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ABSTRACT

A series of 13 surveys examined the occupational information needs of 11 states, Puerto Rico, and the District of Columbia. During the course of this research effort, state occupational information coordinating committees (SOICCs) polled various agencies within their states to determine the agencies' needs for information concerning occupational demand, occupational supply, occupational characteristics, and supply and demand analysis. While the surveys were not coordinated efforts, nine of them were sufficiently similar so that data needs could be compared across the following agencies: Comprehensive Employment and Training Act (CETA), Employment Security (ES), Vocational Rehabilitation (VR), Secondary Education (SE), and Postsecondary Education (PSE). Coordination of the results of these studies revealed a general profile of information needs across SOICCs. The occupational characteristics category contained the elements most widely needed across all agencies. While the occupational supply category appeared to be somewhat less needed than the other categories when examined across all state agencies, some individual agencies, such as CETA, indicated a considerable need for data in this category. In general, the need for data appears to be ordinal across agencies, with CETA expressing the most need, followed by ES, VR, SE, and PSE. (MN)

OCCUPATIONAL INFORMATION NEEDS AT THE STATE LEVEL: AN EMPIRICAL STUDY OF DATA NEEDS ASSESSMENT SURVEYS

by

John E. S. Lawrence
John Gross

Prepared for

North Carolina State Occupational Information Coordinating Committee
and
National Occupational Information Coordinating Committee

Research Triangle Institute
North Carolina

March 1981

ABOUT NOICC

The National Occupational Information Coordinating Committee (NOICC) and its counterpart State Occupational Information Coordinating Committees (SOICCs) were created by the Education Amendments of 1976 (Public Law 94-482) with a mandate to:

- Development and implement a national, State and local occupational information system to meet the common occupational information needs of vocational education and employment and training program adminstrators and planners, and

- Improve coordination between, and communication among, such administrators and planners, as well as employment security agency administrators, research personnel and others.

The Comprehensive Employment and Training Act (CETA) Amendments of 1978 (Public Law 95-524) call for NOICC to:

- give special attention to the labor market information needs of youth.

The following officials are named in the 1976 law as members of NOICC:

- Commissioner of Education[1],

- Administrator of the National Center for Education Statistics,

- Assistant Secretary for Employment and Training, and

- Commissioner of Labor Statistics.

The members of each SOICC, also specified in the law, are representatives of:

- the State Board administering vocational education,

- the State employment security agency,

- the State employment and training council, and

- the State agency administering the vocational rehabilitation program.

1/ The function of the U.S. Office of Education was moved to the U.S. Department of Education subsequent to the 1976 law.

ACKNOWLEDGEMENTS

This report is one of several products of the National Occupational Information Coordinating Committee (NOICC) produced under a grant for "Assistance in Occupational Information System Development and Implementation." This grant was awarded in 1979 to a consortium of the State occupational information coordinating committees (SOICCs) of North Carolina, South Carolina and Colorado.

The grant called for the accomplishment of four major tasks:

Task 1. Preparation of a national overview of the need for occupational information through a review of the literature, a summary of State needs assessment studies, interviews with Federal agency staff, and preparation of concept papers by recognized experts in the fields of vocational education, career counselling, CETA program planning, employment service operations and vocational rehabilitation. Reports from Task 1, including this report, are listed on p. iii.

Task 2. Development of an Occupational Information System (OIS) Handbook. This task has resulted in a three volume Handbook:

Volume 1. Occupational Information Development

Volume 2. Occupational Information Analysis, Presentation and Delivery

Volume 3. Technical Addendum

An OIS Handbook Executive Summary has been prepared as well.

Task 3. Development of training materials to accompany the OIS Handbook. The training materials include over 100 pieces of art work suitable for making overhead slides and a trainer's guide designed for use by Federal and State personnel to introduce audiences to the NOICC/SOICC network and the occupational information system.

Task 4. A training conference to introduce the OIS Handbook. Such a conference for States and territories in Federal regions 1-5 was held January 6-9, 1981, in Raleigh, North Carolina, and for those in Regions 6-10, January 27-30, 1981, in San Antonio, Texas. Participants in the conferences included representatives of the Federal and State agencies which are members of NOICC and SOICCs, and staff of the SOICCs.

Task 1 was carried out by Research Triangle Institute, Research Triangle Park, North Carolina. Dr. John E.S. Lawrence and Dr. Alvin M. Cruze served as project managers and authored some of the reports. Tasks 2 and 3 were performed by Program Resources, Incorporated, of Rockville, Maryland. David S. Lipstein, PRI Vice President, served as project director; Harvey Ollis was principal investigator. Task 4 was carried out jointly by RTI and PRI.

Joyce F. Kinnison, Director of the North Carolina SOICC, and George E. Probst, Director of Research for the North Carolina SOICC, served as overall managers of the grant. Carol Kososki, Director of the South Carolina SOICC, and Warren W. Wolff, Director of the Colorado SOICC, provided valuable input and served as reviewers for the project.

Dixie Sommers of the NOICC staff was responsible for monitoring and overseeing the grant, under the supervision of Richard E. Dempsey. Russell B. Flanders, Executive Director of NOICC, provided general direction.

This report, one of the products of Task 1, summarizes the studies of need for occupational information conducted by eleven SOICCs. The report was prepared by John E.S. Lawrence and John Gross of the Center for Urban-Rural Studies, Research Triangle Institute.

Reports on the Need for Occupational Information

Concepts Papers

Occupational Information System and the Employment Security System: A Need and Resources Assessment, Charles E. O'Dell, 1980.

Occupational Information and Vocational Education: A Concept Paper, Donald W. Drewes and Gary R. Bice, 1980.

The Role of an Occupational Informatin System in Career Guidance and Counselling, Edwin L. Herr, 1980.

Occupational Information Needs for CETA Prime Sponsor Policy Making, Planning, and Program Operations, Andrew M. Sum and Paul E. Harrington, 1980.

Occupational Information System and Vocational Rehabilitation: A Concept Paper, Joseph B. Moriarty, 1981.

Literature Review

Data needs and uses of the Context of an Occupational Information System: A Review of the Literature, Nancy Paulson, 1980.

State Needs Assessment

Occupational Information Needs at the State Level: An Empirical Study of Data Needs Assessment Surveys, John E.S Lawrence and John Gross, 1980.

Federal Interviews

Occupational Information Needs at the Federal Level, John E.S. Lawrence and Alvin M. Cruze, 1981.

Final Report

Occupational Information Needs in Selected Public Agencies at the State and National Levels, John E.S. Lawrence, 1981.

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EXECUTIVE SUMMARY

This report is one part of a four part assessment of the need for occupational information at the state and national levels. A synthesis is presented below, of the needs for occupational information as expressed by State Occupation Information Coordinating Committees (SOICC's) of eleven states, Puerto Rico, and the District of Columbia. These 13 SOICC's surveyed the participating agencies in their jurisdictions and reported the results in time for inclusion in this study. The SOICC surveys were not all coordinated efforts, and some questions differed significantly from place to place. Nine of the SOICC surveys were sufficiently similar that data needs could be compared by type of agency, as follows: Comprehensive Employment and Training (CETA), Employment Security (ES), Vocational Rehabilitation (VR), Secondary Vocational Education (SE), and Post Secondary Vocational Education (PSE)*. Also for the nine, data elements could be organized under the major categories of: Occupational Supply, Occupational Demand, Occupational Characteristics, and Complementary Information. Data elements (e.g., new business starts) are further organized under subcategories within the major categories of data (e.g., economic indicators within the Complementary Information category). In six of the SOICC surveys, the need for data elements could be summarized by position within agency: Administration and Management (A & M) Counseling (C), Program Planning (PP), or Placement of Individuals (PI).

This report documents the approach that was used in the synthesis. In presenting the data from such diverse and uncoordinated surveys, it is inevitable that valuable information for SOICC functioning can be overlooked. States will have legal requirements for data elements that appear unimportant in the aggregation of multi-state data. Very important occupational data elements may appear to be less in demand because survey designers overlooked the data element in their instruments. Although this synthesis of 13 uncoordinated surveys may have limitations it should, however, contribute to NOICC understanding of the data element needs of most concern to the SOICC.

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*These constituencies match the five agencies mandated as members of the SOICC in the Educational Amendments of 1976 (PL 94-482 Sec. 161 (6).

The four exhibits in this executive summary contain a description of the need for occupational information as operationally defined and as expressed by the five agency groups in the four major occupational data categories. This study removed from consideration all data elements in the SOICC questionnaires that were not indicated as needed by any agency in any SOICC survey. This description is based on relative need for data elements for which at least one surveyed agency in one jurisdiction responded with a positive need. Positive usually meant a 'yes' response, but some surveys rated need as more or less important by categories. In such cases, the rules for assigning a positive rating are explained in the body of the report. In the exhibits, a rating of 100 percent would indicate that a positive need was expressed by the agency groups in all nine states for every element in the data category that the group had an opportunity to rate. In the discussion of the exhibits, this executive summary defines over 80 percent as very high, 60 to 80 percent as high, 40 to 60 percent as average, and less than 40 percent as below average expresssions of need for a data category. Several other conventions are used in the body of the report.

Figure 1 Agency Needs for Occuaptional Demand Information

DATA SUBCATEGORIES	Agency Group CETA	ES	VR	SE	PSE
Job Vacancies	.81	.84	.76	.68	.66
Replacement Demand	.71	.57	.54	.40	.31
Projected Demand	.37	.37	.26	.68	.58
All Demand Elements	.68	.64	.58	.58	.51

In the Figure 1 above, CETA and ES express very high need for job vacancy data elements, average to high need for replacement demand data elements, and below average need for projected demand data. VR needs follow a similar declining pattern, but the vocational education agencies (SE and PSE) place more emphasis on projected demand and less on replacement demand. The overall need for Occupational Demand in all subcategories is generally average.

Figure 3 Agency Needs for Occupational Supply Information

DATA SUBCATEGORIES	Agency Group CETA	ES	VR	SE	PSE
Program enrollees	.64	.42	.54	.56	.56
Completers/leavers	.51	.27	.27	.50	.37
Characteristics of Completers/leavers	.94	.59	.78	.75	.69
Characteristics of unemployed	.80	.57	.46	.28	.31
Characteristics of underemployed	.30	.20	.20	.20	.20
Characteristics of military returnees	.63	.81	.31	.13	.44
Characteristics of discouraged workers	.82	.69	.71	.22	.41
Mobility	.55	.39	.17	.33	.44
All Supply Elements	.73	.50	.47	.40	.43

In Figure 3, the CETA agencies lead all agencies in expressed need for Supply information. Very high needs were expressed by CETA for characteristics of completers and leavers of programs they support, characteristics of the unemployed, and characteristics of discouraged workers. The VR agencies expressed high need for characteristics of discouraged workers and characteristics of completers and leavers of programs for the handicapped and disabled. The vocational education agencies also expressed high need for information on the characteristics of completers and leavers of their programs. In particular, the SE and PSE agencies share with all other agency groups the need to know whether their graduates and drop-outs are employed or unemployed, the type of occupations of the employed, and wage rates. Except for the several data element categories specified in the above paragraph, the expressed needs for data elements in the Occupational Supply category are average to below average for all agency groups.

The final major category for this summary is Complementary Information synthesized in Figure 4. The CETA agencies again stand out by having a very high overall need for Complementary Information while

other agency groups show average needs. CETA needs are very high for characteristics of education and training programs, for demographics in the prime sponsor areas, and for characteristics of the labor force. Other agency groups have below average needs for demographic information and high to very high needs for labor force characteristics. Because CETA supports programs operated by some of the other agency groups, it has a very high need for program information from several sources, ES, VR, and SE agency groups may also refer clients to other programs. The PSE agency group has below average to average needs for Complementary Information.

Figure 4 Agency Needs for Complementary Information

DATA SUBCATEGORIES	Agency Group CETA	ES	VR	SE	PSE
Demographics	.89	.39	.30	.29	.30
Characteristics of the Labor Force	.89	.87	.63	.65	.58
Characteristics of the Employed	.64	.41	.47	.36	.30
Characteristics of educ./train. programs	.95	.70	.73	.70	.54
Economic indicators	.72	.38	.39	.39	.50
Fiscal Information	.33	.00	.00	.33	.00
All Complementary	.81	.52	.47	.44	.40

In the body of the report a synthesis such as that summarized above for SOICC agencies is made for positions within agency. The results show an anticipated concentration of need for Occupational Characteristics information by counselors and placement interviewers. Also, as expected, Demand, Supply and Complementary Information needs are concentrated in the administrative/managerial and program planning categories. However, the patterns of expressed need are less clearly defined by position than by agency group.

Four of the SOICC surveys were not compatible with the format used in the above exhibits and in the major tables of the report, but some analyses were made of these four surveys. Occupational Characteristics

information again emerged as a high priority category. High needs were expressed for data on earnings, and job duties and responsibilities. A very high need for experience and training requirements information was also noted. Indicated need for information on educational programs and their location and cost was high in the four surveys. Other priority categories of information varied from state to state and the elements were not always consistent with the major occupational information categories used for the nine SOICC synthesis. In cases where similar elements were merged into a single element for the purposes of synthesis, member elements and the resulting "merged" elements are all listed in the Appendix.

In some of the SOICC surveys, much more attention is given to the use of data elements by the agencies. In others, the need for data elements that are currently unavailable receive special attention. Where such approaches appear this report directs the reader to the individual SOICC report with the details, since the focus of the current study is on need rather than availability.

The study concludes that there does appear to be a general profile of information need across SOICCs. The Occupational Characteristics category contained the elements most widely needed across all agencies. At the major category level, there appears to be a relatively high general need for some elements within all categories, although Supply category data across all agencies appears to be somewhat less needed. Individual agencies (e.g. CETA) indicate considerable need for Supply data, suggesting caution in interpreting too liberally across agencies. It seems therefore clear that, with the exception of the Supply/Demand category, for which no need emerges from this study (largely because SOICC instruments did not explicitly address this information category), there is a well documented need at the SOICC level for each of the major categories of data, although needs vary across agencies. Again in general, the need for data appears to be ordinal across agencies with CETA expressing the most need and then ES, VR, SE and PSE in that order.

Finally, the study recommends that in light of resource allocation decisions necessitated for SOICCs in face of these documented information needs, some research be initiated into the comparative costs of data collection and dissemination element by element. Such cost data should be particularly effective in assisting SOICCs to be sensitive to

data collection priorities. In addition, the NOICC Framework Document should drive the organization of any future surveys or resurveys of need, and the considerable knowledge base existing as a result of individual SOICC survey development and data analyses should be tapped in both future SOICC and NOICC exchanges of information or training activities.

I. INTRODUCTION

An important component in the process of meeting agency information needs through information system technology is to determine empirically the extent and content of those needs. Accordingly, when state occupational information coordinating committees (SOICCs) were required under the Education Amendments of 1976 (P.L. 94-482) to develop and implement occupational information systems (OIS), a number of state surveys of potential OIS users were contemplated. In February 1979, the Wisconsin and Iowa SOICCs jointly sponsored a national conference of those states furthest along in the development of their OIS. Questionnaire formats and the universe of users were discussed in the light of unique needs of each state. Basic questions, general content and essential users were identified in the final report of this conference.* Several individual SOICC surveys followed. As part of the National Occupational Information Coordinating Committee's (NOICC) effort to establish a profile of national need for occupational information, those states which had completed surveys were asked to provide their data on user needs by information element, by user agency and, if possible, by specific use for each piece of data. In some cases, states were able to provide finished analyses and final reports from projects which had addressed user needs for occupational information in great detail. In other cases, SOICCs had not progressed beyond the collection of new data, and were still in the process of analysis. This report summarizes the findings of needs assessments from 11 states, the District of Columbia and the Commonwealth of Puerto Rico. Because many additional states were still in the process of completing their surveys, and are not included in our study, this report cannot claim to be truly comprehensive. Only about one quarter of the states and territories are included in this study, which focused, by necessity, on those SOICCs whose data were complete enough to be included in our analysis.

Two further considerations were important in guiding the research reported in this document. First, the overall NOICC project to provide an estimate of the national need for occupational information (of which this report was one of four parts) used as a conceptual structure the

*A Report on National Workshop on User Needs Assessment. S.J. Cary, J.L. Niemeyer. Madison, Wisconsin, 1979.

framework for an OIS as outlined in earlier publications.* In this approach, occupational information is operationally defined, and categorized into five components: supply, demand, characteristics, complementary information, and supply/demand analysis (see Figure 5). Many of the states needs assessment surveys were begun, and survey instruments designed prior to this categorization. User needs data therefore did not necessarily conform to the OIS conceptual structure as it now exists. Since the presentation of the data in this report follows the OIS framework, some post hoc classification was inevitably necessary. Whenever such arbitrary classification occurred, decision rules are specified carefully to enable understanding of the ways in which such transformations were accomplished. Participating SOICCs have reviewed and edited their data as represented in tabular form here, and where feasible, changes have been incorporated into the presentation. The purpose of this report, therefore, is to synthesize the new data from the separate SOICC surveys into a comprehensive and accurate representation of user needs by major SOICC constituency, and where possible, by user type within agency.

Second, neither resources, nor the format in which the data were available permitted more than basic descriptive analyses of individual agency needs. The instruments used to measure information need were different for each state, making specific cross-comparisons between states difficult in any but the broadest of data categories. Accordingly, the results of the 13 needs assessment surveys were separated for the purposes of this study according to whether or not they met the following criteria:

i) detailed specification of occupational information at the individual data element level, and

ii) specification of user needs by separate SOICC constituency agency.

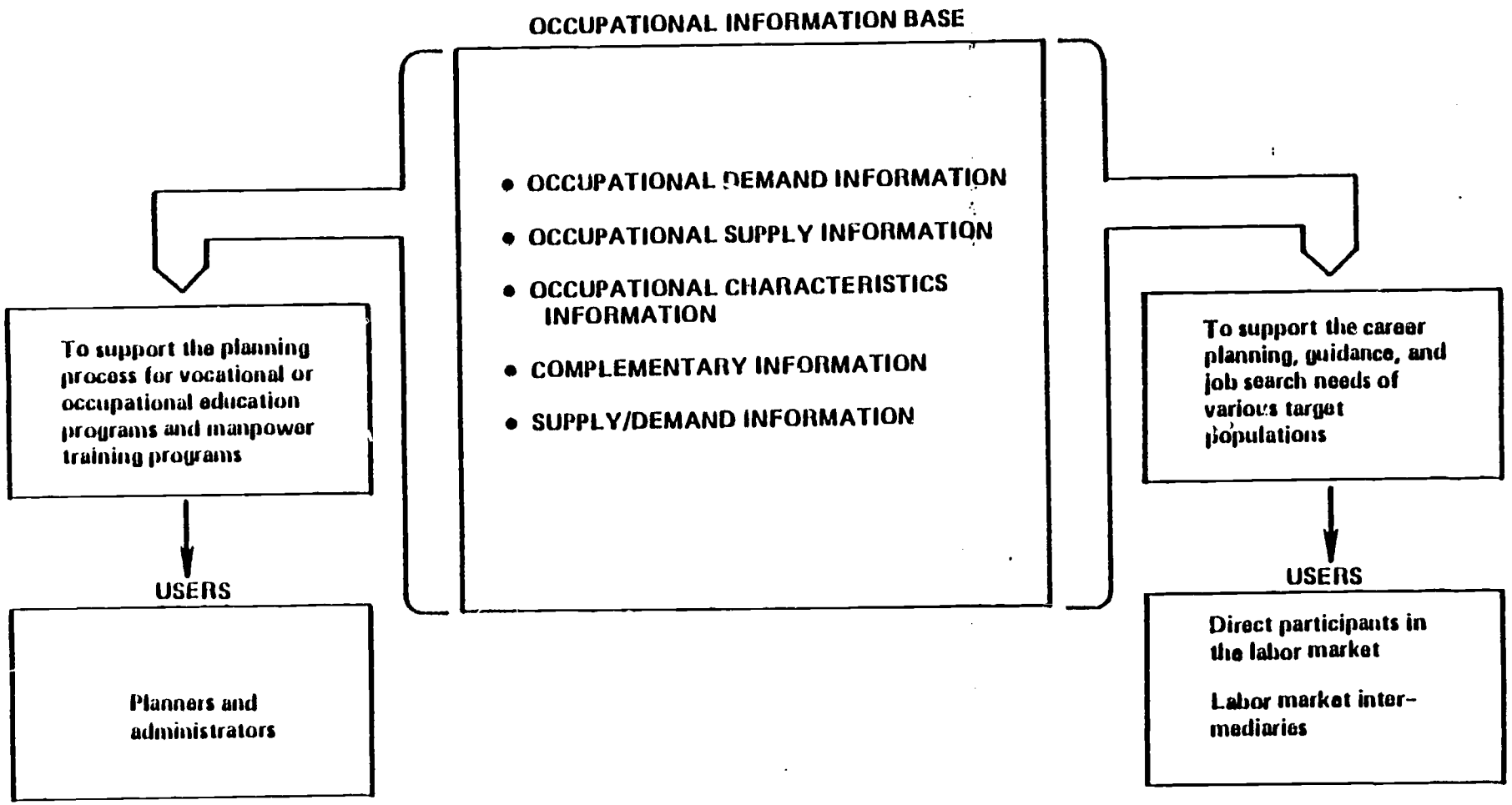
Group 1 SOICCs whose data met both of these criteria are:

Colorado	North Carolina
Florida	Oregon
Georgia	Puerto Rico
Illinois	Rhode Island
Iowa	

*National Occupational Information Coordinating Committee, A Framework for Developing an Occupational Information System. Washington, D.C., October 1979.

FIGURE 5

FIVE OCCUPATIONAL INFORMATION CATEGORIES IN THE OIS INFORMATION BASE AND THE TWO MAJOR USES OF OCCUPATIONAL INFORMATION



Group 2 SOICCS are:

Minnesota
Nevada
District of Columbia
Wisconsin

Group 1 SOICC data are presented in detail; Group 2 data were used only for the purpose of general comparisons to determine major similarities or differences in the profile generated from Group 1 data. Group 2 surveys were most useful for background analysis, and serve to strengthen the overall conclusions of the report.

The remainder of this report is divided into three sections. Section II describes the methods used in constructing Table 1 (a detailed comparison of occupational information needs in the Group 1 states) presents the data in tabular form, and explains the organization of the table. Section III is a detailed discussion of data from the 13 needs assessments. Section IV summarizes the conclusions from the report. Finally, some, but not all surveys addressed output scope, format and periodicity factors in their analyses. Accordingly, this report focuses exclusively on need for categories, subcategories and elements of occupational information by agency, position within agency, and use category.

II. STUDY METHODS

Overview

The methods for conducting this study were threefold:

i) development of an organizational structure for reporting the data, and a set of operational criteria for inclusion of specific SOICC survey results;

ii) contact with SOICCs, to obtain the data, and develop a process for SOICC review of the scheme for presenting the data; and

iii) analysis and presentation of the results.

1. The organizational structure around which this report is centered is already partly defined by the NOICC Framework Document referenced above. The five data categories and their component subcategories provide a good taxonomic outline into which to fit

individual data elements. Categories are defined in the Framework Document and to some extent, rules for inclusion of data elements in categories are also available through the definition of sub-categories. As indicated above, however, SOICC survey instruments were usually neither identical or organized by the Framework categories, necessitating retrospective placement of elements into those categories during our analyses. The operational criteria for inclusion of SOICC data in our analyses were a) requesting survey data from only those SOICCs who would have their own analyses complete by our deadline, and b) including in the main sample data from only those surveys which break out occupational information specifically by data element and by constituency/ user need.

2. The process for contacting SOICCs was as follows. On October 31, 1979, a circular from NOICC* was mailed to all SOICCs, describing the project and requesting that all available materials on user needs assessments be sent to RTI by November 15, 1979. By November 30, 27 SOICCs responded with either materials or indications about the status of their needs assessment efforts. Of these, 21 SOICCs were planning or conducting needs assessment surveys, and six had completed their surveys. Followup communications with SOICCs with surveys in progress ensured that data could be sent to us in time for our analysis from seven additional SOICCs, bringing the total of surveys addressed in this report to 13. A review process was initiated with all Group 1 SOICCs whose data were received in time to permit inclusion in a first draft completed in May 1980. Review comments were incorporated, along with data from the Puerto Rico needs assessment, in the final version.

3. Data analysis and presentation of results consisted of a) developing a structure and format into which the data from as many SOICCs as possible could be fitted and descriptively analyzed, b) tabulating the results from each SOICC into this common format, and c) summarizing of the results in enough explanatory detail to both accurately reflect the profile of occupational information

*Administrative Memorandum #79-23. User Needs Assessments. October 31, 1979.

needs on the basis of extant data, and also to provide some assistance to those states who have yet to complete their assessments. There was no ideal or easy way to present the mass of data with which we were faced. A number of difficulties had to be met in the selection of a useful method of presentation. A clear compromise had to be reached between excessive detail and cumbersome format on one hand, and mere textual description with no attempt at presentation of data, on the other. In addition, because this report deals mainly with those SOICCs who were completing their needs assessments the earliest, the SOICC survey instruments varied from the NOICC framework classification scheme in several ways. (For example, several SOICCs initially located "job requirements" as a data element under "job vacancies," necessitating inclusion in this report of such an element subcategory under occupational demand). Finally, cross-classification of data elements in general, across SOICCs which did not use the same or very similar survey instruments,* proved to be a significant problem. Recent NOICC efforts in the Framework document and subsequent refinements in the Handbook are going a long way toward the standardization of definitions.** For the purposes of this report, however, specific operational procedures were derived for permitting the data comparisons that are outlined below.

The method of presentation focuses on data elements within the major Framework categories of occupational information. For the nine SOICCs for which individual users' needs can be broken out by constituency, these are presented by user and by data element. The result is a comprehensive profile of user needs for nine SOICCs, one of which is Puerto Rico, two are Midwest, one Pacific, one Mountain, one Northeast, and three Southeast.

*The Group 1 SOICCs' instruments fell into three categories: Florida, Rhode Island and Georgia sections of the surveys relevant to this analysis were identical. Colorado and Oregon used very similar instruments. (Colorado added an "other, specify" category to many of its questions, and examined format in greater detail in their instrument.) The remaining four SOICCs each used unique instruments.

**Occupational Information System (OIS) Handbook, Volume 1. Occupational Information Development. National Occupational Information Coordinating Committee, Washington, D.C., January 1981.

While this may not be a nationally representative sample, and caution should be exercised in any generalization to either the national or other individual state cases, the evidence from Group 2 SOICCs also tends to support the data element profile emerging from this report. In addition, NOICC and SOICC reviewers of this report have indicated expectations of few major deviations from the conclusions we are presenting in the next section.

Tabular presentation of needs assessment survey data. Table 1 consists of five major columns:

(A) Data elements;

(B) SOICCs providing an opportunity for agency-specific responses to a particular data element:

(C) Responses by agency affiliation;

(D) SOICCs providing an opportunity for response to a particular data element by position within an agency; and

(E) Response by position within an agency.

The following subsections describe the organization of the data by columns in Table 1, explains how the table should be interpreted, and describes the major decisions involved in categorization and presentation of these data.

A. Column A: Data Elements

The left hand column lists those data elements for which at least one of the nine SOICCs expressed an operationally-defined need in their survey reports. Data elements were not included if need for that element was not expressed by any agency or position within an agency.* The instruments used by the different SOICCs varied in the manner in which those surveyed were asked to respond. On the chart, a positive indication of need is expressed by an entry in Columns C or E. Our working definition of "need" for each of the states included in Table 1 is defined below.

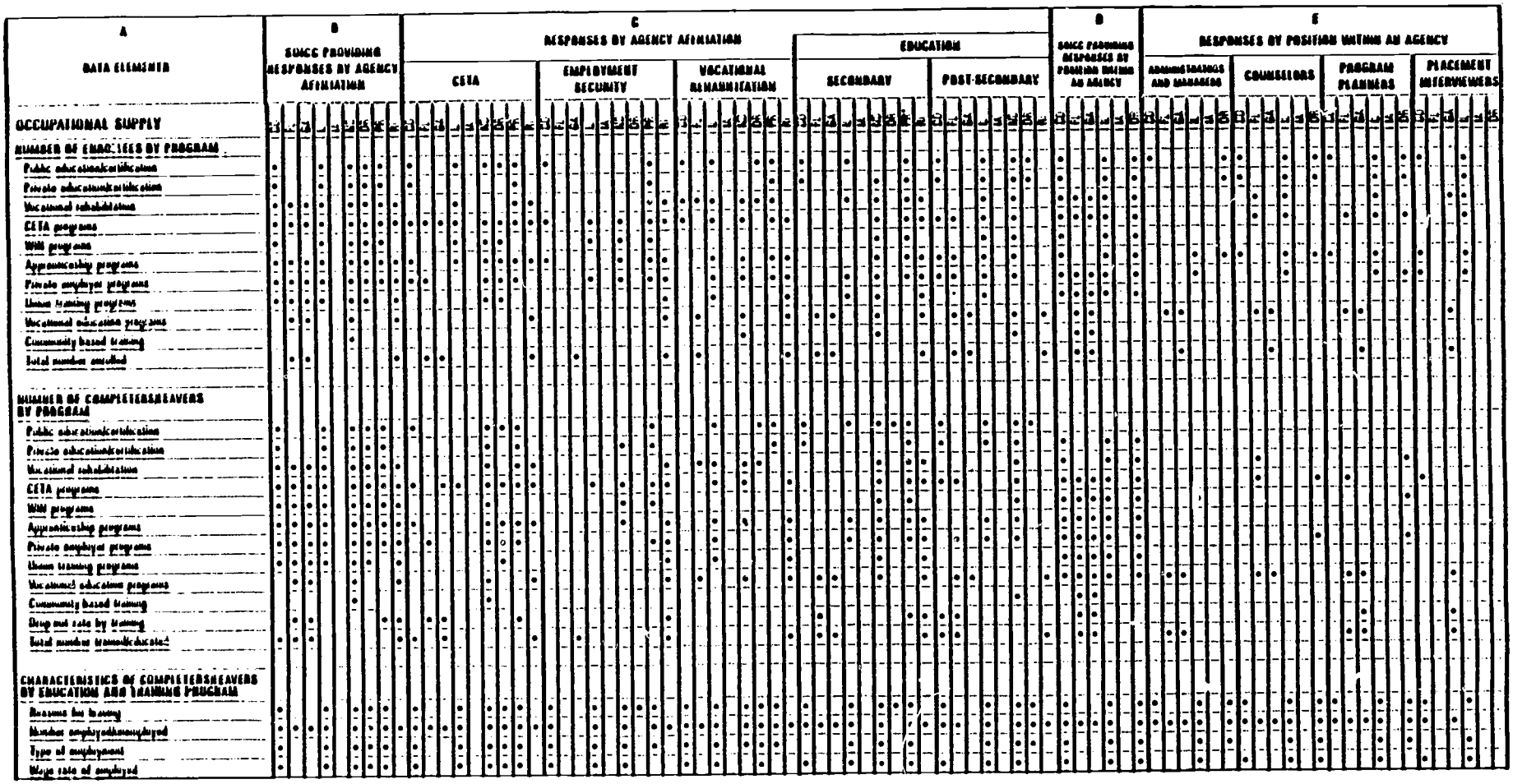
In seven of the nine questionnaires (all except Illinois and Iowa) respondents were only permitted a binary response to each element (i.e., "needed" or "not needed"). In these seven surveys, data element was defined (for the purposes of this study) as "needed" if 50 percent or more

*One reviewer suggested that valuable information for the SOICCs would be a compilation of those data elements indicated on questionnaires for which no need was documented. Such analyses, though potentially useful, were beyond the scope of this study.

TABLE 1. COMPARISON OF OCCUPATIONAL INFORMATION NEEDS OF EIGHT STATES AND THE COMMONWEALTH OF PUERTO RICO

A DATA ELEMENTS	B SOICC PROVIDING RESPONSES BY AGENCY AFFILIATION	C RESPONSES BY AGENCY AFFILIATION					D SOICC PROVIDING RESPONSES BY POSITION WITHIN AN AGENCY	E RESPONSES BY POSITION WITHIN AN AGENCY			
		CETA	EMPLOYMENT SECURITY	VOCATIONAL REHABILITATION	EDUCATION			ADMINISTRATORS AND MANAGERS	COUNSELORS	PROGRAM PLANNERS	PLACEMENT INTERVIEWERS
					SECONDARY	POST SECONDARY					
OCCUPATIONAL DEMAND											
JOB VACANCIES											
Number											
Rate											
Average length of time open											
Reason for opening											
Were advertised											
Job requirements											
Location											
Number hard to fill											
Expansion needs											
By wage rate											
REPLACEMENT DEMAND											
Number of quits											
Number of layoffs											
Number of discharges											
Number of new hires and recalls											
Separation rates											
Outmigration											
Transfers out of jobs											
Replacement needs											
Total number having occupation											
Turnover rate											
PROJECTED DEMAND											
Projected vacancies											
Projected hard to fill vacancies											
Projected separation rate											
Projected outmigration											
Projected transfers out of jobs											
Projected expansion needs											

*Secondary and Post Secondary



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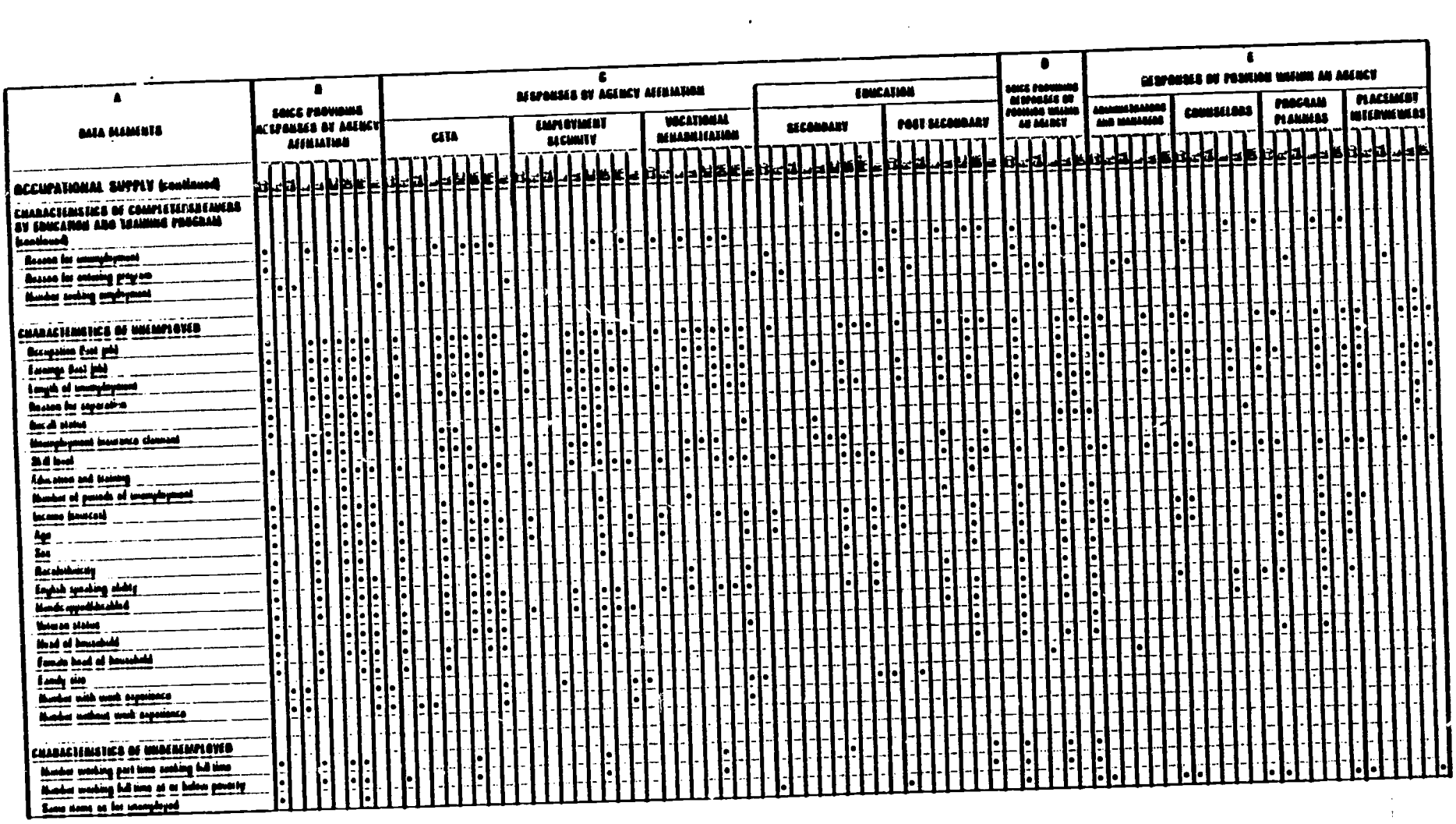

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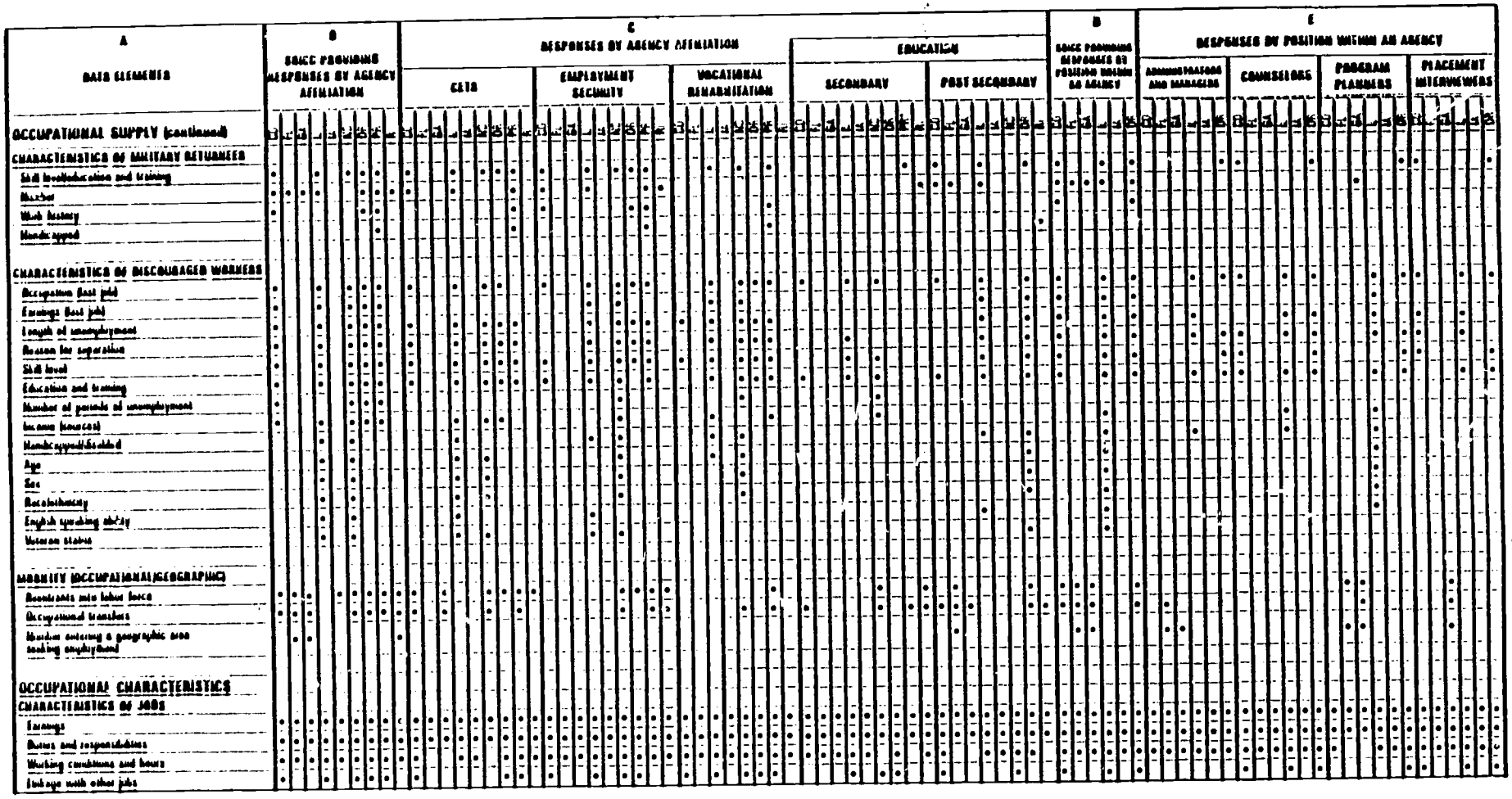
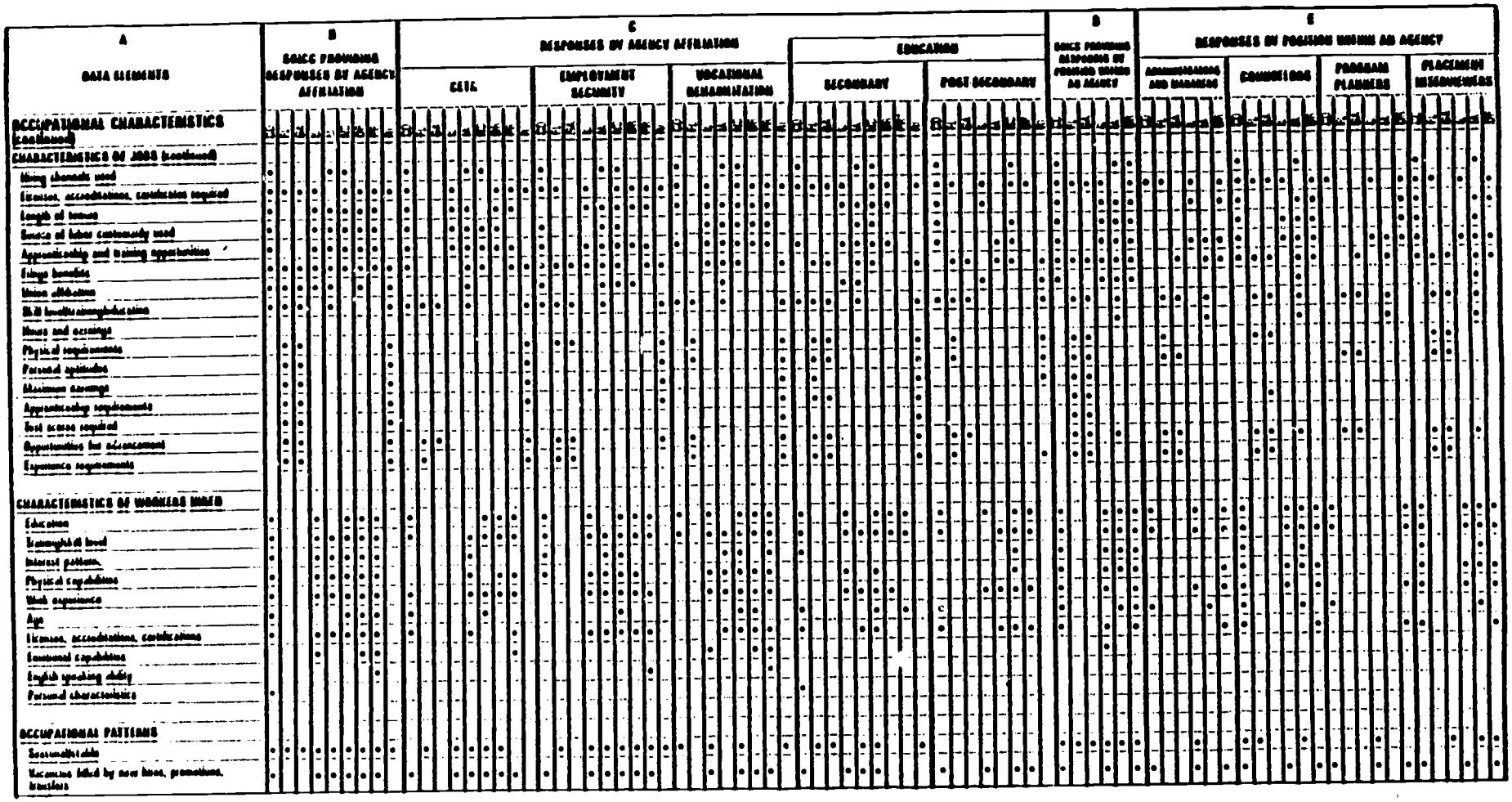
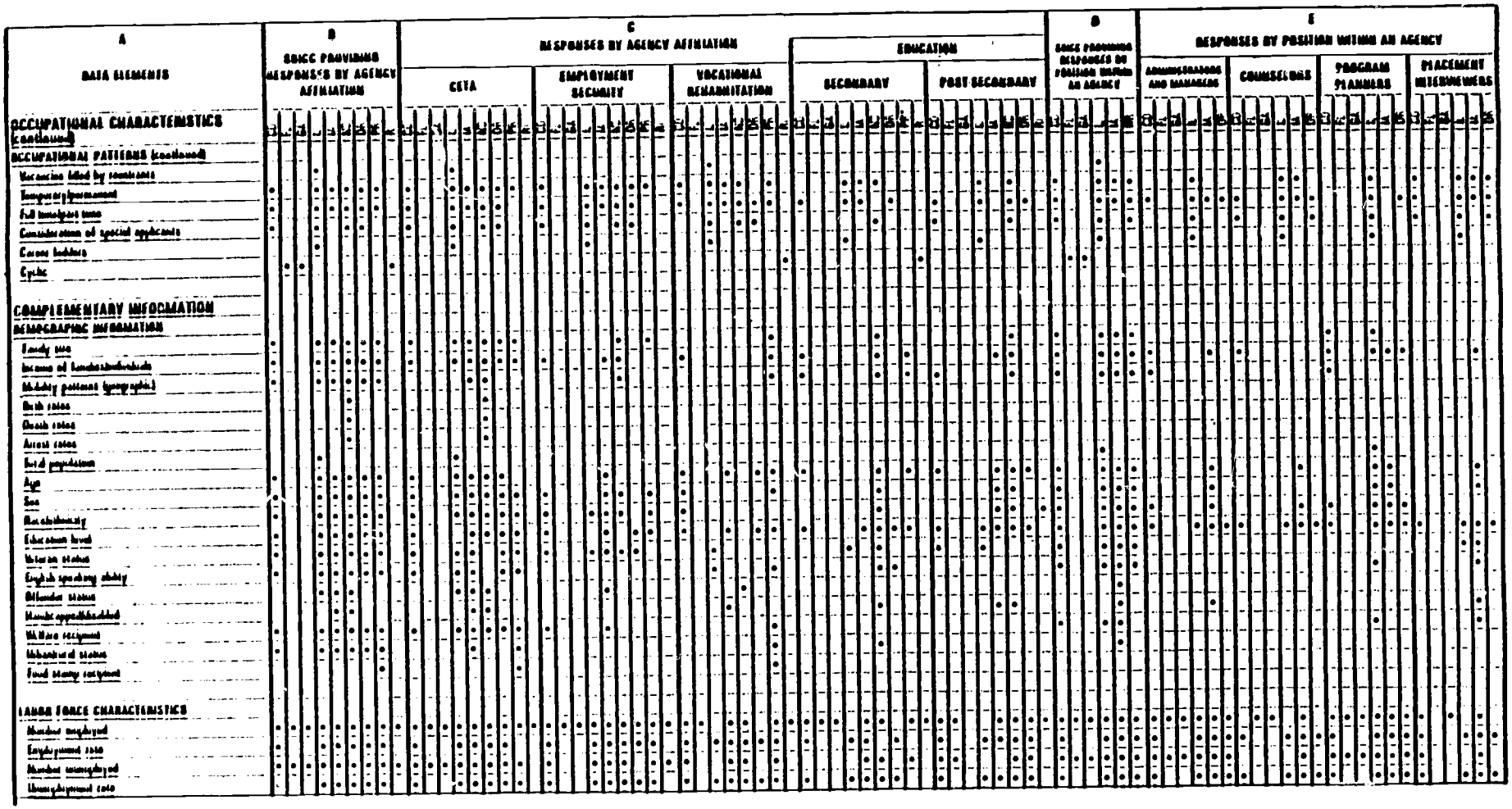


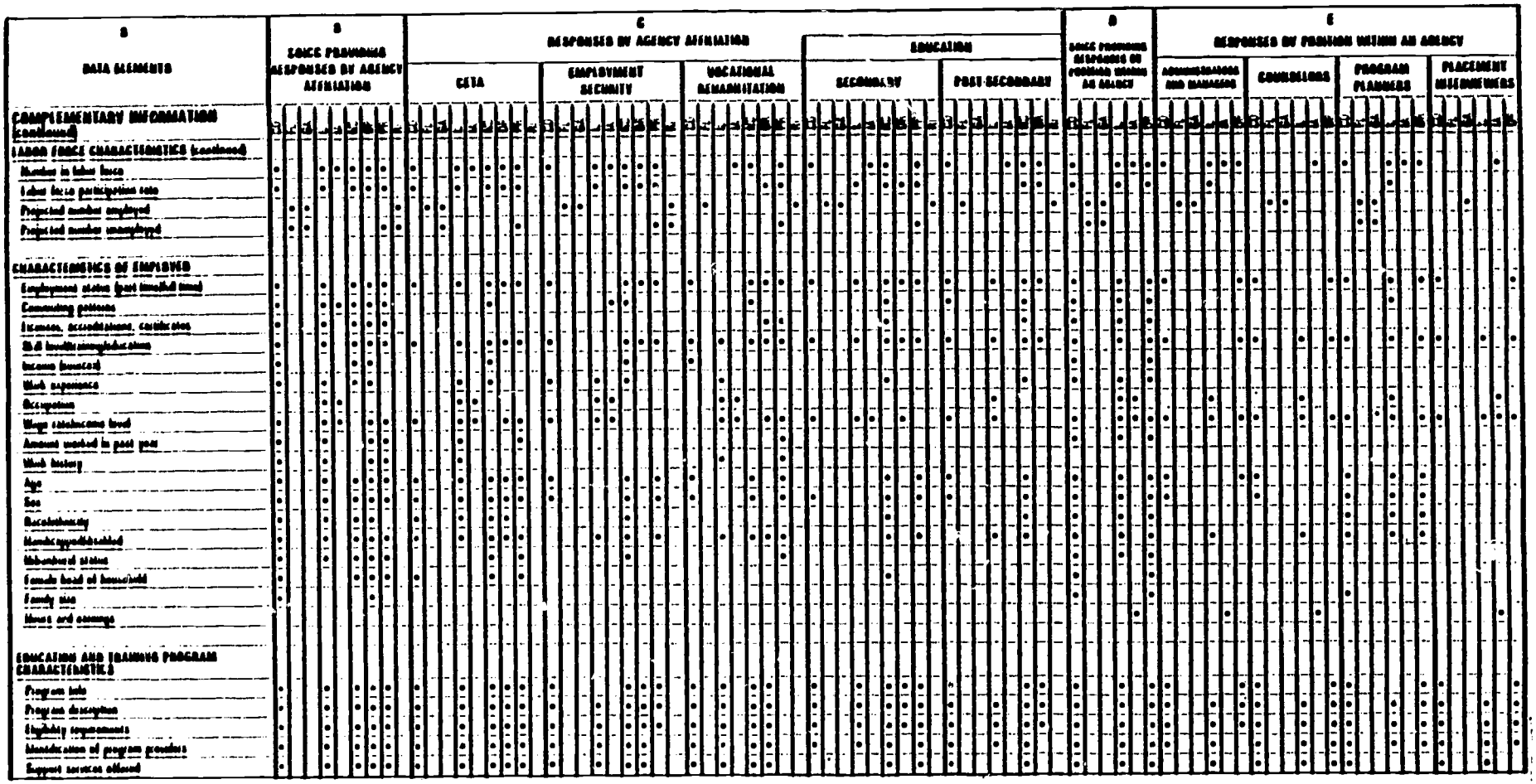
*Secondary and Post Secondary.



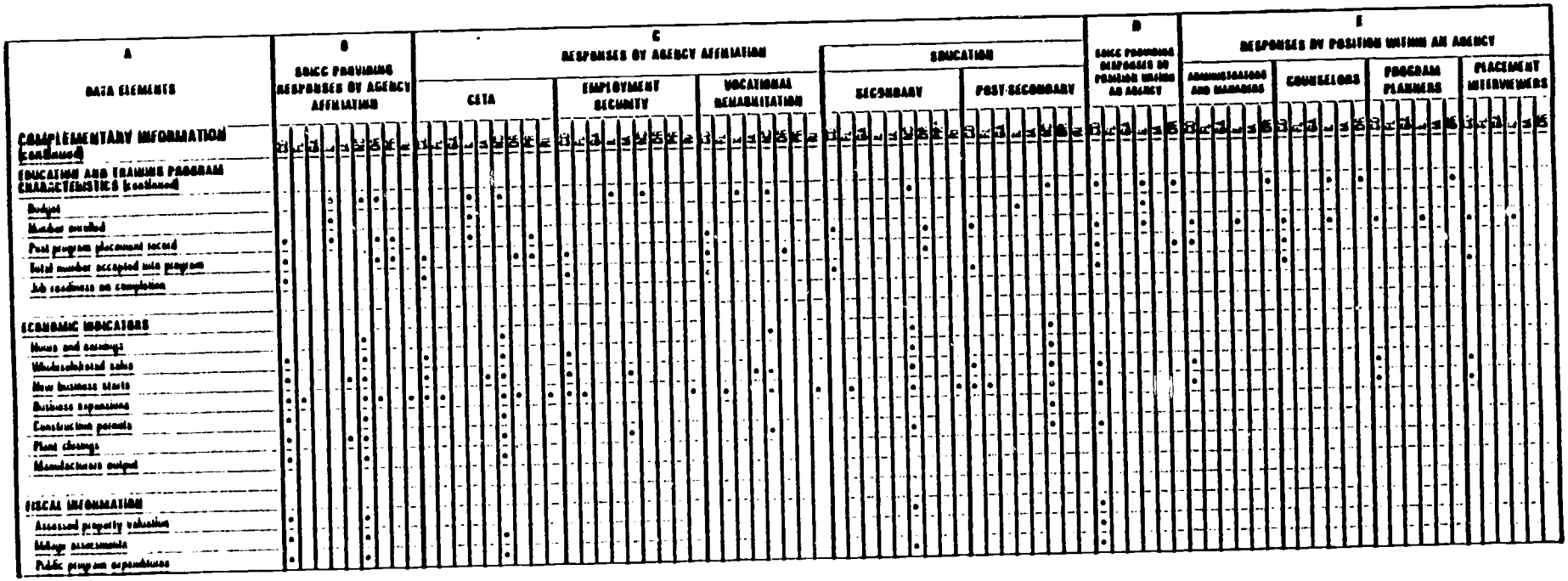
*Secondary and Post Secondary



*Secondary and Post Secondary



*Secondary and Post Secondary



*Secondary and Post Secondary

of the respondents marked an element as "needed." Illinois and Iowa provided respondents with multiple options. Illinois respondents were given three alternative response opportunities for each data element. These were:

(a) not important or not needed;

(b) somewhat important; and

(c) very important.

Again, for the purposes of this study, an Illinois agency was assumed to need a particular data element if 50 percent or more of the respondents indicated that the element was "very important." The exclusion of the "somewhat important" category in the case of Illinois may have the effect of slightly underrepresenting the need for data in that state, but the margin is acceptably slight.

The Iowa questionnaire measured need in yet a different manner. The question put to respondents was: "How often do you use this data item?" Respondents chose from four possible replies:

(a) don't but would if available;

(b) frequently;

(c) occasionally; and

(d) seldom.

Since the Iowa instrument was designed, in part, to determine how often data are used as well as which data are needed, responses to "frequently," "occasionally," and "seldom used" were totaled. When responses to these three categories totaled 50 percent or more of those responding, the Iowa agency was assumed to need a particular data element.

As a result of the above described "50 percent criterion," elements are only included in this matrix by definition if greater than or equal to one SOICC survey classified the element as "needed" by our criterion. Table 1, in effect, represents a matrix of "ones" and "zeros," with data being "ones," and empty cells "zeros." Empty cells or "zeros," however, do not represent lack of need in an absolute sense, since any number of respondents less than 50 percent could have cited a need for any of the elements, and still not be represented in the matrix. The table however does provide a nationally relevant picture of relative need across SOICCs and by agencies and users for national purposes.

The elements, though grouped differently by each state, are reported here by four of the five major categories of Occupational Information established by NOICC in the Framework document referenced above. The five categories are: Occupational Demand, Occupational Supply, Occupational Characteristics, Complementary Information and Supply/Demand Analysis. None of the reported data elements reflected in the nine studies were appropriate to the Supply/Demand Analysis category.

Data elements are further classified by subheadings. The headings used at this classification level are taken primarily from the instrument developed by the North Carolina SOICC. These headings were used because data elements used by all other SOICCs could be subsumed under the North Carolina data subcategories while the reverse was not the case.

As already indicated, standard definitions were not provided by SOICCs on an element by element basis (although data categories were often defined). Thus we cannot verify that definitions are always consistent across states, even where data element names used by the SOICCs were identical. Where element descriptions were clearly different, and the judgment of the coder so dictated, separate data elements were recorded. In some cases highly specific data elements were combined into more general elements. For example, in the subcategory "Characteristics of Employed" the Illinois questionnaire used the elements "Educational Attainment" and "Years of Training." These two were combined into the element "Education and Training" which was more compatible with elements reported by other states. In cases of such an element combination, an agency is shown as needing an element if need is expressed for either of the two original elements. Because decisions to combine or collapse these data elements were essentially judgmental, all combined elements and their component members are documented in the appendix.

B. Columns B and D: Opportunity for Response by Agency and Position Within An Agency

Of the 181 data elements included in Table 1, only seven were common to all nine reports.* In interpreting Table 1, therefore, it is important to identify the states which provided the opportunity to respond to a

*Five in the occupational characteristics category (earnings, duties and responsibilities, working conditions and hours, fringe benefits, and seasonable/stable occupational patterns) and two in supplementary information under characteristics of the labor force (number employed and number unemployed).

particular element. This information is provided in the second column on the chart. For each element, an entry in Column B means that the identified state included that element in their questionnaire. Only six out of the nine SOICCs identified respondents by position within agencies (Colorado, Florida, Georgia, Illinois, Iowa and Oregon). An entry in Column D indicates that the identified state also tabulated and reported responses to that question by position within respective respondent agency. Columns B and D, therefore, permit a distinction between elements empirically determined to be not needed as opposed to those items for which there was no opportunity to respond.

C. Columns C and E: Responses by Agency, and by Position Within Agency

The Response by Agency section indicates which agency respondents from each of the eight states and Puerto Rico expressed need for particular data elements. Agency names varied slightly from state to state, though in every case in which an agency name deviated significantly from the names used on the chart, contact with the relevant SOICC permitted resolution of how the agency in question should be classified. To explain the logic underlying this recategorization of state level agencies, Table 2 indicates which agency names were used by each state. The categories of constituency, responses by position within agency, (Column E) are administrators and managers, counselors, program planners, and placement interviewers.

Georgia responses were not classified such that need for occupational information from vocational rehabilitation respondents could be separately identified. The missing data are not indicative at all of lack of need, but rather as a lack of sufficient data for these analyses. In addition, Puerto Rico's responses for education agency affiliates were not separated by secondary and postsecondary. Consequently, the two sets of data needs are collectively reported here under secondary education.

III. A PROFILE OF NEEDED OCCUPATIONAL INFORMATION

A. Introduction

This section examines Table 1 in detail, and drawing also on data from the Group 2 states, constructs a general profile of needed data categories and elements. Each data subcategory is presented, with overall agency

Table 2

Agency Names Used by Each State

Name Appearing on Chart / STATE	CETA	Employment Security	Vocational Rehabilitation	Education	
				Secondary	Post-Secondary
Colorado		Employment Service	Other Public Employment	Other Education	Vocational Education
Illinois	CETA	Job Service Offices	Department of Vocational Rehabilitation	High School & Area Secondary Vocational Centers	Community Colleges
Iowa	CETA	Job Service	Vocational Rehabilitation	Secondary Education	Post-Secondary Education
Florida	CETA	Employment Service	Vocational Rehabilitation	Public Schools	Community College Vocational Education
Georgia	CETA	Department of Labor	None Reported	High Schools	Georgia Colleges, Universities and Advanced Vocational Training Schools

Table 2 (continued)

Agency Names Used by Each State

Name Appearing on Chart / STATE	CETA	Employment Security	Vocational Rehabilitation	Education	
				Secondary	Post-Secondary
North Carolina	Community Employment	Employment Security	Vocational Rehabilitation	Public Instruction	Community Colleges
Oregon	CETA	Employment Division	Vocational Rehabilitation	High Schools	Community Colleges
Commonwealth of Puerto Rico	CETA	Bureau of Employment Security	Vocational Rehabilitation	Dept. of Education	Dept. of Education
Rhode Island	CETA	Dept. of Employment Security	Vocational Rehabilitation	High School & Vocational Education	College

responses, and responses by position within an agency. Finally needs within each of the major categories (i.e., Occupational Demand, Occupational Supply, Occupational Characteristics, and Complementary Information) are summarized. It should be noted in interpretation of Table 1 that quantitative analysis of the entries can be misleading in that a) not all elements have an equal probability of being addressed by each SOICC, and b) an empty cell does not mean an absence of need for a particular element, since less than or equal to 49 percent of respondents may have indicated a need for the element. Furthermore, even though only one constituent agency in one SOICC indicates need by our measures for a specific data element, thus giving a generally light picture of need when viewed across responding SOICCs, the data element may be essential to that one constituent. Thus comparative percentages are avoided in the following description of individual data elements. We have attempted in Table 1 to present the data in an accurate, though readable way which accents the more important needs* for information, and to provide what we hope will be a useful general statement of comparative need across responding SOICCs and their constituent agencies. "More" or "less" need, as used in the following discussion, is an expression of cumulative need across identified constituencies and refers only to the data in Table 1. Specifically, where all SOICCs permitting a response, either by agency or position within agency, expressed a need for a given element, the need is characterized as "unanimous." Where one less than the total SOICCs permitting either kind of response indicated a need, the need is characterized as "high."

B. Occupational Demand

1. Job Vacancies

CETA and Employment Security (ES) expressed a unanimous need for number of job vacancies, with all other agencies expressing a high need. Unanimity was also demonstrated across all positions within agency. Wage rate information on vacancies also was unanimously needed, although by fewer states, in all agencies except Post-Secondary Education (PSE) which exhibited a high need. All positions within agency expressed a unanimous need, except for program planners, who have a high need for these data. In addition, reasons for openings data were highly needed by ES and CETA,

*Defined as above the median response by agency, i.e., a majority of users in that constituent agency indicated a need for that information element.

and expansion needs data were unanimously needed by CETA and Secondary Education (SE), and highly needed by all other agencies.

2. Replacement Demands

Number of quits and number of layoffs were unanimously needed by CETA agencies with high need for both data elements by Vocational Rehabilitation (VR) and, in addition, a high need for number of layoffs also by ES. Separation rates were highly needed by ES, primarily for administrators, managers and program planners. Finally, turnover rate was unanimously needed, though in fewer SOICCs' surveys, by CETA and ES, across all positions within agency.

3. Projected Demand

Projected vacancies data were unanimously needed by CETA and educational agencies, across all positions within agency. Projected expansion needs data were unanimously needed, in less than half the surveys, by CETA and SE with high needs in all other agencies. Again this data element was unanimously needed, by a third of respondent agencies, across all positions within agency.

C. Occupational Supply

1. Number of Enrollees by Program

Predictably, agencies tended to want these data for their own programs. CETA agencies expressed unanimous need for data on public education/certification and CETA programs, with some interest in apprenticeship programs, primarily for counselors and program planners. VR showed a higher need for information on public education/certification programs than for vocational rehabilitation program information by our measures, again primarily for counselors and program planners. SE and PSE showed unanimous need for vocational education program data with PSE showing a high need for both private and public education/certification data.

2. Number of Completers/Leavers by Program

One clear conclusion from the results under this subcategory is that SOICC survey instruments included a considerable number of data elements which agencies did not find particularly important as indicated by the larger number of entries in Columns B and D, on the whole, than in other columns. No strong patterns of need emerge for any of these data, with the exception of public education/certification, which was unanimously needed by SE, and

highly needed by CETA and PSE. A high need was also expressed for data on CETA programs by CETA agencies, with some need by the same agencies for apprenticeship information. No clear need profile emerged across positions within agency for these data.

3. Characteristics of Completers/Leavers by Education and Training Program

All agencies expressed more consistent need for data in this subcategory than for data on number of enrollees in either of the previous two subcategories. CETA respondents in particular expressed unanimous need for data on reasons for leaving, number employed/unemployed, type of employment, wage rate of employment, and reason for unemployment. ES, VR and SE expressed a similar unanimous need for reasons for leaving data, with a high need also indicated by PSE. This element was unanimously needed by all positions within agency except placement interviewers who needed it almost as highly. In addition, number employed/unemployed was highly needed by VR and SE with similar unanimous needs across administrators, managers, counselors and program planners. Wage rate of employed was highly needed by SE, predominantly by counselors. VR also expressed a high need for data on reasons for unemployment.

4. Characteristics of Unemployed

Overall, CETA respondents expressed the greatest need for characteristics of unemployed compared to other agencies. CETA agencies expressed unanimous need for occupation (last job), length of unemployment, reason for separation, education and training, skill level, age, sex, handicapped/disabled, and head of household information with an emphasis on use of the information primarily by program planners. High need was also expressed for earnings (last job), race/ethnicity, English speaking ability, and female head of household information. ES and VR also indicated unanimous need for occupation (last job), and education and training data. Education and training was also highly needed in education agencies, and unanimously needed across all positions within agency. In addition, ES indicated unanimous need, with VR indicating high need also, for length of unemployment and reason for separation. Finally VR shared CETA's unanimous need for handicapped/disabled data.

5. Characteristics of Underemployed

Only four SOICCs provided opportunities for respondents to express any need for data on Characteristics of Underemployed. Only one SOICC (North Carolina) exhibited consistent need across agencies for these data. There was also evidence in one SOICC (Colorado) of need in education agencies for same items as for unemployed and in two SOICCs (Colorado and Oregon) for unanimous need for the same information across all respondents within agencies.

6. Characteristics of Military Returnees

CETA and ES agencies expressed unanimous needs for skill level/education and training, and the Employment Security agencies in addition had unanimous need for work history data. No strong pattern of need was demonstrated by position within agency for this data subcategory.

7. Characteristics of Discouraged Workers

CETA, ES and VR agencies expressed unanimous need for skill level data in this subcategory. CETA and VR were consistent in their unanimous need for length of unemployment data. In addition, ES expressed a similar need, particularly for counselors, and placement interviewers, for occupation (last job) data, and CETA agencies indicated a similar unanimous need for reason for separation and education and training data, both elements of which were associated primarily with the needs of counselors.

8. Mobility (Occupational/Geographic)

Little overall need was exhibited for these data across SOICC agencies. The clearest need was among CETA agencies for data on reentrants into the labor force, and from post-secondary education agencies for occupational transfers data.

D. Occupational Characteristics

1. Characteristics of Jobs

This subcategory includes the only two data elements for which every SOICC agency, and position within agency indicated unanimous need, earnings, and duties and responsibilities of jobs. ES and VR agencies also expressed unanimous need for working conditions and hours; this high expression of need held for all positions within agencies except program planners for this data element. All agencies except post-secondary education, although in fewer SOICCs surveyed, expressed consistent need for

data on hiring channels used, and apprenticeship and training opportunities primarily needed by counselors and placement interviewers. Close to a unanimous need was expressed by all agencies for skill level/training/education information across all positions within agency. ES and SE expressed an almost unanimous need for licenses, accreditations and certificates required, primarily for counselors. In addition CETA and VR expressed a high need for source of labor customarily used (primarily for counselors), VR indicated unanimous high interest in length of tenure, and ES indicated a high need for fringe benefits information, again primarily for counselors and placement interviewers.

2. Characteristics of Workers Hired

ES, VR and SE were unanimous in their need for education and training/skill level data. The first of these elements was also highly though slightly less needed by PSE agencies, and was unanimously needed both by counselors and placement interviewers. The second element was almost as highly needed again by CETA agencies, and was identified as unanimously needed by placement interviewers. Physical capabilities data were indicated as highly needed by ES and VR, and work experience data by these two agencies as well as CETA. Both these latter two elements were seen as needed by both placement interviewers and counselors.

3. Occupational Patterns

Vacancies filled by new hires, promotions, transfers was unanimously indicated as needed by CETA, and ES, and by all positions within agencies. Temporary/permanent information was unanimously required by CETA and ES, with near unanimity in VR. These data were primarily seen as needed for placement interviewers. Full-time/part-time information was unanimously needed by VR, with high need also among CETA and ES agencies, and unanimous need for all positions except program planners. Finally, consideration of special applicants data were unanimously needed, though across less agencies, by CETA and ES, with also a high need by VR. Consideration of special applicants data is seen as needed primarily for counselors and placement interviewers.

E. Complementary Information

1. Demographic Information

This subcategory is needed primarily by CETA program planners. CETA agencies expressed unanimous need for family size, income of families/

individuals, sex, race/ethnicity, and welfare recipient information; two of which (race/ethnicity and income of families/individuals) were unanimously needed by program planners. In addition race/ethnicity was almost as highly needed by ES. Education level was highly needed by CETA and both Education agencies, and unanimously needed across positions within agency. Finally, veteran status was highly needed by CETA and ES.

2. Labor Force Characteristics

Labor force data are needed by most agencies according to responses tabulated in Table 1. The clearest need was expressed for data on number employed by CETA and ES, and for administrators, managers and program planners. Unanimous need was also indicated for data on the unemployment rate for CETA, ES, and VR, and almost as high a need for both sectors of education. The need for unemployment rate data was also unanimous across all positions within agency. In addition, the employment rate was seen as unanimously needed by ES and VR, with almost as high a need expressed by CETA and PSE. Again, the need for this data element was unanimous across all positions within agency. Number unemployed was seen as highly needed by CETA agencies, with unanimous need across administrators, managers and program planners. Number in labor force was unanimously needed by all ES and CETA agencies surveyed, for administrators, managers and program planners and labor force participation rate was unanimously seen as needed by CETA agencies, with almost as high a need among ES and secondary education agencies.

3. Characteristics of Employed

These data appear to be primarily needed by CETA program planners, although VR and Education agencies indicate a high need for some elements. Employment status (part-time/full-time) and skill level/training/education data were unanimously needed by CETA, VR and SE and almost as highly needed by ES and PSE. Both elements were unanimously needed by program planners, and the second was similarly needed by counselors and placement interviewers. Wage rate/income level was unanimously needed by CETA, and almost as highly needed by VR and SE. This element was primarily needed for placement interviewers, but was almost as highly needed by the other three identified positions within agencies. CETA also unanimously needed age, sex, race/

ethnicity and handicapped/disabled data. ES unanimously needed handicapped/disabled information, and almost as highly needed age and sex information. These four data elements were all indicated as unanimously needed by program planners.

4. Education and Training Program Characteristics

CETA agencies exhibited the greatest need for data elements from this subcategory. Program title was unanimously needed by CETA and SE, with a high need expressed by ES and VR. These data were highly needed across all positions within agency. Program description and eligibility requirements data were unanimously needed by CETA, ES and SE, and highly needed by VR. Both data elements were universally needed across positions within agency. Identification of program providers was unanimously needed by CETA, highly needed by ES, VR and SE, and needed universally by all positions within agency except administrators/managers who expressed a high need for the data. Support services offered and total number accepted into program were both universally needed by CETA agencies, and the first of those two elements was also highly needed by ES and VR, with universal need expressed by counselors for these data.

5. Economic Indicators

Little need was expressed for this subcategory, apart from interest in new business starts and business expansions, seen as unanimous needs in CETA agencies among the few SOICC surveys that included these data elements.

6. Fiscal Information

What little need was indicated for these data was from CETA agencies in North Carolina.

F. Needs Assessments Surveys Not Included in Table 1

The Group 2 SOICCs ; Minnesota, Nevada, the District of Columbia, and Wisconsin, all conducted needs surveys that did not permit us to break out the information in sufficient detail for tabular presentation in Table 1, but provide good background data to augment the base on which the current profile is developed. The purpose is not to detail their individual methodology findings and conclusions, but rather to indicate some key commonalities across the four surveys which are relevant to the discussion in the next subsection of this report. Again different methodologies, particularly in identifying and assessing respondents make comparisons difficult. While

all four surveys addressed different sets of agency respondents, Minnesota, Nevada, and Wisconsin all surveyed agency representatives from each of the four agency types indicated in Table 1, (CETA, ES, VR and Education), and all four surveyed representatives from at least three of the positions within agency (administrators/managers, counselors and program planners). In all four surveys, occupational characteristics information appeared as a high priority category. In the Minnesota survey, occupational characteristics data emerged as needed more widely than either supply or demand information. In particular, highest mean importance ratings were given to job duties and responsibilities, experience and training requirements, and wage information. In Nevada, the two data elements having the highest average need rating were wages, and fringe benefits, with working conditions and hours, educational/training program descriptions, job openings and educational training requirements sharing the next highest average need rating. The Wisconsin survey found "a great deal of demand for almost all kinds of occupational information listed..." (p. 64). The survey categorized need into two classifications of need useful for our purposes here. The highest need, expressed as a percentage of respondents indicating need, for "data available and used" was expressed for information on educational programs and their location and costs (60 to 64 percent depending on the individual data element). Almost as high a need was expressed in this classification type however for wage and salary data (60 percent). In the second classification, "data needed but not available," the highest expression of need was for occupational demand information data on jobs eliminated by industrial decline or technological changes (56 percent). Second highest need ratings were recorded for number and kinds of jobs for survey employer in area, and for jobs created by industrial growth or technological changes (54 percent). Employer recruitment practices was the element with the next highest rating (51 percent). The District of Columbia survey found the highest need for information on job availability, occupational characteristics and career mobility.

Because it is important also be address least needed data in light of costs associated with data gathering and dissemination, all four surveys addressed data elements of lowest priority in various ways. Minnesota had four data categories, Occupational Characteristics, Occupational Supply, Occupational Demand, and Labor Force. The Labor Force category constitutes

the lowest category overall in rankings of need. Wisconsin responses tended to be low overall in their Labor Force Information category, but individual elements rated lowest (in the "data available and used" classifications) were in the Occupational Supply category. The Nevada survey noted lowest mean need for data elements concerning occupational supply, and characteristics of the labor force. In particular, the Nevada report (p. 74) noted the very low mean importance ratings for data on migration patterns, and transfers from other occupations, in view of Nevada's accelerating economic growth. The District of Columbia survey noted particularly low need for UI claimant data (as did Nevada), marital status, and total family income, and sex,* supporting the general finding of lower indications of need for these descriptive labor force data.** It should be noted however that need patterns can differ not only across states but among agencies also. CETA respondents in the Nevada survey vigorously disagreed with the general Nevada finding that supply data were of low importance, indicating rather that "supply related information is one of the most needed types of occupational information for (CETA) operations." Caution should therefore be exercised in generalizing too freely with "less needed" information, even within a single state, as the Nevada report has effectively stated.

Finally, three of the four reports (Nevada, Minnesota, Wisconsin) specifically address the needs of types of individual within agency (e.g., administrators, planners, etc.). Although the specifics of use of the data by agency are discussed in more detail in the next subsection, the following are some key conclusions from these SOICC survey reports. The Nevada survey noted little differentiation across user groups in terms of respondents' needs, although job placement and program planning are key uses for the information (p. 89). The most frequently mentioned purposes for use of the data in the Minnesota report are also career counseling, job development and placement, and program planning (p. 28). The Wisconsin report endorses the observation that counseling may be the chief use of occupational information, followed by job placement and program plan-

*The District of Columbia report (p. 26) suggests elimination of the data element sex from the District's OIS on the grounds that sex discrimination is undesirable in occupational decisionmaking.

**Although the District of Columbia Report Summary stresses "the importance assigned to personal and socio-demographic data concerning labor force members" in general.

ning respectively (p. 30). However, the Wisconsin report again stresses the importance of interpreting use data carefully. "A small number of people making use of ... data (for a specific use) does not mean this is a low priority or minor use of the data." (p. 31) In short, similar caution should be used in reporting low use, as has already been referred to above as advisable with low overall need across agencies.

G. Uses of Occupational Information

Five states* and Puerto Rico compiled data about the uses of occupational information. These data are summarized below.

Uses of Data

SOICCs identified the following uses of Occupational Information:

Job Placement
Program Planning
Vocational Counseling
Curriculum Development
Industrial Recruitment
Employee Recruitment
Reporting Requirements
Program Operations
General Information
Dissemination of Information

Although no SOICC identified all these above uses in their survey instruments, Program Planning, Vocational Counseling, Job Placement were common to all. The following is a brief look at how respondents use occupational information in states where they were given an opportunity to respond.

North Carolina

North Carolina did the most detailed survey of information uses, reporting user responses at the subcategory level (as in Table 1) by agency affiliation. Respondents were asked to rate information in each category for its importance in each of the following seven uses:

Job Placement
Program Planning
Program Operations

*North Carolina, Colorado, Oregon, Minnesota, and Nevada.

Vocational or Career Counseling

Curriculum Development

Industrial Recruitment

Reporting Requirements

While this depth of detail was useful, it also required additional analysis to enable drawing overall conclusions regarding the use of occupational information.

1. Methods

Respondents were asked to assign a score to each of the above uses rating the importance of the occupational information in that subcategory for that use. Possible responses were:

0 = No Importance

1 = Below Average Importance

2 = Average Importance

3 = Above Average Importance

4 = Critical Importance

Responses were averaged and the mean rating was reported for each use. Each use was then ranked by agency.

2. Conclusion

Clearly respondents felt the five most important uses of occupational information were (in order): Job Placement, Program Planning, Vocational Counseling, Program Operation, and Curriculum Development. The total number of times each use was ranked first by an agency was calculated. The results are shown below:

Use	Number of Times Ranked First
Job Placement	60
Program Planning	42
Vocational Counseling	34
Program Operation	1
Curriculum Development	6

Though Curriculum Development was ranked first more frequently than Program Operations, using a second method of rating the overall importance of these uses of occupational information clearly placed Curriculum Develop-

ment as a less important use to North Carolina respondents. In the second method the rankings of each use across all agencies for each of 24 subcategories of occupational information was totaled. For example, if three agencies ranked Job Placement as the most important use of Characteristics of Jobs, one ranked it third and one ranked it fourth, its overall score would be (1+1+1+3+4)=10. Thus, the lower the score the more important the use. Using this method, totals were calculated for each of these five most important uses across all agencies and subcategories. An average score by subcategory, and a tally of the number of times each scored lowest overall for a subcategory was also computed. The results of this analysis are shown in Table 3.

Job Placement scored lowest overall, (and therefore were most important by these analyses) in the following subcategories (subcategories are identical to those in Table 1):

Characteristics of Workers Hired
Occupational Patterns
Turnover Statistics
Total Employment
Job Vacancies
Employment Requirement
Unemployment Statistics*
Characteristics of Unemployed
Identification of Employers
Characteristics of Military Returners**
Occupational Mobility

Program Planning scored lowest overall in the following subcategories:

Unemployment Statistics***
Characteristics of Employed
Characteristics of Underemployed
Number of Completers/Leavers by Education and Training Program

*Tied with Program Planning.
**Tied with Vocational Counseling.
***Tied with Job Placement.

Table 3

North Carolina Ranking of Uses for Occupational Information

Use	Overall Score*	Average Score for a Sub-category	Number of Times Ranked First for a Subcategory
Job Placement	212	10.1	11
Program Planning	224	10.7	8
Vocational Counseling	279	13.3	3
Program Operation	420	20.0	0
Curriculum Development	510	24.3	0

*The lower this score, the greater is the importance attached to this use by responding agencies.

Characteristics of Completers/Leavers by Education and Training Program

Number of Enrollees by Education and Training Program

Population Characteristics

Education and Training Program Characteristics

Vocational or Career Counseling scored lowest overall in the following subcategories:

Characteristics of Jobs

Characteristics of Discouraged Workers

Characteristics of Military Returnees*

Puerto Rico

Respondents to the Puerto Rico instrument were given the opportunity to respond to eight possible uses of occupational information. These were:

Job Placement

Program Planning

Program Operations

Vocational or Career Counseling

Curriculum Development

Industrial Recruitment

Reporting Requirements

Dissemination of Information

The four responses possible for each use included:

No Use

Little Use

Medium Use

High Use

The importance of information for each use was ranked by totaling the number of respondents answering medium or high use. The results are shown in Table 4, which indicates the ranking, from one through eight, of four categories of data by the eight uses. Program planning clearly emerges as the most important use of the information, being ranked first for all four data categories.

*Tied with Job Placement.

Table 4

Puerto Rico Ranking of Uses of Occupational Information

	Demographics	Labor Force	Occupational Supply-Demand	Occupational Characteristics
Job Placement	4	2	2	3
Program Planning	1	1	1	1
Program Operations	5	5	5	5
Vocational or Career Counseling	3	3	3	2
Curriculum Development	6	6	7	7
Industrial Recruitment	8	8	8	8
Reporting Requirements	7	8	6	6
Dissemination of Information	2	3	4	4

Colorado

Usefulness of occupational information was also addressed in the Colorado instrument. Rankings of information usefulness for various purposes were calculated for Colorado by the same method used to calculate Puerto Rico's rankings. The results are shown in Table 5. Again, program planning clearly emerges as the most important use for the data.

Minnesota

Respondents to the Minnesota instruments were given three alternative responses to the usefulness of a particular category of occupational information. These were:

No Use
Medium Use
High Use

Respondents' rankings (one through six) are shown in Table 6, indicating that vocational or career counseling is the most important use for the data, since it ranks first in all categories. Program planning and job development/placement, however, tie for second rank across all four data categories.

Oregon

The Oregon report provided ranking of four uses of occupational information in four categories. They are shown in Table 7. Counseling is the most important use with program planning in second place.

Nevada

Nevada respondents were given the opportunity to rate the usefulness of several categories of occupational information for eight uses on a scale of 1 to 5 with:

1 = No Use
2 = Moderate Use
5 = High Use

Mean scores were calculated for the importance of occupational information for each use category. Results are shown in Table 8. General information emerges as the most important use with planning/placement in second place, and vocational counseling rated third.

Conclusions Regarding Use of Occupational Information

Apparently, there is general agreement among the respondents regarding the usefulness of occupational information for several purposes.

Table 5

Colorado Ranking of Uses of Occupational Information

	Demographics	Labor Force	Occupational Supply/Demand	Occupational Characteristics
Job Placement	3	3	3	3
Program Planning	1	1	1	1
Program Operations	4	4	4	6
Counseling	2	2	2	2
Curriculum Development	6	5	5	4
Industrial Recruitment	7	7	7	7
Reporting Requirements	5	6	6	5

Table 6

Minnesota Ranking of Uses of Occupational Information

	Occupational Characteristics	Occupational Supply	Occupational Demand	Labor Force
Job Development/ Placement	2	3	2	3
Program Planning	3	2	3	2
Vocational or Career Counseling	1	1	1	1
Curriculum Development	4	4	4	4
Employee Recruitment	6	6	6	6
Reporting Requirements	5	5	5	5

Table 7

Oregon Ranking of Uses of Occupational Information

	Demographics	Labor Force	Occupational Supply-Demand	Occupational Information
Program Planning	1	2	2	2
Counseling	2	1	1	1
Job Placement	3	3	3	3
Program Operations	4	4	4	4

Table 8

Nevada Ranking of Uses of Occupational Information

Purpose	$\bar{X}$ Score	Rank Order
Job Placement	3.2	2nd
Program Planning	3.2	2nd
Vocational Counseling	3.1	3rd
Curriculum Development	2.8	4th
Industrial Recruiting	2.6	5th
Reporting Requirements	2.6	5th
Program Operations	2.6	5th
General Information	3.5	1st

In every case except Nevada, occupational information was found to be most useful for three purposes: Job Placement, Vocational Counseling, and Program Planning, and Nevada respondents rate them either second or third. Though we have constructed tables ranking the usefulness of information from several occupational categories for various purposes it should be pointed out that differences in ranking were often very slight. For some of the rankings done on a four-point scale, the difference between mean scores may have been as small as .02.

The conclusion that occupational information is most useful for Program Planning, Job Placement, and Vocational Counseling (though the order of importance varies somewhat from state to state) may be attributable in part to the fact that the respondents perceived these purposes as their major functions. To explore the extent to which this importance-by-use pattern is consistent within agencies, the most detailed survey data, that of North Carolina was analyzed further using responses across all data categories. This time, only unanimous high rankings by all respondents were counted in order to get as sharp a representation as possible of importance by use within agency. According to the ranking scheme discussed under the North Carolina analysis above, "critical importance" is the highest ranking, and responses were only included in this analysis if all respondents rated the data category as of "critical importance." Table 9 outlines the relative rankings, from one to five, across all data categories of the following agencies: Public Instruction (PI), CETA (CE), Employment Service (ES) and Vocational Rehabilitation (VR). The table shows striking differences in use by agency. While educational and employment and training program personnel see program planning as the most important use for the data, employment service and vocational rehabilitation personnel do not. Conversely program operations is an important use for the information for vocational rehabilitation and employment service personnel, but not for educational and CETA respondents. Although these data are only representative of one SOICC, it gives an indication of what might be considerable differences in perceived importance of use across SOICC constituency agencies. These differences between constituent agencies notwithstanding, the finding that job placement, vocational counseling, and program planning

Table 9

North Carolina Ranking of Uses of Occupational Information by Agency

Use	Agency			
	PI	CE	ES	VR
Job Placement	2	3	2	1
Program Planning	1	1	4	4
Program Operations	5	5	2	2
Vocational Counseling	3	2	1	2
Curriculum Development	4	3	5	5

are the more important uses of the data serves to endorse the overall design of an OIS as outlined in the Framework Document. In particular, it lends some empirical support to the direction of the OIS toward the three uses diagrammed in Figure 5 above.

Although no strong trends emerge regarding relative usefulness of different types of occupational information for various purposes, it does appear that more aggregate, macro-level data such as demographics or labor force characteristics are somewhat more useful for program planning than data such as characteristics of jobs that provide specific information of greater relevance to counselors. Hence, job placement tended to be ranked as the most important use of occupational characteristics data in some states. Similarly, vocational counseling may be considered the most important use of the occupational supply data category since it contains data on characteristics of unemployed and discouraged workers.

H. Conclusions

The data in Table 1 are derived, as already indicated, from several quite widely different surveys, and conclusions should be interpreted with caution. In particular, the table is most useful in describing those data for which the greatest number of agencies have a documented need. Empty cells, as explained earlier, do not necessarily imply lack of need. Results reported here, therefore, are limited exclusively to general patterns across SOICCs of what appear to be the most needed information, and do not make comparisons within SOICCs, a function the individual SOICC surveys were intended to perform.

Four major conclusions emerge from an analyses of Table 1 (Group 1 SOICCs), all of which are supported in varying ways by the data from Group 2 SOICCs. First, individual information elements most widely needed across all agencies were in the Job Characteristics category. Earnings, and duties and responsibilities associated with a given job were the only data elements in any category for which need was expressed across all agencies and positions within agency. This finding implies that data users of all kinds have a high need for basic descriptive information on specific occupations when the data from Table 1 are aggregated by occupational information subcategory, and the proportion illustrated of responding agencies to those agencies whose SOICC surveys permitted responses, the tendency is

clear of job characteristics information to emerge overall as the most salient. To assist in synthesis of all the information contained in Table 1, Table 10 presents the numbers, with proportions in parentheses, of responses by agency and subcategory of information. For each of the four categories of occupational information, the seventeen major subcategories are presented, with responses aggregated by subcategory across all the data elements within the subcategory. The first column represents the total number of surveys (SOICCs) permitting responses to elements within the particular subcategory. The numbers and proportions under each constituency and position within agency, represent total numbers of responses, and proportions of the total responses possible. Mean proportions are also calculated for occupational information categories (in the boxes) and for position within agency (final column).

Across all five responding agencies, the highest proportion of agencies expressing need is for the category of Job Characteristics (.69). While the distribution of need for information subcategories, and elements within subcategories, varies for different agencies, there is a comparatively consistent overall need for data in the Job Characteristics category, (characteristics of jobs .71; characteristics of workers hired .60; occupational patterns .74). In other categories, certain subcategories of occupational information appeared more extensively needed across agencies than others. In the Demand category, job vacancy data were expressed as most needed (.75). Characteristics of completers/leavers by education/training program was the subcategory with the greatest expression of need in the supply category. Characteristics of discouraged workers data were also extensively needed, although less by educational than by other agencies. Finally, labor force characteristics and education and training program characteristics were the two most needed subcategories in the Complementary Information category.

Second, as noted in the Wisconsin survey, there appears to be a generally high need for each of the major occupational information categories, (i.e., Demand, Supply, Job Characteristics, and Complementary Information). Across all agencies, the need for each category is greater than or equal to .50 by our measures. Again, by the same measures, the overall need for Supply data seems somewhat lower than the other categories

Table 10

Numbers and Proportions of Responses,* by Agency, Position Within Agency and Subcategory of Occupational Information

	# of SOICCS	Agencies CETA	ES	VR	S	PSE	# of SOICCS	Positions Within Agencies A+M	C	PP	PI	X Proportion
Demand												
Job vacancies	38	31(.81)	32(.84)	29(.76)	26(.68)	25(.66)	27	18(.66)	19(.70)	14(.52)	19(.70)	(.65)
Replacement demand	35	25(.71)	20(.57)	19(.54)	14(.40)	11(.31)	20	4(.20)	5(.25)	5(.25)	8(.40)	(.28)
Projected demand	19	7(.37)	7(.37)	5(.26)	13(.68)	11(.68)	13	6(.46)	3(.23)	3(.23)	3(.23)	(.29)
	92	63(.68)	59(.64)	53(.58)	53(.58)	47(.51)	60	28(.47)	27(.45)	22(.37)	20(.33)	(.40)
Supply												
# enrollees by program	69	38(.64)	25(.42)	32(.54)	33(.56)	33(.56)	38	9(.26)	17(.45)	16(.42)	12(.32)	(.36)
#completers/leavers by program	70	36(.51)	19(.27)	19(.27)	35(.50)	26(.37)	42	4(.10)	6(.16)	8(.19)	4(.10)	(.13)
Characteristics of completers/ leavers by ed/trg. program	32	30(.94)	19(.59)	25(.78)	24(.75)	22(.69)	21	13(.62)	16(.76)	14(.67)	7(.33)	(.60)
Characteristics of unemployed	99	79(.80)	56(.57)	46(.46)	20(.28)	32(.31)	51	17(.33)	17(.33)	29(.57)	18(.35)	(.40)
Characteristics of underemployed	10	3(.30)	2(.20)	2(.20)	2(.20)	2(.20)	8	2(.25)	2(.25)	2(.25)	2(.25)	(.25)
Characteristics of military returnees	16	10(.63)	13(.81)	5(.31)	2(.13)	7(.44)	10	1(.10)	2(.20)	2(.20)	2(.20)	(.18)
Characteristics of discouraged workers	51	42(.82)	35(.69)	36(.71)	11(.22)	21(.41)	25	10(.40)	17(.68)	14(.56)	13(.52)	(.54)
Mobility (occupational/geographic)	18	10(.55)	7(.39)	3(.17)	6(.33)	8(.44)	10	3(.30)	0	5(.50)	3(.30)	(.28)
	355	258(.73)	176(.50)	168(.47)	141(.40)	151(.43)	205	59(.29)	77(.38)	90(.44)	61(.30)	(.35)
Characteristics												
Characteristics of jobs	103	70(.68)	83(.81)	77(.75)	79(.77)	58(.56)	70	41(.59)	57(.81)	35(.50)	54(.77)	(.67)
Characteristics of workers hired	44	24(.55)	31(.70)	34(.77)	25(.57)	19(.43)	26	12(.46)	21(.81)	0	0	(.32)
Occupational patterns	36	32(.89)	31(.86)	30(.83)	21(.58)	20(.56)	24	16(.67)	16(.67)	14(.58)	18(.75)	(.67)
	183	126(.69)	145(.79)	141(.77)	125(.68)	97(.53)	120	69(.58)	94(.78)	49(.41)	72(.60)	(.59)

Table 10 (continued)

	# of SOICCS	Agencies CETA	ES	VR	S	PSE	# of SOICCS	Positions Within Agencies A+M	C	PP	PI	X Proportion
Complementary Information												
Demographic information	76	68(.89)	30(.39)	23(.30)	22(.29)	23(.30)	46	12(.27)	6(.13)	23(.61)	13(.29)	(.30)
Labor force characteristics	48	43(.89)	42(.87)	30(.63)	31(.65)	28(.58)	31	27(.87)	16(.48)	29(.94)	16(.48)	(.69)
Characteristics of employed	73	47(.64)	30(.41)	34(.47)	26(.36)	22(.30)	46	13(.28)	13(.28)	24(.52)	11(.24)	(.33)
Ed. & trg. program characteristics	37	35(.95)	26(.70)	27(.73)	26(.70)	20(.54)	24	16(.67)	21(.88)	16(.67)	16(.67)	(.72)
Economic indicators	18	13(.72)	7(.38)	7(.39)	7(.39)	9(.50)	3	2(.67)	0	2(.67)	2(.67)	(.50)
Fiscal information	6	2(.33)	0	0	2(.33)	0	3	0	0	0	0	0
	258	208(.81)	135(.52)	121(.47)	114(.44)	102(.40)	152	70(.46)	55(.36)	94(.62)	57(.38)	(.45)
	852	613(.72)	484(.57)	453(.53)	392(.46)	377(.44)	537	226(.42)	253(.47)	255(.47)	210(.39)	(.44)

*Responses defined according to the "50% criterion" for each SOICC and responding agency as explained in the method section of this report.

(.50). These are gross measures applied across different SOICCs in different locations and with differing survey methods, but our data support the conclusion that there is somewhat less overall need (across agencies) for supply data than for any other major category. As has already been emphasized, however, both in individual SOICC surveys and in this report, the need for supply data is likely to be high among those agencies expressing a need for these data. It is clear, for example, from Table 10 that CETA agencies, in general, have, according again to these measures, a somewhat higher need for the Supply category data (.73). The Complementary Information category might be expected to be lower in overall need, if it were not for the consistent need across all agencies for labor force characteristics data.

Third, it is suggested by these data that the need for occupational information decreases in general across agencies as one moves from left to right through column C in Table 1. That is, agency's needs for occupational information appear to be more extensive than the needs of the next agency to the right. Table 10 demonstrates that CETA agencies, by these measures, report a higher proportion of needs across data subcategories than do the other agencies. ES agencies, reporting the next highest proportion of needs, present a similar profile to CETA agencies in the Demand category, but appear to need supply data less overall (with the exception of data on military returnees), Job Characteristics data more overall, and Complementary Information still less overall than CETA agencies. The profile of VR needs is quite similar to ES. Educational agencies SE and PSE also present similar profiles to each other, expressing more overall need for projected demand data than do other agencies, and somewhat more overall needs for Demand and Occupational Characteristics data than Supply data. The data suggest that where SE and PSE appear to be unique in their needs compared to each other is in the Supply category, where PSE has a somewhat higher proportion of expressed needs in some subcategories (e.g. characteristics of military returnees, SE = .13; PSE = .44).

Fourth, the major conclusion from Table 1 regarding users within agencies is that while there is no clear dominant profile emerging from this study, counselors and program planners express more extensive needs for information overall than do the other two position categories. Part

of the reason for the lack of a more definitive profile may be that the counselor/placement interviewer distinction is blurred in some agencies, leading to some merging of the needs of these two constituencies. The most clearly expressed need is by counselors, again for Job Characteristics information.

Finally, while the evidence indicates that program planning, vocational counseling and job placement are the three most important uses for occupational information, agencies differ in their ranking of use in order of importance. Educational and CETA constituencies tend to be different from vocational rehabilitation and employment service personnel in their perceptions of important uses for the data. The former see program planning and placement as important, while the latter are more concerned with counseling and program operations.

I. Recommendations

The foregoing has been an attempt at synthesis, across data from 13 SOICC surveys, of needs for occupational information. A general empirical profile has emerged which is descriptive of data for which there is the greatest consensus of need across SOICCs and responding users. Three recommendations are suggested as a result of reviewing these data, in the hopes that the considerable effort this report represents on the part of SOICCs who provided us their data, will be of maximum benefit to the field.

First, and most important, the analyses in this report have concentrated out of necessity only on the majority information needs, above the abritrary median cut-off point (the "50 percent criterion"). As indicated earlier, empty cells in Table 1 cannot be interpreted as representing 'no need' or even 'little need' for specific data, but only as relatively less need across responding agencies. As many individual SOICCs have found, certain constituencies may have vital needs for one or another data element, but remain in the minority relative to any profile of overall need. For example, occupational mobility data (Supply) do not appear to be extensively needed in the states surveyed or in Puerto Rico. Individual SOICCs, however, in the sun-belt may find occasional very high needs for this information among specific groups of education or employment and training program planners. Information system development necessitates attention to all indications of need, and corresponding decisions must be made to

allocate SOICC resources accordingly. In light of these selective resource allocation decisions between competing claims for data, some further research should be conducted into comparative costs associated with provision of individual elements/subcategories of occupational information. Such a study could identify costs pertaining to collection, processing, and dissemination of the various elements in the system. Comparative cost information of this kind could be useful in assisting those decisionmakers faced with competing data claims, and might also identify ways in which costs could be cut in the process.

Second, the categorical organization of occupational information presented in the Framework Document, and recently updated in the Handbook,* is a useful structure for the design of needs assessment surveys. This report has presented empirical evidence to support both the categorization of occupational information, and orientation towards specific users presented in the Framework Document. Furthermore, it has the advantage of permitting greater standardization of definition of occupational information, in line with the original 1976 Congressional charge for Occupational Information Systems. Future SOICC needs assessments, whether de novo or for the purpose of updating existing data bases, would benefit from the use of the Framework, and would certainly ease the difficulties inherent in comparison across SOICCs.

Finally, considerable work and thought has gone into the design, conduct, reporting and utilizing results of needs assessment surveys in SOICCs all over the country. Accordingly, there exists an extensive knowledge base and expertise collectively within the SOICC community which should be tapped by any SOICC wishing to conduct or reconduct a needs assessment survey. In particular, it is suggested that although a SOICC survey is primarily designed for the purpose of informing the information system design and process within that state or territory, the results of the survey may be of interest to other SOICCs as well as to NOICC. The format of the report, and the presentation of results is more likely to be valuable across SOICCs if geared not only to internal, but other SOICC and NOICC audiences as well.

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APPENDIX

The following appendix lists data elements that are combinations of more than one data element from one or more states. Data elements are organized by the major categories found in Table 1. These category names appear in all caps at the beginning of each category. On the left side of the page are the sub-categories in which indidivual data elements are found. Individual data elements are underlined and are followed by the name of the state and the component elements reported by that state that were incorporated into the more general element appearing in the table.

APPENDIX

COMBINED DATA ELEMENTS AND COMPONENTS

OCCUPATIONAL DEMAND

Replacement Demand

Number of New Hires and Recalls

ILLINOIS
1. Number of New Hires
2. Number of Recalls

IOWA
1. Number of New Hires
2. Number of Recalls

NORTH CAROLINA
1. Accession Rates
2. Number of New Hires
3. Number of Recalls

OCCUPATIONAL SUPPLY

Number of Enrollees by Program

Public Education/Certification

NORTH CAROLINA
1. Public Certificate
2. Public Secondary
3. Baccalaureate
4. Post-Baccalaureate

Private Education/Certification

NORTH CAROLINA
1. Private Certificate/Associate Degree
2. Private Secondary

Vocational Education Programs

FLORIDA
1. Public and Private Secondary Vocational Education
2. Public and Private Post-Secondary Vocational Education

RHODE ISLAND
1. Public and Private Secondary Vocational Education
2. Public and Private Post-Secondary Vocational Education

Number of Completers/Leavers by Program

Public Education/Certification

NORTH CAROLINA
1. Public Certification
2. Public Secondary
3. Baccalaureate
4. Post-Baccalaureate

Private Education/Certification

NORTH CAROLINA
1. Private Certificate/Associate Degree
2. Private Secondary

Vocational Education Program

FLORIDA
1. Public and Private Secondary Vocational Education
2. Public and Private Post-Secondary Vocation Education

RHODE ISLAND
1. Public and Private Secondary Vocational Education
2. Public and Private Post-Secondary Vocational Education

Characteristics of Completers/Leavers by Education and Training Program

Number Employed/Unemployed

ILLINOIS
1. Number Currently Employed
2. Number Unemployed

FLORIDA
1. Number of Graduates Obtaining Employment in a Related Occupation
2. Number of Graduates Obtaining Employment in Unrelated Occupations
3. Number of Graduates Seeking Employment

RHODE ISLAND
1. Number of Graduates Obtaining Employment in a Related Occupation
2. Number of Graduates Obtaining Employment in Unrelated Occupations
3. Number of Graduates Seeking Employment

Type of Employment

COLORADO
1. Number Employed in Job for Which Trained
2. Number Employed in Job Related to Training
3. Number Employed in Job Not Related to Training

Characteristics of Unemployed

Education and Training

ILLINOIS
1. Educational Attainment
2. Years of Training

Characteristics of Military Returnees

Skill Level/Education and Training

NORTH CAROLINA
1. Skill Level
2. Education and Training

Characteristics of Discouraged Workers

Education and Training

ILLINOIS
1. Education Attainment
2. Years of Training

Mobility

Re-Entrants Into Labor Force

FLORIDA
1. Number of People Returning to the Labor Force From the Military, by Occupation
2. Number of Re-Entrants Into the Labor Force with Training and/or Work Experience
3. Number of Re-Entrants Into the Labor Force Without Training or Work Experience

RHODE ISLAND
1. Number of People Returning to the Labor Force From the Military, by Occupation
2. Number of Re-Entrants Into the Labor Force With Training and/or Work Experience
3. Number of Re-Entrants Into the Labor Force Without Training or Work Experience

Occupational Transfers

FLORIDA
1. Number of People Changing Occupation, by Former and New Occupation
2. Number of People Transferring to a Related Occupation, by Former and New Occupation
3. Number of People Transferring to an Unrelated Occupation, by Former and New Occupation

RHODE ISLAND
1. Number of People Changing Occupation, by Former and New Occupation
2. Number of People Transferring to a Related Occupation, by Former and New Occupation
3. Number of People Transferring to an Unrelated Occupation, by Former and New Occupation

OCCUPATIONAL CHARACTERISTICS

Characteristics of Jobs

Earnings

FLORIDA
1. Entry Level Wages and Salaries
2. Average Wages and Salaries

RHODE ISLAND
1. Entry Level Wages and Salaries
2. Average Wages and Salaries

NORTH CAROLINA
1. Entry Wage Rates
2. Average Wage Rates

Apprenticeship and Training Opportunities

IOWA
1. Apprenticeship Opportunities
2. Training Opportunities

NORTH CAROLINA
1. Apprenticeship Opportunities
2. Training Opportunities

COMPLEMENTARY INFORMATION

Characteristics of Employed

Skill Level/Training Education

NORTH CAROLINA
1. Skill Level
2. Education and Training

Economic Indicators

Business Expansions

FLORIDA
1. Current Growth Rate of Industries
2. Projected Growth Rate of Industries

RHODE ISLAND
1. Current Growth Rate of Industries
2. Projected Growth Rate of Industries

Construction Permits

NORTH CAROLINA
1. Residential Construction Permits
2. Non-Residential Construction Permits

Manufacturers Output

NORTH CAROLINA
1. Manufacturers Output Durables
2. Manufacturers Output Non-Durables