AN EVALUATION OF THE INSTITUTE OF COMPUTER TECHNOLOGY

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EXECUTIVE SUMMARY

The Institute of Computer Technology (ICT) was established in 1982 by three school districts in Santa Clara County--Sunnyvale Elementary, Fremont Union High School, and Los Gatos Joint Union High School--to provide education and training in computer technology for both children and adults.

The institute was created in response to concerns voiced by the Industry-Educational Council of Santa Clara County. Members of the council felt that the education system was not doing an adequate job of preparing students for the technology of the future. To help overcome this problem, the council formed the ICT through a joint powers agreement, and provided for it to be jointly governed by industry and education representatives.

The ICT receives funding from the participating school districts, private companies, and the state.

In 1984, the Legislature attempted to expand the institute's scope of operations. It did so by passing Assembly Bill 2521 (Vasconcellos), which appropriated an additional $725,000 to the ICT. The Governor, however, vetoed the bill. In so doing, he stated that before any additional state funding was provided for the institute there should be an evaluation of (1) the ICT's effectiveness and (2) its potential for expansion.

Chapter 28, Statutes of 1985 (Assembly Bill 437), directed the Legislative Analyst to conduct an evaluation of the institute and report his findings to the Legislature. This evaluation was to focus on:

(1) The institute's current operations;

(2) The level of private sector participation in, and support of the institute; and

(3) The feasibility of having the institute participate in the development and field testing of a computer technology curriculum and the training of teachers on a statewide basis.

The ICT's Current Operations

Funding Mechanism--Private and District Support. We recommend that the Legislature enact legislation requiring ICT to match state support on a dollar-for-dollar basis.

Our analysis indicates that, although private industries in the Silicon Valley/Santa Clara area contributed a significant amount of support to the ICT when it was established, the level of support has since declined while state General Fund support has increased. Similarly, the share provided by participating school districts has also decreased since 1982-83.

Given the fact that the ICT was established, in part, to benefit private industry and local school districts, it seems reasonable to require that they maintain their support for the institute. Accordingly, we recommend that the Legislature require state support of the ICT to be matched on a dollar-for-dollar basis by industry and district funds.

We note that, in 1985-86, private industry and district support is expected to exceed state support by 7 percent. Consequently, a dollar-for-dollar matching requirement would seem to be achievable.

Funding Mechanism--State Support. We recommend that, beginning in 1987-88, the state fund the ongoing operations of the ICT using a variable cost model which (1) recognizes the fixed costs of the ICT and (2) funds ADA-related variable costs up to a specified level.

Currently, the ICT is funded using the formula developed for Regional Occupational Programs and Centers (ROC/Ps). This formula, however, does not reflect either the current function or costs of the ICT. Consequently, we do not believe it is an appropriate funding formula to use for the institute.

In our judgment, it would be more appropriate to fund the ICT using a variable cost model. This type of a model would reflect more accurately the actual costs of operating the institute.

Educational Objectives. Our review of the data available on program performance indicates that the ICT has been effective in providing computer technology programs to K-12 pupils and adults. In addition, the institute has developed innovative teacher training programs.

The ICT has contracted with an independent consultant to develop a more comprehensive process for evaluating the institute. The data collected as a result of this effort should provide a better basis for determining the degree to which the ICT is meeting its educational objectives.

The Proposed Expansion of the ICT

Senate Bill 356 (Morgan), which is awaiting final legislative approval, would appropriate an additional $200,000 to the ICT from

July 1, 1985 to December 31, 1985. In addition, the bill requires the ICT to:

- Identify components of a model computer education program;
- Field test the model program to determine whether it can be replicated successfully by other school districts;
- Prepare curriculum and training materials; and
- Demonstrate the model program for school districts.

Based on our review, we conclude that the ICT is capable of satisfying the requirements contained in SB 356, provided the use of the additional funds is stretched out over a two-year period. A two-year effort would have the advantage of providing (1) continuity of state funding which enhances private fund-raising efforts, and (2) sufficient information to state policy-makers to assist them in shaping future ICT curriculum development efforts.

INTRODUCTION

The Institute of Computer Technology (ICT) was established in 1982 by three school districts in Santa Clara County--Sunnyvale Elementary, Fremont Union High School, and Los Gatos Joint Union High School. The purpose of the institute is to provide education and training in computer technology for children and adults.

The ICT has received direct state assistance since its inception.

In 1984, the Legislature attempted to expand the institute's scope. It did so by passing Assembly Bill 2521 (Vasconcellos), which appropriated an additional $725,000 to the ICT. The Governor, however, vetoed the bill. In his veto message, the Governor noted that prior to additional state funding, there was a need for an evaluation of (a) ICT's effectiveness and (b) its potential for expansion.

Chapter 28, Statutes of 9815 (AB 437), directs the Legislative Analyst to conduct an evaluation of the institute and report his findings to the Legislature. This evaluation must address:

1. The institute's current operations;

2. The level of private sector participation in, and support of the institute; and

3. The feasibility of having the institute participate in the development and field testing of a computer technology curriculum, and the training of teachers on a statewide basis.

This report is submitted in response to the requirement contained in Chapter 28. The first chapter provides an overview of the ICT, including its development, enrollment, and funding history. Chapter II reviews the institute's funding mechanism in more detail. Chapter III evaluates ICT's educational objectives and the institute's success in meeting those objectives. Chapter IV analyzes several pending proposals to provide additional state funding for the ICT that would allow it to expand its educational model and replicate the model statewide. The Appendix to this report sets forth our recommended amendments to SB 356 (Morgan) which is now pending before the Legislature.

We wish to express our appreciation to Mr. Larry Liden, Executive Director and Mr. Ken Butler, Associate Director of the ICT for their assistance in providing information necessary for the preparation of this report.

This report was prepared by Sue Burr under the supervision of Ray Reinhard and Hal Geiogue. It was typed by Maria Ponce.

CHAPTER I

AN OVERVIEW OF THE ICT

In 1982, several members of the Industry-Educational Council of Santa Clara County expressed concern over the quality of education being provided to students in the public schools. Generally, they felt that the schools were not preparing students adequately for the technology of the future. In their view:

- Technology is changing at a faster rate than the educational curriculum. For example, in 1982, it was estimated that only 2 percent of the jobs in Santa Clara Valley required computer literacy. By the year 2000, the ICT estimates that over 90 percent of all jobs will require computer literacy.
- Education is not structured to meet society's training needs because the structure, size, and governing regulations of educational agencies make it difficult for them to change at the rate required by emerging technologies.

To address these concerns, the council sought to establish a flexible educational entity, unrestricted by many of the administrative regulations which govern traditional public schools. The result was the Institute of Computer Technology (ICT) an agency established through a joint powers agreement and jointly governed by industry and education representatives.

The governing board of the institute consists of four members from industry and three members from the participating school districts. The chief executive officer is a credentialed school administrator, and the associate director is an industry representative. The ICT also uses joint advisory groups, as needed, to (1) monitor curricula, (2) develop governmental relations, and (3) address technical issues.

Legislative Authorization and Funding History

State support for the institute was first provided by Chapter 1528, Statutes of 1982 (Assembly Bill 3266). This act (1) reappropriated $100,000 from the Investment in People program to support the ICT in 1982-83, (2) provided for the allocation of these funds based on the average revenue limit per ADA ($2,057) of the three participating districts, and (3) expressed legislative intent that support for the institute in subsequent years be made from the appropriation for ROC/Ps, up to a maximum of 500 ADA.

An appropriation of approximately $1 million would have been needed in 1983-84 to support the maximum enrollment anticipated by Chapter 1528 (500 ADA). The 1983 Budget Act, however, appropriated $250,000 from the General Fund for the institute . The same level of support, increased by a 3 percent inflation adjustment ($257,500) was appropriated for 1984-85 in the 1984 Budget Act. In addition, however, the trailer bill (Chapter 268, Statutes of 1984) which accompanied the 1984 Budget Act repealed the statutory requirement that up to 500 ADA in the institute be funded from the Budget Act appropriation for ROC/Ps.

In 1984, the Legislature attempted to expand the institute's scope. It did so by passing Assembly Bill 2521 (Vasconcellos) which appropriated an additional $725,000 to the ICT. The Governor, however, vetoed the bill. In his veto message, the Governor noted that prior to providing additional state funding, there was a need for an evaluation of (a) ICT's effectiveness and (b) its potential for expansion. The ICT's 1984-85 appropriation was subsequently supplemented by $60,000 for core support by Ch 28/85, however, any expansion funding is contingent on the outcome of this report.

The 1985 Budget Act contains a General Fund appropriation of $268,000 for the ICT. This amount is $10,500, or 4 percent more than the amount appropriated in the 1984 Budget Act, but $49,500 less than the total amount of state funding provided to the ICT in 1984-85.

In addition to state funding, ICT receives support from (1) private industry in the Silicon Valley/Santa Clara County region and (2) the participating school districts.

Enrollment History

Table 1 shows the institute's enrollment from 1982-83 through 1985-86.

Table 1

Institute of Computer Technology
Annual Enrollment (Headcount)
1982-83 to 1985-86

Term	1982-83	1983-84	1984-85	1985-86 (Projected)
Summer	--	813	913	800
Fall	--	2,162	6,897	3,900
Spring	1,884	5,097	3,476	3,900
Totals	1,884	8,072	11,286	8,600
Fee-based adults	--	--	2,000	3,800
Total	1,884	8,072	13,286	12,400

The table shows that headcount enrollment increased rapidly from 1982-83 to 1984-85. ICT is planning for a small (6.7 percent) decline in enrollment during 1985-86, in an effort to bring enrollment more in line with the institute's funding.

Table 2 displays ICT's ADA by grade level for 1982-83 through 1985-86.

Table 2

Institute of Computer Technology
Annual Enrollment (Average Daily Attendance)[a]
1982-83 to 1985-86

Grade Level	1982-83	1983-84	1984-85	1985-86 (Projected)
Elementary (grades K-6)	20.20	90.50	99.06	75
Secondary (grade 7-12)	16.71	21.21	40.77	45
Adult	19.07	24.00	22.34	0
Subtotals	55.98	135.71	162.17	120
Fee-based adults			17.00	30
Totals	55.98	135.71	179.17	150

a. ADA calculated based on the ROC/P funding standard of a three-hour minimum day (see text).

This table shows the same trends as Table 1: a large increase in ADA from 1982-83 to 1984-85, and a small decrease in 1985-86.

Tables 1 and 2 reveal that ICT serves a large number of individuals but produces a comparatively small number of ADA. This is because ICT courses are designed to be short-term, intensive classes.

CHAPTER II

FUNDING FOR THE INSTITUTE OF COMPUTER TECHNOLOGY

In this chapter, we review the Institute of Computer Technology's (ICT) funding in more detail. Table 3 shows the ICT's revenue and expenditures from 1982-83 through 1985-86.

Table 3

Institute of Computer Technology
Expenditures and Revenues
1982-83 to 1985-86

Expenditures:	1982-83 (Actual)	1983-84 (Actual)	1984-85 (Estimated)	1985-86 (Proposed)	Change from 1982-83 to 1985-86 Amount	Percent
Personal Services	$290,585	$306,356	$340,952	$347,569	$56,984	19.6%
Operating Expenses	116,413	152,630	137,405	147,550	31,137	26.7
Equipment Expenses	260,723	297,909	28,613	101,000	-159,723	-61.3
Special Projects	--	21,696	17,881	--	--	--
Totals	$667,721	$778,591	$524,851	$596,119	-$71,602	-10.7%
Revenues:						
State General Fund	$100,000	$250,000	$317,500	$268,000	$168,000	160.8%
Industry Support:	428,920	412,088	105,152	193,300	-235,620	-54.9
In-Kind	(422,420)	(398,088)	(84,670)	(153,300)		
Cash	(6,500)	(20,000)	(20,482)	(40,000)		
District Support:	138,761	74,277	86,581	93,819	-44,942	-32.4
In-Kind	(47,692)	(34,787)	(31,645)	(33,819)		
Cash	(14,113)	(32,990)	(54,936)	(60,000)		
Loans	(76,956)	(6,500)	--	--		
Other	40	42,226	15,618	41,000	40,960	NMF
Totals	$667,721	$778,591	$524,851	$596,119	-$71,602	-10.7%

NMF--Not a meaningful figure.

The table indicates that, while state General Fund support for the ICT has increased by 16 percent since 1982-83, the institute's budget has decreased by nearly 11 percent. This is due mainly to the large "upfront" expenditures for computers and related equipment that were necessary to outfit the classrooms. The ICT's ongoing expenses--personnel and operating expenses--have increased by a moderate amount over the four years.

How Should the Costs of the Institute Be Funded?

We recommend that the Legislature enact legislation requiring ICT to match state funds on a dollar-for-dollar basis.

Table 4 shows the sources of the ICT's revenue in 1982-83 and 1985-86.

Table 4

Institute of Computer Technology
Sources of Financial Support
1982-83 and 1985-86

Revenue Source:	1982-83 (Actual)	Percent of Total Support	1985-86 (Proposed)	Percent of Total Support
State General Fund	$100,000	15.0%	$268,000	45.0%
Industry	428,920	64.2	193,300	32.4
District	138,761	20.8	93,819	15.7
Other	40	--	41,000	6.9
Totals	$667,721	100.0%	$596,119	100.0%

The table indicates that the mix of support for the ICT has shifted dramatically since 1982-83, when the state funded only 15 percent of the institute's budget, and private industry provided 64 percent. In the current year, the state is expected to contribute 45 percent of ICT's total funding, while private support will amount to 32 percent. Again, these shifts largely reflect the fact that start-up costs for the institute were borne primarily by private firms and local districts. Private corporations made large donations of computer equipment to get the institute started, and participating school districts largely paid for facilities renovation.

Although the districts' share of total costs has fallen from 21 percent to 17 percent since 1982-83, ongoing district support for the ICT has, in fact, increased by 26 percent in the last two years.

Not only have private and district contributions to the ICT dropped as a percent of total support; they have dropped in dollar terms as well. This raises the issue: How should the institute's costs be funded in the future?

Because the ICT was established, in part, to benefit district students and employers in the Silicon Valley, we believe it is appropriate to expect continued support of the institute by participating districts and private firms. There is no objective basis for determining what each entity's share of total costs should be. We note, however, that, in 1985-86, private industry and district support is expected to total $287,119--or about 7 percent more than the state appropriation. We believe that it would be reasonable to require a dollar-for-dollar match in the future.

A precedent for a matching requirement of this type exists. In enacting Chapter 1568, Statutes of 1984 (Assembly Bill 3104), the Legislature required a match of state support for the Peninsula Academies Model Program. This program is also a school-business partnership aimed at providing job training in computer technology. (The program differs from ICT, however, in that it is aimed primarily at students who are considered to be at risk of dropping out of school.) In the case of the model program, however, the Legislature requires state funding to be matched on a

dollar-for-dollar basis by each party: private industry and the participating districts. Thus, the state's share of program costs does not exceed 33 percent.

Ongoing Funding Mechanism

We recommend that, beginning in 1987-88, the Legislature fund the ICT using a variable cost model which (1) recognizes the fixed costs of the institute and (2) funds ADA-related variable costs up to a specified level.

When the ICT was established in 1982, it was funded on the same basis as ROC/Ps. In fact, the Legislature called for future funding of the institute to come from the ROC/P apportionment. Subsequent legislation repealed the ICT's link to the ROC/P apportionments, but the language allowing the ICT to be funded as a ROC/P was left unchanged.

The State Department of Education (SDE) has administratively required the ICT as a condition of receiving state apportionments, to report its ADA, based on the ROC/P minimum day of three hours. This appears to have been done as a matter of administrative convenience, and does not reflect the current function or costs of the ICT. Hence, in our judgment, the current funding arrangement for the institute is flawed.

There are three alternative ways in which the ICT could be funded in the future:

- Continue to fund the ICT using the ROC/P model. Under this option, ICT's ADA would be calculated based on a three-hour minimum day and funded using the average of the participating districts' revenue limits. This model has the advantage of

recognizing that ICT is an adjunct to a regular school program, but it would not give adequate recognition to ICT's actual costs.

- Fund the ICT using a standard ADA model. Under this option, ICT's ADA would be calculated based on a four-hour minimum day and funded using the average of the participating districts' revenue limits. This model has the advantage of being consistent with funding formulas for regular school enrollment, but it also would not give adequate recognition to ICT's actual costs.
- Fund the ICT using a variable cost model. Under this option, ICT's fixed costs would be identified and funded on a block grant basis. Its variable costs--those costs linked directly to instruction--would be funded on a per-ADA basis. This model has the advantage of reflecting ICT's actual costs, but it could require additional administrative costs in the first year to identify the institute's fixed and variable costs.

Regardless of which option is selected, an enrollment ceiling could be adopted in order to control costs.

We believe that the ICT should be funded using a variable cost model. Our analysis indicates this model would most accurately reflect the actual ongoing costs of operating the institute. Because it is a small organization, a disproportionate share of the institute's costs are fixed, and do not vary with the size of the student population. Consequently, a funding method, based on average cost per ADA, such as the ones used to fund ROC/Ps and school districts, does not adequately recognize the ICT's

costs. This is the reason why the Legislature chose to use a variable cost model as the basis for funding necessary small elementary and secondary schools.

Accordingly, we recommended that, beginning in 1987-88, the Legislature fund the ICT using a variable cost model with an enrollment ceiling in order to impose reasonable controls on funding. We further recommend that the Department of Finance, in conjunction with the Legislative Analyst, develop such a model for presentation to the Legislature.

Chapter III

EVALUATION OF ICT's ACHIEVEMENT OF ITS EDUCATIONAL OBJECTIVES

In this chapter, we examine the ICT's educational objectives and its success in attaining those objectives.

Educational Objectives

The Board of Directors of the ICT has adopted the following objectives to serve as a framework for the institute's operations.

Immediate Objectives:

- Provide a program of computer studies that supplements the computer education program being offered by schools in the participating districts.
- Provide students and other community members with up-to-date training and practical experiences in skills that are required for careers in high technology and for coping in an increasingly technological society.
- Produce some highly-qualified, motivated students who wish to pursue advanced studies at institutions of higher education leading to computer-related professional careers.
- Prepare elementary and secondary instructors to teach a range of computer-related topics beginning with computer literacy and continuing through more advanced computer subjects.
- Develop, test, and disseminate a model for expanding computer education through the pooled resources and joint leadership of education and industry.

- Promote and sustain industry/education cooperation.

Longer-Term Objectives:

- Test and refine new approaches to computer-related training and education.
- Serve as a recognized source of technical assistance in developing state-of-the art computer-education courses and programs of study.
- Serve as a laboratory for testing new hardware, software, and educational products for industry.
- Facilitate changes that enable public schools to prepare students for an increasingly technological society and to be more responsive to industry's need for a technologically skilled work force.

The ICT maintains that it has not had the funding needed to establish an ongoing, objective evaluation system which incorporates performance criteria, follow-up studies, standardized tests, and evaluative instruments.

although a rigorous evaluation of the ICT has not been conducted, our review suggests that the institute has been successful in meeting many of its educational objectives.

Course Offerings

Since its inception, ICT has offered 40 different computer courses. According to the institute, all of these courses supplement the educational program offered by the participating districts; none of them supplant

existing courses. Since last May, ICT has collected evaluative questionnaires at the end of each course. The responses to these questionnaires can be summarized as follows:

- 68 percent of the respondents indicated that the class "completely met their expectations," and 97 percent felt that the class met their expectations "completely" or "moderately."
- 88 percent of the individuals who completed an ICT class since last May indicated that they would recommend the course to others without reservation.
- When asked to rate the instructor's knowledge of the subject matter on a scale of 1 to 10, the average response from 259 different students from 13 courses rating 11 different teachers was 9.6.

In addition, last February, ICT sent a letter to 200 former students, chosen at random from ICT records. A total of 113 responses (56 percent) were received. Of these, 61 percent "agreed" or "strongly agreed" with the statement: "ICT courses gave me a chance to take a course not available in my present school."

Based on this information, it appears that ICT is successfully conducting a supplementary educational technology and training program in accordance with legislative intent.

Teacher Training

Table 5 shows the number of teachers who have participated in ICT training courses since 1982-83.

Table 5

Institute of Computer Technology
Teacher Training Participants
1982-83 to 1985-86

Program	1982-83	1983-84	1984-85	1985-86 (Proposed)
On-Site Training	43	168	293	393
Special Workshops	0	0	18	72
Special Classes	89	25	0	40
Total Number of Participants	132	193	311	505

The table shows that the number of teachers participating in training is expected to increase nearly three-fold from 1982-83 to 1985-86.

Questionnaires collected from participants in these classes indicate that:

- Every participant found that the course completely met his/her expectations.
- Every participant reported that the course improved his/her skills for advancement in his/her present job.
- Every participant reported that he/she would recommend the course to others.
- Every participant rated both the instructor's knowledge and teaching skills "10" on a scale of 1 to 10.

The ICT's major teacher-training efforts have focused on an innovative technique in which the ICT teacher travels to a school and trains the teacher and his or her class simultaneously. The ICT believes that this model offers the following advantages:

- The enthusiasm shown for computers by the students transfers to their teacher.
- The teacher sees the ICT teacher demonstrate teaching methods on her own students and sees that these methods are effective and motivating.
- The ICT teacher is viewed as a "model" in three essential respects: (1) a qualified computer education teacher; (2) a qualified teacher trainer; and (3) a specialist who is qualified to assist teachers to integrate educational technology into their school's curriculum.

Using this method, ICT has trained all of the 131 teachers in the Sunnyvale Elementary School District. By July 1, 1986, the K-6 computer literacy program developed for the Sunnyvale district will be fully operational without ICT assistance.

Based on this evidence, it also appears that the ICT has developed an effective teacher training model.

Ongoing Evaluation Efforts

Recently, ICT was able to take the first step in developing an ongoing, objective evaluation of its program and courses. It contracted with an independent consultant--the American Institute for Research--to: (1) analyze ICT objectives and operations and recommend clarification and improvements; (2) identify performance indicators that the board, the staff, and various state agencies are willing to accept as credible evidence that desired outcomes are being achieved; (3) provide a model of

the general procedures to be followed in assessing course impact and test this model with three existing courses; and, (4) prepare a detailed plan for future ICT evaluation efforts. This project is due to be completed in late August. Depending upon the availability of funds, ICT plans to implement the recommended evaluation procedures during 1985-86.

This effort will provide ongoing objective standards against which the ICT's progress can be measured. We will continue to monitor the evaluation effort and report to the Legislature as necessary.

Conclusion

Based on our review of available information, we conclude that the existing operations of the ICT are meeting the Legislature's objective: to provide computer technology instruction for pupils in grades K-12 and adults.

CHAPTER IV

PROPOSED EXPANSION OF THE ICT

There are currently two pieces of legislation pending before the Legislature which would appropriate additional state funding to the ICT.

Senate Bill 356 would appropriate $200,000 to the ICT from July 1, 1985 to December 31, 1985. These funds would be used to:

- Identify components of a model curriculum development program in computer technology;
- Field test the model program for replication capabilities;
- Prepare curriculum and training materials; and
- Demonstrate the model program for school districts.

The bill also requires the ICT to report to the Legislature on its 1986-87 funding needs by December 31, 1985. In addition, the bill requires the Legislative Analyst to provide an evaluation of the ICT in the Analysis of the 1986-87 Budget Bill. Senate Bill 356 is awaiting final legislative action, pending the outcome of this evaluation.

Assembly Bill 436 would appropriate $250,000 to the ICT for 1985-86 for the purposes set forth in SB 356. The bill also requires the Legislative Analyst to prepare an evaluation of the ICT in the Analysis of the 1986-87 Budget Bill. Additionally, the bill requires ICT to report to the Legislature by December 31, 1986, on its funding needs for 1987-88. This bill is being held in the Assembly Ways and Means Committee. In order to evaluate the capability of the ICT to meet the requirements set forth in

these bills, we asked the ICT to provide us with a budget change proposal identifying the program changes which would occur if the additional funding is provided. This chapter discusses the institute's proposal and provides our analysis of it.

ICT's Proposal for Expansion

According to the ICT, the funding contained in SB 356 would enable the ICT to undertake a formal and ongoing curriculum development function in order to meet its stated objective of developing, testing, and disseminating statewide replicable computer education curricula for elementary, secondary, and adult education.

Specifically, the ICT proposes to:

- Employ teachers from its staff and match them with technical experts from the Silicon Valley/Santa Clara County area to develop and document curriculum designed to teach students in elementary and secondary schools, ROC/Ps, and adult education classes. Classes would be identified based on documented and validated industry-expressed need. Each course would be developed according to standards developed jointly with the state Department of Education.
- Field test the classes. Each course would be evaluated using performance instruments developed and approved by a professional research agency.
- Publish a monthly newsletter for distribution to county offices, Teacher Education and Computer Centers (TECCs), and ROC/Ps to

ensure that all are informed of progress. As needed, ICT would offer teacher training workshops.

ICT asserts that schools typically have been unable to keep pace with rapid changes in technology, due to (1) insufficient staff, (2) the shortage of trained professionals, (3) declining enrollment, (4) lack of funds, and (5) lack of awareness as to what types of courses are needed.

Further, the ICT points out that the Silicon Valley/Santa Clara County area possesses large resources of industry-based technological talent. According to the institute, the industries are willing to help schools develop technology curriculum on an ongoing basis. What is needed to tap this resource, the ICT maintains, is a system of (1) matching industry talent with educational professionals, (2) developing courses, and (3) testing the validity of the curriculum. The ICT proposes to use its considerable experience with this type of system to develop curricula for dissemination on a statewide basis.

To accomplish this objective, the ICT is requesting $200,000 in 1985-86, which it would use to employ a half-time curriculum director and approximately 3.4 full-time equivalent teachers to develop and test seven courses. In addition, ICT plans to publish and distribute a newsletter to interested parties.

The proposal calls for a three-year process of curriculum development extending from 1985-86 to 1987-88. Funding for 1986-87 and 1987-88 presumably would be obtained through the regular budget process.

Analysis of ICT's Proposal

Based on our review of the ICT's proposal, we believe that the institute is capable of meeting the requirements contained in SB 356. We believe, however, that the additional funding should be made available for two years rather than one, for two reasons.

First, development of standards and actual course content could not begin until October 1, 1985, at the earliest. According to the ICT's own implementation schedule, moreover, course development will not be completed until June 30, 1986, and initial field testing of courses is scheduled for the September and December period. Because implementation would overlap two fiscal years, continuity of funding is essential in order to maintain the integrity of the development process. Furthermore, a two-year commitment of state funds would have the added benefit of aiding ICT's private and fund-raising efforts.

Second, due to the timing of the budget process, no significant course development or testing will have occurred by the time the Legislature must appropriate funds to the institute for 1986-87. Consequently, the Legislature will not have sufficient evaluative data on which to determine funding needs for the ICT in the budget year.

For these reasons, we recommend that the Legislature provide the ICT with the requested funding on a two-year basis, and establish specific checkpoints to ensure that progress toward legislative objectives is being made. By December 1986, the results of field tests will be available, thereby providing the Legislature with a basis for deciding through the regular budget process whether or not to continue funding ICT curriculum

development efforts. (We have discussed this alternative with the staff of the ICT and they concur that a two-year development effort is reasonable.)

While the two-year funding plan would moderately reduce the scope of ICT's curriculum development efforts, it would have the advantage of providing (1) continuity of state funding which enhances private fund-raising efforts, and (2) sufficient information to state policy-makers to assist them in shaping future ICT curriculum development efforts.

The appendix to this report contains the specific amendments to SB 356 (as amended April 18, 1985) that would implement our recommendations.

APPENDIX
Suggested Amendments to SB 356
As Amended, April 18, 1985

1. Funding Mechanism

On line 3, after the ".", insert:

This report shall include an identification of the institute's annual fixed and marginal costs. It is the intent of the Legislature that the Department of Finance, in conjunction with the Legislative Analyst, shall develop a variable cost funding mechanism to provide annual funding to the ICT and that this funding mechanism shall be considered for use in the Governor's Budget request for 1987-88.

2. Two-year Funding for Curriculum Development

On page 3, line 39, strike "July 1, 1985 to December 31, 1985" and insert:

the effective date of this bill to June 30, 1987.

3. Technical Amendment - Elimination of Remaining ROC/P Language

Insert language as follows:

Section 52483 of the Education Code is repealed.

4. Statutory Matching Requirement

Insert language as follows:

In order to be eligible to receive state funding, the ICT shall provide an amount equal to a 100 percent match of all state funds provided by the participating school districts and private companies.