independently checked for accuracy and reasonableness
25. Calculations independently checked for accuracy and overall reasonableness (capitalization and amortization)

V. COVERAGE

V.a SEGREGATION

26. Segregation of duties
 - operational resp/financial record keeping
 - custody of assets/accounting for assets
 - authorization of transactions/custody of assets within the accounting function
27. Segregation and rotation of input and processing duties
28. Separate areas maintained for receiving, storage, and shipping functions
29. Each cash fund assigned to one individual, independent of others
30. Monthly statements sent to all customers
31. Complaints (about monthly statements) handled independent of cashier or accounts receivable bookkeeper
32. Delinquent accounts handled independent of cashier

V.b SUPERVISION

33. Employee performance reviews
34. Direct supervision
35. Indirect supervision
36. Physical storage methods reviewed to spot inventory deterioration
37. Interest expense regularly posted (fluctuations investigated)
38. Operational planning

V.c RULES AND PROCEDURES

39. Competitive bidding
40. Clearly defined processing and exception procedures
41. Competent and trustworthy personnel
42. Adequate documents and records
43. Established cut off procedures
44. Chart of accounts and accounting procedures manual
45. Procedure for reflecting necessary general ledger corrections
46. Continuing education programs
47. Formal policy for capitalization and amortization
48. Flowcharts of control system
49. Prompt processing of billings and credits
50. Each day's receipts deposited intact that day
51. Paid notes cancelled and retained
52. Organizational charts
53. Job descriptions

V.d INSURANCE

54. Insurance and fidelity bonds
55. Backups (for master files)
56. Retention paid of source documents, tape and disc files (son, father, grand father)

VI. ACCESS

- 57. Dual signatures required for access to securities and adjustments on a timely basis
- 58. Physical access restriction
- 59. Safes, etc. locked enclosures to protect assets from people and physical hazards
- 60. Controlled custody
- 61. Password procedures in EDP system
- 62. Movement of inventory subject to verification by the area assuming responsibility for it
- 63. ID tags or serial numbers affixed to assets
- 64. Guards and/or alarm system used
- 65. Employees identified by badge or card
- 66. Unissued checks locked up

VII. AUDIT (ex-post analysis)

- 67. Regression analysis for forecasting expected activity level
- 68. Physical counts
- 69. Internal auditing
- 70. Variance analysis
- 71. Periodic compliance audit
- 72. Intercompany accounts balanced regularly

VIII. COMPLIANCE WITH GAAP

- 73. Assignment of responsibility and establishment of procedures for accumulation of notes to financial statements including a review
- 74. Revenues recognized on long-term projects based on engineering estimates
- 75. Formal policies for assigning lives and depreciation method
- 76. Allowances for depreciation regularly reviewed for adequacy
- 77. Leases reviewed for classification as capital or operating
- 78. Intercompany profits eliminated
- 79. Periodic analysis of intangible assets; review for loss in value
- 80. Formal policies for identifying, reporting permanent and timing differences
- 81. Timing differences allocated between current and non-current
- 82. Warranty reserve regularly reviewed for adequacy
- 83. Estimated costs to complete long-term contracts regularly reviewed.

X. Management Controls

- 84. Appropriate cost system in use (job v process v standard v direct cost)
- 85. Compliance with loan covenants and lease agreements monitored
- 86. Current intercompany accounts zeroed out regularly
- 87. Investments previously written off, or fully reserved, regularly reviewed for possible realization
- 88. Selling and administrative expenses under budgetary control
- 89. Employees handling receipts bonded

Appendix II

Alternate Taxonomy of ICP's
(by number)

- A. Organizational Controls
2, 3, 6, 10, 15, 26, 27, 28, 29, 30, 31, 32, 33, 37, 39, 40, 41, 42, 43, 44,
45, 46, 47, 49, 50, 52, 53, 73
- B. Repetition and Matching Type Controls
8, 9, 11, 12, 13, 14, 18, 22, 24, 25, 68, 72, 76
- C. Authorization and Supervision
1, 4, 34, 35, 57, 62
- D. Physical Controls
7, 21, 51, 55, 56, 58, 59, 60, 61, 63, 64, 65, 66
- E. Audit Type Controls
48, 67, 69, 70, 71
- F. Economic Compensation Controls
54, 89
- G. Process Moment Controls
16, 17, 19, 20, 23
- H. GAAP Obedience Controls
74, 75, 77, 78, 79, 80, 81, 82, 83

Appendix III

A Taxonomy of Errors

I. PROCEDURAL ERRORS

- 1. Lack of approval
- 5. Unauthorized adjustment
- 11. Goods shipped to bad credit risk
- 17. Assets unnecessarily exposed to unauthorized use.
- 25. Unauthorized services performed
- 27. Lack of communication between departments (purchase v. production depts)
resulting in overstocking of useless materials

II. COMPUTATION ERRORS

- 2. Bad total
- 32. Miscalculation for depreciation
- 39. Miscalculation of contingent lease payments

III. ACCOUNTING ERROR

- 3. Incorrect posting
- 19. Sales discounts not recognized, or recognized when they shouldn't be
- 23. Misapplication of overhead
- 29. Sales misclassified
- 35. Misclassification of long- or short-term debt

IV. INTEGRITY ERROR

- 4. Incorrect amount
- 6. Missing transaction
- 7. Duplicate transaction
- 8. Missing assets

- 9. Sales recorded but goods not shipped
- 10. Goods shipped but not invoiced
- 13. Inflated payroll
- 14. Misappropriation of funds (cash received posted at lower amounts or not at all)
- 22. Accepting shipments of unauthorized quality/quantity
- 24. Fictitious employees
- 38. Capital leases not recorded/operating leases recorded
- 42. Dividends paid to wrong parties/wrong amounts
- 45. Investment losses not monitored
- 46. Goodwill, patents, other intangibles carried in excess of value
- 49. Investment losses not reflected in accounting records

V. TIMING ERROR

- 12. Sales recorded in wrong period
- 16. Conditions affecting accounting valuations not recognized on a timely basis
- 43. Profits recognized prematurely on intercompany sales
- 47. Intangibles remain on books after disposal or expiration
- 48. Tax liability/expense not reflected in accounting records

VI. GAAP ERROR

- 15. Nonconformity to GAAP
- 26. Computation of LIFO inventory does not meet IRS regulations

VII. IRREGULARITIES

- 18. Defalcation and fraud
- 33. Kickbacks
- 36. Pledged assets not disclosed
- 44. Management conceals permanently impaired value of investment (uncollectibility of intercompany receivable)

VIII. LEGAL ERRORS

- 37. Violation of restrictive covenants resulting in default
- 40. Unauthorized sale of shares (violates legal requirements)
- 41. Unauthorized stock options exercised (violates option terms)

MISCELLANEOUS MANAGEMENT ERRORS

- 20. Financial reports do not fairly represent firm
- 21. Receiving or producing poor quality assets
- 30. Idle assets not identified
- 31. Undetected deterioration of property
- 34. Company becomes obligated for debts at unfavorable terms