The Establishment of the
International Computer Science
Institute in Berkeley, California:
Venturing with Norbert

as told by Ronald Kay

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Abstract

This is an account of the events and considerations which led to the establishment of
the International Computer Science Institute in Berkeley, California. The initiative for this
undertaking came from Norbert Szyperski, as Managing Director of the German National
Research Center for Computer Science (GMD). He also took the lead in assuring support
on the part of German industry and government. Copies of the most important source
documents are included as an appendix to this account.

1 Acting Director of ICSI, 11/24/86 - 4/1/88
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THE FIRST BEGINNINGS

When Norbert Szyperski visited California in 1981, we discussed at some length various aspects of his new job: the direction of the GMD, headquartered in Birlinghoven, near Bonn, Germany.

The GMD, which stands for Gesellschaft für Mathematik und Datenverarbeitung, literally, Society for Mathematics and Dataprocessing, comprises the largest group of people pursuing research in the field of Computer Science in Germany.

In spite of its size (then 800 people), this National Research Center for Computer Science had failed to have the impact of similar groupings in other parts of the world. At the time, many knowledgeable people in Germany would have put such judgment in stronger terms. In the U.S., the leading country in the field of Computer Science, the GMD was essentially unknown to the computer science community.

The impact of research is usually measured in terms of its effect upon the direction of future research and the practical and important applications to which it leads.

In the field of Computer Science, the measure of research impact has the additional dimension of timely technology transfer. The reason for this is the rapid pace of change, driven by advances in hardware technology. Such rapid change has been unknown in science and technology until the middle of the 20th century. This rapid change, the result of the diminishing size of the basic components on the micro-circuit chips, is all the more remarkable because of the simultaneous increase in performance and decrease in cost. The combination of increasing performance in terms of processing speed and memory capacity and simultaneous reduction in cost has been the basis for the wide range of application and growing acceptance of computers.

As in any engineering science, ideas must be reduced to practice to make evaluation possible. In computer science, if incubation takes more than a few years, new possibilities are likely to obsolete potential results. If the ideas are sufficiently promising, the prospect of early commercialization will attract competition.

Since it is a relatively new field, innovative approaches have come also from relatively small and inexperienced groups, making the field all the more competitive.

Szyperski’s 1981 visit to the leading computer science organizations in Japan and in the U.S. served to allow him to size up the competition and to obtain a first hand impression of the direction of research in some of the leading institutions.

During the course of our discussion, it became clear, that Norbert Szyperski’s goals for the GMD were already well defined:

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1This chronicle of the establishment of the ICSI is incomplete, insofar as it represents the view from California. Much of what took place, happened in Birlinghoven and Bonn, Germany.
- early, measurable impact in Germany, and
- international recognition.

To realize these goals, projects of importance to Germany would have to be initiated with a view toward early technology transfer.

International recognition was to serve as the measure of quality, accepted throughout the world.

By early 1984, the GMD had completed a major restructuring under his direction. When I had read the “GMD Research Plan for 1984” it was clear, that Norbert Szyperski had “opened the second envelope”, our private joke referring to a major reorganization.

Our joke is based upon the experience of a newly appointed CEO. Upon moving into the office of his predecessor, he found, in an otherwise empty desk, three envelopes. They were marked 1, 2 and 3 with a note on top: “To My successor, To be opened in case of emergency only, one per emergency.”

After six months none of the new ideas the CEO had initiated had worked out. He felt discouraged and remembered the envelopes. Opening the first, he found a note which read: “Blame it on your predecessor”.

A year later, he still had made no progress. Before taking drastic action, he went for the second envelope. The message was short and encouraging him in his resolve: “Reorganize”.

Since there were three envelopes, the story must go on. Reorganization takes time, and the results of such are long in coming. But after two more years some evidence of change should be noticeable, even under the most difficult circumstances. There still was no evidence of progress. In desperation the CEO turned to the third envelope. The message read: “Prepare three envelopes”.

Norbert Szyperski had no need for the third envelope. His contribution to the GMD and Computer Science in Germany was recognized by German industry, universities and by the German government, which honored him with the highest citation of the Federal Republic of Germany, May 22, 1984.

At the GMD, new directions followed the well known maxim: To make significant contributions, one must work on significant problems.

The establishment of a computer network linking German Universities and research facilities and the initiative to develop and make generally available VLSI design capabilities, are among the resultant accomplishments along with the initiation of an Artificial Intelligence project at the GMD.

Yet, international recognition for the GMD was still a distant goal.
BACKGROUND, PERSPECTIVE

A look at some of the topics found newsworthy in 1984/85 will serve to put the international issue in perspective.

- Carnegie Mellon University gets $103 Million, 5 year, Pentagon contract to set up Software Engineering Institute.
  Nov. 15, 1984 (every major newspaper in US)

- The Institute for Defense Analysis said it was hired by the Defense Department to build a $12 Million research center to develop a new generation of computers for military and scientific uses.
  Nov. 28, 1984, WSJ - Wall Street Journal

- Europeans See Space Project With U.S. as Way to Bolster Political Ties and Share Technology.
  "...The West German government's internal report stresses that "it's clearly in America's interest not to turn its back on European research and business."
  Dec. 7, 1984, WSJ

- West Germany Agrees To Spend $1.4 Billion On 2 Space Ventures.
  "...West German officials see the project, despite opposition at home, as a way of obtaining U.S. space technology, which has been denied to Europe in the past.
  Jan. 17, 1985 WSJ

- U.S. Blocks Access Of Foreign Scientists To High Technology.
  "Intent on keeping strategic U.S. technology away from the Soviet Union, the Reagan administration is becoming deeply involved in regulating scientific exchange and expression.
  "...Information controls disturb the Europeans...."
  Jan. 25, 1985 WSJ

- Super Computer Centers Promise to Lift U.S. Research.
  The Federal Government plans to spend $200 million over the next 5 years -matched by at least $200 million in local government and business funds- to install super-computers at four college campuses.
  March 15, 1985 WSJ

Given Germany's relative competitive posture in the field of Computer Science, the strategic options were limited. To some farsighted individuals in Germany the unfolding scenario left no doubt that the encouragement of collaborative research with U.S. computer scientists was necessary if Germany was to play a significant role in this increasingly important field of science. Such a role was deemed essential, also, to be in a position of
exerting a positive influence upon the free exchange of scientific information, both at home and abroad.

There has been much speculation about the reason for Germany's trailing position in the field of Computer Science. Some would lay the blame at chauvinism on the part of U.S. computer scientists. Others hold that the loss of qualified academic personnel during the Third Reich left few, if any, to assume a leading role in a newly evolving field of science.

Certainly the major German centers of Physics such as Garching, DESY and Juelich, and the Institutes of the Max Plank Society are well recognized by the international community of scientists. This speaks against the argument of it being an issue based upon chauvinistic attitudes. [See Deutsche Universitätszeitung, March 21, 1988 pp. 27,8]

It was fortunate that Szyperski found support for his ideas in the Aufsichtsrat (Board of Directors) of the GMD and in the BMFT (German Ministry for Research and Technology) at a point in time when not all German computer scientists were ready to join an initiative for increased international collaboration on the part of Germany.

This support was based on a growing awareness in Germany which found expression in the “Report of the Queisser-Commission” (October 1985) and in the endorsement of the essentials of that report on the part of the German Minister for Research and Technology. [Rahmenkonzept zum Ausbau der Grundlagenforschung für die Informationstechnik, BMFT 1986]

THE INITIAL CONCEPT

When Norbert approached me in 1984 to help him explore possible ways of implementing his ideas for international collaboration in computer science, the odds for success did not look very good.

The concept to be proposed, not only had to have intrinsic merit, but it had to be workable. In this case, workable meant, it had to be sold in Germany as well as in the U.S.

A preliminary estimate (June 1984) suggested that a new research venture, to get anyone's attention and to be taken seriously, would require a minimum of 30 people and cost several million dollars per year.

Our discussions during 1984 led to a meeting in Birlingshoven in September. A contractual agreement with the GMD, defining my role as a consultant, followed in late November of 1984.

By the end of December we had agreed upon a concept for an International Computer Science Institute (ICSI) formulated as a two page proposal to test the idea in the U.S. [Appendix A]

The salient points of the proposal were:

1. Scientific collaboration with its European allies was in the interest of the U.S.

2. Personnel resources and the related state-of-the-art in the field of Computer Science favored locating such an institute in the U.S.
3. The Institute should pursue fundamental computer science, rather than advanced development projects.

4. The Institute was to be "International" rather than German-American.

In 1983, Szyperski had directed the establishment of a West Coast Liaison office of the GMD, to complement an existing office in Washington D.C. This office provided me with valuable advice about the workings of the GMD and related agencies. Karl Glaesser, the resident Director, located in San Francisco (since moved to Berkeley), helped me put together an English language brochure designed to introduce the GMD to the Computer Science community in the U.S.

REACTION IN THE U.S. COMPUTER SCIENCE COMMUNITY

During the period from mid December 1984 to the end of February, 1985, I visited 18 organizations devoted to computer science research in various parts of the U.S. and discussed the feasibility of the idea with some 40 individuals. All of these people, in universities, government, industry, or in government or privately sponsored research facilities play some key role in Computer Science Research.

Each of the people interviewed, had received a copy of the original proposal and the brochure describing the current research of the GMD. This helped to make the point, that this was an initiative of scientists at the GMD, not an idea conceived at the political level or the proposal of an individual interested in establishing and heading up an institute.

Surprisingly, the idea for an international institute to be located in the U.S. met with enthusiastic response. It appeared as an idea whose time had come.

Among computer scientists in the U.S., the idea struck several responsive chords.

First, it looked like a welcome alternative to the dominant role of DARPA in the support of basic research in Computer Science. This should not suggest a critical attitude toward DARPA on the part of computer scientists; rather, a single source of research support is always a matter of concern.

Second, the establishment of an international research facility was, and continues to be, looked upon as a positive influence upon the continuing debate surrounding the issue of free information exchange. Information Technology, has been at the focus of this debate for some time. In addition, there is a large contingent of foreign born scientists among the Science and Engineering Faculties of major U.S. universities who welcome the opportunity to maintain ties with their country of origin.

Third, the lack of a priori geographic or organizational preference would allow optimal selection of a site and director.
THE CONCEPT TAKES SHAPE

The dominant view which emerged from these discussions led to a definitive set of criteria for a successful institute.

- The rationale for establishing such an institute in the U.S. is based on the existence of a relatively large and high quality pool of computer science talent in the U.S.
- The success of the institute will be based upon the ability to attract top talent.
- Association with a major university or research organization, which is among the leaders in computer science is essential.
- Need to attract a director who is well established in the field.
- Since it is necessary to attract outstanding people who already have good positions, the geographic location will play a role.
- The model of an independent non-profit corporation was favored in terms of overcoming constraints imposed by university organized research units.
- Direction of the institute must be dictated by the people doing the research, much as in a university, i.e. no contract research.
- Emphasis is to be on fundamental research, rather than on advanced development type projects.
- It is essential that the relevant U.S. policy and funding agencies have no reservations about this undertaking. This must imply the institute's eligibility to qualify for grants from U.S. sources.
- The institute must become truly international, rather than German-American.

In early 1985, the prevalent view in the U.S. computer science community about the success and future potential of MCC in Austin and the developments at Carnegie Mellon University, referred to above, did influence these opinions.

Among the 40 individuals who expressed their views, only one (recently moved from private industry to a government position) expressed concern about foreign interests exploiting U.S. know-how.

POSITION OF U.S. GOVERNMENT

The next order of business was to establish the position of the relevant government agencies. In this effort I received valuable council from Donald Shapiro of the National Research Council who also introduced me to the relevant agencies.

The response of the Office of Science and Technology Policy (OSTP) was very positive. This is the office of the Science Advisor to the White House. As pointed out by George A. Keyworth, the director of that office from 1981 to 1985,
“If there is a single point that most distinguishes hypothetical from meaningful presidential advice, it is that national issues shape the agenda for everyone in the White House. The Science Advisor must address the president’s issues rather than those of the science community” [ISSUES, Spring 1988 p.38]

An article in the Wall Street Journal of November 15, 1984 clearly defined a then relevant issue which preoccupied the White House:

“... is considering ways to encourage ‘supply side’ economic policies in Europe. The goal would be to help European countries deal with the economic problems brought on by high taxes, excessive government regulation and ‘welfare statism’. This combined with disincentives in the tax system and rising government spending has removed the dynamism of the European economy... The effect is that you don’t see (European) involvement in the cutting-edge industries.”

“... no one doubts that unless they can revive their economies, it will translate into diminished security for them and us.”

“The Reagan administration is asking, ‘Is there anything the U.S. can do to influence change?’ ”

PROPOSAL FOR AN ICSI

In March 1985, a formal proposal was submitted to the GMD. This was to be the basis for approval on the part of the GMD Vorstand (Officers of the GMD) and Aufsichtsrat (Board of Directors) and by the German Federal Ministry for Research and Technology (BMFT). This proposal defined all of the policy and organizational aspects of the Institute as it exists today. [Appendix B].

In particular it defined:

- minimum size and related initial budget;
- not-for-profit corporation, independent of the institution with which the institute be associated;
- board of trustees to be made up principally of people prominent in the field of computer science;

The minimum size of the institute of 30 people was based upon a minimum of one project in each of the three areas: theory, hardware and software.

Each project would have one senior member and two people with at least two years research experience. Each such group of permanent staff members would have one professional support person and be able to take responsibility for 4 visiting post-docs. This would leave 6 administrative positions for a director, deputy director, business manager, accountant, and 2 secretaries.
The budget derived from these manpower figures was based upon prevailing salaries and generally accepted percentages for fringe and overhead costs associated with similar operations.

The budget differed from our initial estimate only in one important respect:

Extensive discussions with people experienced in such visitor programs led to the compelling conclusion that the cost of visitors must be included in the Institute budget in order to assure control over the selection of visitors commensurate with the concomitant responsibility.

There were two relevant models for a not-for-profit organization:

- The Mathematical Sciences Research Institute at UC Berkeley (MSRI) and
- the Center for the Study of Language and Information at Stanford (CSLI).

The establishment of a not-for-profit corporation as a legal entity in most of the U.S. is a fairly simple and fast procedure.

The creation of a first rate research institute requires an appropriate, initial board of trustees. Such a board should include people well respected in the world of Computer Science who can be counted upon to set direction and help in the initial recruiting. It should also include people known to the organizations with whom the institute must interact during the start-up phase.

The proposal also addressed the matter of German presence in U.S. research centers devoted to computer science and related fields. The point that German Computer Science was very poorly represented relative to every other country (Soviet block excepted), had a significant influence upon those responsible for approval. More than any other single factor, it suggested a problem unique to Computer Science in Germany, not a problem of German science in general.

**DEFINITION OF RESEARCH DIRECTION**

The proposal did NOT define the specific scientific direction of the Institute’s initial efforts.

It was considered of paramount importance that the research direction be established by the staff which would ultimately be responsible for its implementation. Without this implicit freedom, it would not have been possible to find a first rate institution or director for the institute. This proved to be a significant problem to the approval process. It is much to the credit of Szyperski and his colleagues at the GMD, that they were able to convince those responsible for the ultimate approval, of the wisdom of this approach.

To appreciate the significance of this point, it must be borne in mind, that scientific content is the decisive factor in practically every research proposal to come before the responsible approving bodies.
EVALUATION OF POTENTIAL SITES

The proposal ranked U.S. Universities relative to the excellence of their Computer Science Departments. This task was facilitated by a publication of the Conference Board of Associated Research Councils: "Assessment of Research-Doctorate Programs in the United States: Mathematical and Physical Sciences", published by the National Academy Press in 1982. It represents the views of nearly 5000 faculty members in 228 institutions. In addition to ranking the leading institutions in the U.S., it provides considerable additional insight into these computer science departments, such as ratio of faculty to graduate students, total number of Ph.D.'s granted and number of publications.

More specifically, the proposal evaluated 7 institutions in terms of their success-potential as a possible site for the institute. This evaluation was based upon initial site visits and focussed on the following criteria:

1. Reputation of Computer Science research
2. Interest on the part of the faculty to have the institute.
3. Breadth of Computer Science program
4. Geographic location
5. Support from respective administration.

The first two criteria had a weight of "2" relative to the last three criteria.

The resulting ranking looked as follows:

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<td>5</td>
<td>2</td>
<td>4</td>
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<td>4. Location</td>
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Low or lacking faculty interest correlated with the existence of one or more institutes already associated with the computer science department.

ALTERNATIVES TO PROPOSAL

While the proposal was generally well received in terms of answering questions relevant to the specifics of the proposal, Mr. Uwe Thomas of the BMFT requested an explicit statement of the alternatives which had been considered. These included:
• Participation in selected projects in the U.S.

• CS Institute in the German Federal Republic staffed by largely non-German faculty.

• CS institute to be located in the U.S.

The report responding to this request [Appendix C] brought into focus the difference between what is desirable and what is workable. It also helped to redefine the basic problem to be addressed: To increase research opportunities for German Computer Scientists with the long-term objective of increasing the quantity and quality of Computer Science in Germany. Given the relatively limited number of people and institutions participating in well established computer science research programs in Germany, only the last alternative could be carried out without putting additional demands upon already heavily taxed, existing personnel and resource.

THE VENTURE COMMENCES

Convinced of the timeliness of this undertaking and realizing that momentum need be maintained, it was decided to proceed simultaneously with the approval process in Germany and the selection of a site.

APPROVAL OF PROPOSAL IN GERMANY

Having been separated from the approval process in Germany by clock time and distance, I am not in a good position to recount the trials and tribulations associated with this effort. Suffice it to say, that Norbert Szyperksi and Friedrich Winkelhage added significant hours each day to their already taxed schedules. While it is generally accepted that 20 percent of the people contribute 80 percent of the results, in this case the ratio was more like 2:98.

From my point of view, we were now embarked upon the venture part of this project. Separated by considerable distance we were dependent upon absolute trust that the other side was able to deliver as proposed.

Not that Norbert and I had not ventured before. During the summer of 1979 I had joined an ongoing project, started by Szyperksi at the University of Cologne, as visiting research professor. That short but intensive association, not only provided the basis for future trust, but impressed upon both of us the value of such involvements.

To characterize the nature of such involvement, one would have to put first the risk involved with a project which has no model to follow. A second factor relates to the extent to which the personal relationship has been put to the test. Next, one would have to consider the cost of failure to each party. Failure not in terms of an opportunity lost, but in terms of significant damage to a professional reputation developed over a professional lifetime.

Both sides were continuously in a position of committing to results which were by no means assured, but which represented our best judgement of what were reasonable
expectations. It required a continuous reassessment of the risk to the other side. What is more, both sides need to be certain, that if there is the possibility of a problem, they will be the first to find out about it. Finally, one needs the conviction that the other side has the intellectual and emotional capacity to deal with any and all related issues.

Since Norbert Szyperski left the GMD in 1986, his continued involvement has provided ample evidence of his commitment to our venture. Even more remarkable was the willingness of Friedrich Winkelhage, now acting chairman of the GMD, to assume the major burden of this commitment at a time when he was asked to take responsibility for the position vacated by Szyperski in addition to his own job. There is no doubt in my mind that this project would not have succeeded without the full commitment of both of these individuals.

The Aufsichtsrat of the GMD approved a revised ICSI proposal [Appendix D] in December of 1985. This represented the culmination of an effort which required the support of the BMFT, since Ministerialrat Guentsch of the BMFT was also the chairman of the GMD Aufsichtsrat at the time.

This approval served as the basis for our conviction that the financial support from Germany would materialize. Now I could set out to sell the idea of the Institute to the organizations which had been identified as possible candidates for an association with ICSI.

In preparation for a visit from a delegation of German Computer Scientist, written proposals were requested. Each potential site was given explicit guidance in what the delegation was looking for.

By the end of 1985, this effort had resulted in 5 excellent proposals, each worthy of pursuit. Lack of adequate faculty support eliminated two of the original seven.

THE SAN FRANCISCO MEETING

Support for the ICSI concept within the U.S. Computer Science community was clearly in evidence at a dinner in San Francisco, organized with the help of Mr. Adam Heidenreich, Director of the German American Chamber of Commerce in San Francisco. The occasion for the dinner was the visit of the GMD Delegation, Jan. 9, 1986. Norbert Szyperski addressed this gathering of some of the top names in Computer Science to convey the extent of the German commitment and to reassert the fundamental objectives for the Institute.

"Let me not bore you with problems of pushing a proposal to do something which has never been done before in Germany. Suffice it to say, we have as much of a bureaucracy as you have. Since I am personally more familiar with ours, let us hope, for your sake, that yours is less cumbersome.

I am happy to report to you that the concept of a German funded International Computer Science Institute to be established in the United States has been approved by Dr. Riesebich, the German Minister of Research and Technology. This approval means that funds from the German Government and from other German organizations will be made available to a U.S. non-profit corporation which will have as its sole purpose the promotion of international cooperation in
computer science research. We are in the process of incorporation of a non-profit corporation.

This non-profit corporation will be the vehicle through which the Institute is to come into being. I sincerely hope that some of you here tonight would consider serving on the board of trustees of that organization and help us establish an institute which will live up to the expectations of everyone associated with it.

We recognize that a new computer science institute will only succeed if it can attract top level talent and provide an environment in which such talent can flourish.

There is a commitment on our part to put the objective of creating an outstanding institute above all other interest.

We would like to realize the opportunity of sending some of our best people from Germany to work in this institute. We expect them to gain new insights, not only in the field of computer science, but the research process in the United States which in this field has set the pace, much as German medicine and physics set the pace earlier in this century. We would also hope to win new recognition for some of the outstanding work in Computer Science in Germany, which at times has suffered because of parochial dissemination practices."

SITE SELECTION

The visits to the 5 sites took place in early January 1986 and the final selection by the GMD Vorstand was made March 15, 1986. The choice, the University of California campus in Berkeley.

In preparation for the site visits an analysis of the proposals was submitted to the GMD. This analysis was based upon a previously refined set of evaluation criteria, which were focussed upon the 5 proposals.

The German delegation, besides Szyperski and Winkelhage, included Prof. Giloi, Berlin and Prof. W. Paul, Saarbrücken.

While I was not party to the site selection process by the GMD Vorstand, I believe, the choice of UC Berkeley was based, in part, upon the following factors:

- The scientific proposal showed the most breadth, reflecting the involvement of a significant number of the CS faculty (17 out of 23). The scope of work proposed went clearly beyond ongoing projects, but complemented and extended current strength.

- Berkeley EECS was able to demonstrate solid results from joint projects involving several faculty members, strong evidence of successful collaboration, even across departments.

- Of the major universities considered, Berkeley is the only one without a CS-associated research institute, which undoubtedly provided some of the motivation for the faculty.
• Of the final 5 contenders, only Berkeley decided to use this opportunity to attract a well established computer scientist for the position of Institute director to further strengthen its well reputed faculty.

• The support offered by the campus administration was on par with that offered elsewhere.

• The successful establishment of the MSRI provided concrete evidence of the University’s ability to accommodate an independent research organization which had the support of the faculty.

INCORPORATION OF ICSI

Following site selection, the already initiated procedure for incorporation of a not-for-profit corporation was carried through. ICSI was formally incorporated in the State of California on July 9, 1986. The international law firm of Graham and James helped us with the legal requirements and the drafting of a set of bylaws. [Appendix E]

A set of bylaws which define the organization and role of the board of trustees was necessary in order to recruit the initial trustees.

We were fortunate to benefit from the experience gained in the establishment of MSRI and in having access to Prof. Calvin Moore, who was instrumental in its founding. His counsel and encouragement made the difference.

The creation of the bylaws, as well as our subsequent interaction with the CS faculty and administration at Berkeley, was facilitated by a committee of five members of the Computer Science faculty. The committee members, Profs. Ferrari, Harrison, Karp, Séquin and Wilensky must get credit for resolving innumerable issues, large and small and providing me with invaluable advice on the avoidance of potential problems.

BOARD OF TRUSTEES

On the top of everyone’s list of candidates for the board of trustees, both in the U.S. and in Germany, was Prof. Michael Rabin of Harvard and Jerusalem University. During an initial meeting, Feb. 3, 1986 which preceded site selection, Prof. Rabin indicated his interest in ICSI as then conceived, particularly if the choice fell to Berkeley. His subsequent acceptance of a board position and his help with the early formulation of policy and recruitment of a director were major contributions to the establishment of the Institute. His stature in the field of Computer Science and his extensive organizational experience added greatly to our ability to move forward.

We were fortunate that besides Prof. Rabin, the other initial board members were also individuals in a position of making unique contributions to the establishment of ICSI in Berkeley.

Prof. Ferrari, the then current chairman of the Computer Science Division of the Department of Electrical Engineering and Computer Science;
Prof. Karp, recent Turing Prize recipient and past Division Chairman;

Provost Cerny, representing the office of the chancellor, past director of the Lawrence Berkeley Laboratory and chairman of the Department of Chemistry;

Prof. Kuh, past chairman of the Department of Electrical Engineering and Computer Science and past Dean of the College of Engineering;

Profs. Szyperski and Goos of the GMD Vorstand. Prof. Goos had just gone through the experience of establishing a Computer Science Research Institute at the University of Karlsruhe.

FIRST MEETINGS OF THE BOARD OF TRUSTEES

A first informal Board meeting, which included all of the above except Profs. Goos and Kuh, took place in Berkeley May 23, 1986.

The first plenary Board meeting took place Nov. 24, 1986. [Appendix F] In addition to all of the Board members, Mr. Winkelhage was present in his new position as acting chairman of the GMD Vorstand. On this occasion Prof. Szyperski announced his new role in the GMD, as outside member of the Aufsichtsrat, since he had assumed the position of CEO of Mannesmann-Kienzle, a German computer firm.

The focus of that meeting was the current status of funding for the ICSI. The original commitment on the part of the BMFT provided for matching funds up to a total of approximately $3 million per year, the amount to be matched to funds committed by German industry.

The funding issue involved the proverbial chicken and egg problem. How to get industry funding commitments without a director responsible for defining the initial direction of the Institute, and how to get a commitment from a potential director without established funding.

The Board reacted to this problem by appointing acting officers for ICSI, -Ronald Kay, Acting Director and Prof. Ferrari, Acting Treasurer and Secretary, legally defined positions of a corporation.

Another important issue addressed at the first Board Meeting defined the desired ultimate size of the Institute. Given the wide experience of this group, it was not surprising to find ready consensus for a maximum of 100 people.

PERMANENT DIRECTOR.

In the meantime the procedurally required advertisement for a director and deputy director in the Communications of the ACM had produced 14 and 3 responses, respectively. Added to the list were a number of desired candidates submitted by the faculty and Board. Several candidates were invited to Berkeley in the order ranked by the Board. This process led to the nomination of Professor Jerry Feldman from the University of Rochester, N.Y. as the official candidate for the Institute's Directorship.
At Rochester, Feldman was John H. Dessauer Professor of Computer Science, Electrical Engineering and Visual Science. He was founding chairman of the Rochester Computer Science department. Prior to that he was at Stanford University, where he was Associate Director of the Artificial Intelligence Laboratory and Associate Professor of Computer Science. He received his Ph.D. in 1964 from Carnegie-Mellon University. In recent years, he has been best known for his pioneering work in Connectionist Models for massive parallelism.

The first official Board meeting closed with the hope of a formal dedication of ICSI in the spring of 1987. While this expectation did not materialize, it was possible to make a beginning during the course of 1987.

AN OPERATIONAL BEGINNING

With interim funding provided by the GMD (a major accomplishment given the legal constraints imposed by the German system) [Appendix G] and the support of the CS faculty, an operational beginning was made possible. This beginning was greatly facilitated by Jerry Feldman’s willingness to make himself available on a consulting basis until the outstanding issues of faculty appointment and funding were resolved.

Good fortune came our way when we were able to obtain the services of Ms. Diane Wegner as business manager, responsible for all administrative matters. During the course of the five previous years, she had played a key role in the establishment of the Mathematical Science Research Institute in Berkeley. Organizationally and particularly in its relationship to the University, MSRI had served as a model for the ICSI. While there were differences in the type of sponsorship and the constitution of the Boards, we benefited greatly from that recent experience.

We were also fortunate to be able to move from our campus “office” in 518 Evans Hall, to a pleasant facility near the Berkeley campus on University Avenue. The difficulty resided in the fact that space in reasonably attractive locations and buildings in Berkeley, generally requires a five year lease. At the time, it took an act of faith to sign a one year sublease, from Franz, Inc., a small software company in the new Golden Bear Building.

The extreme shortage of office space in Evans Hall, the home of the Computer Science Division, and for that matter on campus generally, made it essential to find off-campus space nearby in order to begin any type of activity whatsoever. By March, when we moved into the Golden Bear building, our first visiting scientists arrived from Germany. Thanks to the efforts of Ms. Wegner, they found pleasantly furnished offices equipped with state-of-the-art SUN workstations connected to the University Network.

While determined to stick to our original resolve to defer any long term decisions regarding projects and personnel to the ultimate director of ICSI, nevertheless, with the cooperation of the faculty it was possible to seize upon opportunities of future potential to the Institute. In particular we were able to support several visitors from universities in Germany and the U.S. to work with Berkeley faculty who were prepared to play an active role in the establishment of the ICSI. The initiative and support of Prof. Karp in this and other aspects of our early efforts must be recognized.
We were also able to make arrangements to trade space in the ICSI facility with space for ICSI visitors in Evans Hall. A part of the DASH project under the direction of Profs. Ferrari and Anderson has been located on ICSI premises under this arrangement.

During his periodic visits, Prof. Feldman was consulted about these time-limited commitments. He also reacted favorably to a proposal to locate one of his projects from the University of Rochester in the ICSI facility. Dr. Joachim Diederich from the GMD in Birlanghaven soon joined Dr. Mark Fanty from Rochester in this project dealing with learning in massively parallel systems. Diederich spent some time in Rochester prior to coming to Berkeley.

An ICSI initiative led to support of a workshop on “Future Directions of Data Base Research”, jointly organized by Prof. Stonebraker from Berkeley and Prof. Neuhold from the GMD, Darmstadt. A widely distributed publication of the results of this workshop attended by the leading researchers in the field in the U.S. and in Germany also served to introduce ICSI to the computer science community at large. [ICSI TR-88-001, May 1988]

Prof. Wahlster, Director of the AI Center in Saarbrücken, together with Profs. Norwig and Wilensky in Berkeley organized an ICSI supported conference which brought together some of the leading researchers from the U.S., Canada and Europe, working in Knowledge Base planning in the UNIX Domain. This was a particularly timely event. The work of these particular research groups is unique insofar as they have used independent approaches to a well defined problem, that of providing system help to the UNIX user. The problem was chosen because any potentially effective solution could be subject to evaluation by a very large segment of the computer science community. Also, the target system does not presume knowledge on the part of the implementers which is extraneous to their field of expertise, a problem which has impeded progress in the evaluation and acceptance of knowledge based systems in medicine.

These beginning research activities served to bolster our joint resolve to make this venture work in the face of serious organizational difficulties.

1987 - PROGRESS AND PROBLEMS

During 1987 the ICSI venture became serious:

- To find new quarters to accommodate the Institute for the first few years and create a viable organizational infrastructure.

- To meet the conditions for signing up the permanent director, i.e. approval of a faculty position and funding.

Without a formal commitment of funding or a faculty position for the nominated director, it was necessary to increase the level of risk or cast doubt on the venturer’s conviction about the ultimate success of the venture.

In concrete terms, this meant signing a long term lease in Berkeley and procuring the matching funding from industry sources in Germany.
FACILITY PLANNING

The matter of facility planning was dealt with most effectively by Diane Wegner. She located the property, negotiated a lease and contracted for the design and renovation of the 6th floor of 1947 Center Street. This facility is located within two blocks of all local and Bay Area transportation. A free University bus runs every 7 minutes directly to Evans Hall. The renovated space of 14,000 square feet provides for 31 offices, ample common spaces, a 60-seat auditorium, two conference rooms accommodating 12 and 6 people, respectively, a library and a 500 square foot computer room with raised floor as well as a small kitchen. Each office has cable access to the local and to the University network.

A five-year lease was signed October 19, 1987 and the move scheduled for February 1988. [Appendix H]

ORGANIZATIONAL INFRASTRUCTURE

There are several aspects of the Institute which make it attractive to faculty participation. Permanent research staff and adequate space, probably constitute the most sought after research resources on campus. In addition, an infrastructure which assumes professional responsibility for the administration of a research undertaking is difficult to implement in most universities.

What is wanted is a minimum of formal procedure while assuring responsible administration and responsive support of the research effort. This means that it is desirable to isolate the Institute from the requirements imposed upon a large State supported institution such as the University. On the other hand, it makes it necessary for the Institute to establish its own procedures to satisfy the requirements of operating an independent corporation.

The implications of this dilemma became apparent in the process of drawing up an employment contract for the director. Faculty employment contracts look deceptively simple, one page documents. What is not evident, is the voluminous documented and formalized procedures of the University which define and deal with such issues as benefits, termination, intellectual property etc. upon which the relative simple employment contract is based. Having an experienced professional administrator as business manager proved essential in this situation.

The resolution of the second issue, the interrelated matter of a faculty position for the nominated ICSI director and the funding, provided an excellent example of the value of transcontinental communication by electronic mail. Messages between Birlinghoven and Berkeley made next day response possible. Since the working day in Berkeley ends before it starts in Birlinghoven, telephone communication is difficult at best. Electronic mail capability, (including my home, which is 1.5 hours by automobile from Berkeley) permitted us to deal with the time zone differences between Berkeley, Rochester, N.Y. and Birlinghoven in a way which made this undertaking possible.
THE FACULTY APPOINTMENT

The appointment to a senior faculty position at the University of California in Berkeley, to the uninitiated, appears analogous to the election of a Pope. The only certainty is the appearance of smoke at some indeterminate point in the future.

The procedure involves the particular faculty, in this case, the computer Science faculty and also the combined Computer Science and Electrical Engineering faculties. It also involves the chairmen of the Computer Science Division and of the Department of EECS as well as the Dean of Engineering and the responsible University Provost. Final approval, before the chancellor's approval comes from a campus wide committee. All deliberations, reports and recommendations are treated as confidential, as is the make-up of the committee representing these various functions. The procedure calls for the appointment of a chairman to each such committee, who in turn selects the members of the committee. In the case of the faculty committee, its recommendations must be approved by the entire faculty.

While I was not party to any of the deliberations, it became apparent that this procedure entailed an enormous amount of effort and time. The burden of carrying the “case” forward falls upon the Computer Science Division chairman, a position which rotates every few years. Prof. Domenico Ferrari’s efforts as chairman in this and many other aspects of the establishment of the Institute represent asingularly outstanding contribution.

In October I was made aware of the fact that a serious problem had been encountered. In a memorable meeting in the office of Provost Cerny, acting as a member of the ICSI Board of Trustees, all present and in a position to address the matter, resolved to correct what appeared to be a procedural matter. Provost Cerny played a pivotal role at this crucial point in time. Without his understanding of the matter, the ultimate approval would have been unlikely.

To Prof. Fateman who had taken over the position of chairman from Prof. Ferrari at the beginning of the fall semester fell the task of dealing with the issues at hand. As Professor Ferrari before him, he proved himself effective in marshalling his colleagues and resolving the matter.

It must be understood, that while the University regards the matter of faculty appointment entirely independent of any Institute considerations, failure of the Feldman appointment would have put an end to the idea of an ICSI. While the reason for not approving an appointment would never become public, other prospective candidates for the ICSI directorship could only assume that a similar fate awaited them. Nor was anyone involved disposed to consider a repeat of this undertaking after nearly 2 years of effort.

At this point, I must confess that my optimism was founded more on intuition than upon the meager information available. It seemed unreasonable for a system to fail, which has served to make Berkeley one of the finest universities in the world.

Prof. Feldman’s appointment was approved during the week of Thanksgiving, November 1987.

He had made it clear from the beginning, that his final acceptance would be conditional
RESOLUTION OF THE FUNDING ISSUE

The efforts on the part of members of the GMD Vorstand and Norbert Szyperski, by that time heavily involved with his responsibilities as CEO of Mannesmann-Kienzle, were not made easier by the lack of a decision in Berkeley. The fact that a director candidate had been identified, made it at least possible to outline an initial direction for the research work of the Institute.

To satisfy the conditions of 50% funding from the BMFT, it was planned to establish a Foerderverein with initial support from some of the key industrial firms in Germany. To obtain that support it was held to be most effective to gain leverage from the cross directorships common among some of the biggest financial and industrial institutions in Germany. After considerable time and effort was expended toward this end, an initial lukewarm response was a major disappointment. Undaunted, Szyperski and Winkelhage, now joined by Dr. Kunz of the GMD pursued their objective. When the original February 1, 1988 deadline appeared unattainable, a new crisis loomed.

Faculty commitments for the Fall Semester (starting in September) at American universities are generally made by the preceding March. Any permanent staff to be recruited from universities for the fall of 1988 would have to be made an offer by March 15. Prof. Feldman was first contacted July 30 1986. He had held any personal decisions in abeyance since that time, pending resolution of ICSI. Delay beyond March 1 would have meant the loss of another year before ICSI could be fully operational.

There was agreement among all concerned in Berkeley and Prof. Feldman, that the funding had to be resolved by March 1 or the idea of an ICSI had to be abandoned. During my visit to Birlinghoven and Bonn, January 19, 1988, this “adventurous timetable”, to quote Mr. Thomas of the BMFT, was not well received. Nevertheless, Mr. Winkelhage and his colleagues were able to put together a funding package with the help of the BMFT which met the need. The problem to be overcome involved the matter of interim funding, i.e. prior to the establishment of the Foerderverein. Prof. Feldman was invited to the preliminary meeting of the Foerderverein February 26.

Jerry Feldman and I had agreed that if the schedule was met, he would assume the directorship of the ICSI on April 1, 1988, and my part in the venture would come to an end.

In a memo dated March 1, 1988, Prof. Guentsch, the responsible Ministerialrat in the BMFT, was able to assure Prof. Feldman of an adequate funding commitment which made it possible for him to accept the directorship of ICSI effective April 1, 1988. [Appendix I]

On April 28, I received the following KOMEX from Birlinghoven:

KOMEX-Dokument/ Nachricht 365  7 Zeilen 28.04. 88/20:25
TOST/88-111-1 Bezug: EXT/KAY/87-264-1
THE FUTURE

[Appendix J]

In the meantime, ICSI was able to move into its new quarters on schedule, February 15, 1988. The venture has come to an end, and ICSI to a beginning.

With important contributions from the faculty, particularly Prof. Karp, Jerry Feldman has been able to define an exiting research program for the Institute. With a focus upon Massively Parallel Systems, the Institute efforts in theory, systems and programming will bring a unique and new research activity to Berkeley.

This newly burgeoning field within the general area of Artificial Intelligence is one in which Jerry Feldman has distinguished himself. It represents one of the major directions of a general thrust in the field of Computer Science, to exploit parallelism.

It is fitting to Berkeley, that this particular approach should lean on and expect to contribute to our understanding of the human brain, an area of investigation pursued in various other departments on campus by some distinguished scholars. It takes its basic premise from the, by now well tested observation, that human cognitive processes occur in intervals of time which imply massive parallelism, given the response of the components of the brain, which is orders of magnitude slower.

This approach provides many opportunities for studying such diverse processes as vision, cognition and learning, to mention a few. A simulation tool, developed under Feldman’s direction at the University of Rochester, allows people in fields other than Computer Science to conduct large scale computer experiments to test their ideas involving massively parallel systems.

Recent interest in Germany and other parts of the world in this area of research support the expectation that ICSI has the opportunity to become a recognized center of excellence. Its ultimate success will derive from the ability to attract outstanding scientists and provide an environment conducive to outstanding science.

Such success, whenever it comes, will reflect well upon the vision of Norbert Szyperski, without whom this undertaking would not have come into being. He not only conceived the idea, but worked very, very hard to assure its successful implementation.
For those in Germany who shared Norbert Szyperski's vision and provided the support which brought ICSI into being, success will manifest itself in the future accomplishments of the scientists returning from ICSI.

Summer 1988
Los Gatos, California
## GLOSSARY

<table>
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<tr>
<th>Term</th>
<th>Description</th>
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<tbody>
<tr>
<td>Aufsichtsrat</td>
<td>Board of Directors</td>
</tr>
<tr>
<td>Birlinghoven</td>
<td>Near Bonn, seat of the GMD Headquarters</td>
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<tr>
<td>BMFT</td>
<td>Federal Ministry of Research &amp; Technology</td>
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<tr>
<td></td>
<td>Bundesministerium für Forschung &amp; Technologie</td>
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<tr>
<td>BRD</td>
<td>Federal Republic of Germany (West)</td>
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<tr>
<td></td>
<td>Bundesrepublik Deutschland</td>
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<tr>
<td>DARPA</td>
<td>Defense Advanced Research Project Agency</td>
</tr>
<tr>
<td>EECS</td>
<td>Department of Electrical Engineering &amp; Computer Science</td>
</tr>
<tr>
<td>Foerderverein</td>
<td>Consortium for the Support of ICSI</td>
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<tr>
<td>GMD</td>
<td>National Research Center for Computer Science</td>
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<tr>
<td></td>
<td>Gesellschaft für Mathematik &amp; Datenverarbeitung</td>
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<tr>
<td>Vorstand</td>
<td>Executive Management Group comprised of officers of organization</td>
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This proposal represents a current effort by a National Research Organization of the Federal Republic of Germany to facilitate international collaboration in the field of fundamental Computer Science. Participation by other countries is expected in the future.

In brief, ways are being explored for the establishment of an International Computer Science Institute to be located in the United States. This center is to be staffed by American and foreign scientists. Initial financial support is to come from the GMD, a well established Computer Science research organization in Germany. The results from the US Institute are to be in the public domain, in the manner of unrestricted university research.

The objective, on the part of the German advocates of this effort, is to facilitate collaborative basic research between US and German scientists in a field in which the US has a commanding lead.

This German initiative is based upon these considerations:

1. As in the US, the German legal system does not allow for the type of centralized approach the Japanese have taken.

2. Financial resources available for this type of research are appreciably greater in the US than in any other country. This, on the one hand is due to the size of the markets available to US industry and on the other hand, US defense needs.

3. Because of the relative lead of US computer science, some of the brightest young European scientists have been attracted to major universities and industrial research laboratories in the US.
4. Available evidence suggests that the Federal Republic of Germany has been underrepresented in its participation in Computer Science related activities in the US academic world (relative to other countries).

5. Earlier in this century, US medical researchers spent a year or two at the then leading university-clinics of Germany. The International Computer Science Institute is to function in an analogous fashion: make it possible for German and other foreign scientists to participate in and contribute to leading edge research in the field of computer science.

The sponsoring organization in Germany, the GMD (Gesellschaft für Mathematik und Datenverarbeitung) which performs the function of a National Center for Computer Science, was established in 1968.

Prof. Dr. Norbert Szyperski, the individual who heads up the GMD, is an exceptionally dynamic and effective man, familiar with American institutions. A 1962 recipient of an Eisenhower fellowship, he is well known and respected in German government, business and academic circles. The 400 person research organization which he heads up, has made great strides under his leadership. A description of the activities of the GMD is attached.

Approval and funding has been obtained by the GMD from the appropriate agencies in Germany.

UC Berkeley has been selected for the site of the ICSI, and the Berkeley Computer Science faculty is conducting a search for the director of the Institute. The Director will be responsible to the trustees of a California Not-for-Profit Corporation which is in the process of incorporation.

Norbert Szyperski (GMD), Michael Rabin (Jerusalem & Harvard), Domenico Ferrari and Richard Karp (UC Berkeley) will be members of the initial Board of Trustees.

RHK
FILE ID I-6.13a
VORSCHLAG FÜR EIN

INTERNATIONALES INSTITUT

FÜR INFORMATIK

IN DEN USA

März 1985
Vorschlag
für ein
INTERNATIONALES INSTITUTE FÜR INFORMATIK IN DEN USA
INTERNATIONAL COMPUTER SCIENCE INSTITUTE (ICSI)

Der hier detaillierte Vorschlag (von Ron Kay) war das Ziel einer Untersuchung in den USA im Auftrag der GMD (Prof. Szyperski).

Die Untersuchung hat sich mit den folgenden Fragen beschäftigt:

- Was sind die massgebenden Bedingungen für ein erfolgversprechendes ICSI aus amerikanischer Sicht?
- Was ist die Stellungnahme der USA Regierung?
- Wie wird Deutsche Informatik durch ein ICSI in den USA gefördert?
- Wie sind diese Bedingungen zu erfüllen?

Diese Untersuchung bestätigt:

- die Realisierbarkeit der von Prof. Szyperski postulierten Idee eines ICSI in den USA, und
- dass das ICSI einen notwendigen und wichtigen Beitrag zur Förderung der Informatik in Deutschland machen kann.

AUSGANGSPUNKTE

- Nur eine erfolgsversprechende Initiative kann dem Ruf der deutschen Informatik dienen.
- Spitzen Personal ist die ausschlaggebende Bedingung.
- Die Konkurrenz für Spitzen Kräfte unter Informatikern war nie grösser als heute.
- Nur eine erfolgsversprechende Initiative wird unter den führenden USA-Informatikern Anklang finden.
- Es dürfen keine Vorbedingungen gestellt werden; nur Massnahmen die die Erfolgserwartung steigern, können in Betracht gezogen werden.
- Die Erwartungen der deutschen fördernden Organisationen müssen realistisch sein; d.h., der Aufbau des ICSI sollte abgeschlossen sein bevor eine deutsche Einflussnahme sinnvoll erscheint.

BEDINGUNGEN:

- Angliederung

Persoonalausstattung und effektive Zusammenarbeit erfordert eine enge Verbindung mit einer in der Informatik renommierten Universität oder einem renommierten Informatik - Forschungszentrum.

Da die fähigsten Leute die Wahl zwischen den renommiertesten Universitäten haben, ist geographische Lage eine wichtige Bedingung. Geographische Lage muss hier im weitesten Sinn verstanden werden, d.h., einschliesslich des allgemein Prestiges der Universität und kultureller, freizeitlicher und wohnlicher Möglichkeiten. Auch die Konzentration von Informatik-verwandter Industrie hat einen Einfluss auf die Wahl der Lage für ein ICSI.
- Ohne die Möglichkeit der Attraktion für Spitzen Kräfte, ist die Erfolgserwartung wesentlich beeinträchtigt.
- Erwartungen der amerikanischen Mitarbeiter


Klare Darstellung der Erwartungen der fördernden Organisation.

- Es wird wichtig sein die Erwartungen, d.h. die Weise in der ICSI die Informatik in Deutschland fördern soll, klar festzulegen.


- Politischer Einfluss auf die Wahl des Direktors, (und allgemein in der Personalauswahl) im Gegensatz zu Fähigkeitskriterien würde nicht akzeptiert werden.

Auch die Stabilität der GMD-Leitung könnte grossen Einfluss haben. Z.B. ein Wechsel in der Leitung der GMD während der Verhandlung, würde das Vertrauen wahrscheinlich fatal schwächen.

Soweit diese Erwartungen erfüllt sind, wird man von dem ICSI eine Kombination der Vorteile einer Universität und einem industriellen Forschungslabor erwarten.


- Organisatorische Fassung

Aus Sicht der amerikanischen Mitarbeiter ist das Konzept eines ICSI (mit der Betonung auf "international" liegend) attraktiv. Ein betont deutsches Zentrum würde man als Exklusion von anderen Nationalitäten auffassen.

- Die Möglichkeit einer allgemein internationalen Beteiligung in der Zukunft, ist eine Grundbedingung zur Akzeptanz von ICSI.

Es gibt (mir bekannt) z.Z. zwei Modelle für eine mögliche Organisationsform: MSRI in Berkeley und CSLI in Stanford. Dabei handelt es sich jeweils um eine Organization mit enger Verbindung zu einer Universität, eine staatliche und eine private Uni. (Siehe Anhang E, F)
STELLUNGNAHME DER USA-REGIERUNG

Eine quasi-offizielle Anerkennung seitens der Regierung ist wichtig da amerikanische Wissenschaftler ihre Unter-
stützung durch DARPA, DOD, DOE und NSF nicht in Gefahr
bringen können.

- Die Stellungnahme der amerikanischen Regierung
zu ICSI ist uneingeschränkt positiv.

Die zuständige Kompetenz ist das Office of Science and
Technology Policy (OSTP) unter der Leitung von Jay Keyworth,
Science Advisor to the President.

Dr. Andrew Pettifore, Senior Policy Analyst, OSTP,
verantwortlich, u.a. für Forschung auf dem Gebiet der
Informatik, ist bereit das Thema ICSI den massgebenden
Instanzen (NSF, DOE und DARPA) vorzutragen.

Der richtige Zeitpunkt hierfür ist, sobald die Fakulät
der gewählten Universität bereit ist sich für das ICSI
einzusetzen.

Die 'massgebenden Organisationen' (NSF, DOE und DARPA),
die für die öffentlichen Förderungsgelder auf diesem
Gebiet verantwortlich sind, werden auf diese Weise von der
Regierung angewiesen, auf Förderungsanträge durch das ICSI
ohne Einschränkungen zu reagieren.

Pettifore meint, dass es wohl einige Einwände geben
wird, ist jedoch überzeugt dass die von ihm vertretene
Meinung sich ohne Schwierigkeiten durchsetzen wird.

- All dies gilt unter der Voraussetzung, dass das
ICSI unter den an der Universität allgemein
gebräuchlichen Prozeduren arbeiten wird.

Dementsprechend wird vorgeschlagen, gleichzeitig mit der
Kontaktaufnahme mit OSTP, einen Antrag zur Gewinnung von NSF
Geldern bereit zu haben.
FOERDERUNG DER INFORMATIK IN DEUTSCHLAND

Das Welt-anerkannte Modell der deutschen Forschung hat sich auf dem Gebiet der Informatik nicht bewiesen. Eine neue Initiative empfiehlt sich.

- Führende amerikanische Informatiker haben auf die Originalität der deutschen Initiative für ein ICSI sehr positiv reagiert.

- Ein von Entscheidungs- und Risiko-Bereitschaft charakterisiertes Programm von deutscher Seite würde viel dazu beitragen den Ruf der für die Förderung der Informatik in Deutschland Verantwortlichen wesentlich zu steigern.

Ein erfolgreiches ICSI kann die Basis zur Förderung von internationaler Zusammenarbeit bieten.


In den in der Informatik führenden amerikanischen Universitäten gibt es eine bedeutende Zahl von Professoren, die zumindest einen Teil ihrer Ausbildung in Deutschland bekamen, doch keine oder wenig berufliche Verbindung mit der Heimat haben.


Unter den von ausserhalb der USA kommenden Studenten, Post Doctoral Fellows und Gast- Professoren in der USA-Informatik, ist Deutschland relativ schlecht vertreten. (Siehe Anhang B für Beispiele)

- Ein Ziel des ICSI ist es, den besten jungen Informatikern in Deutschland die Chancen eines Forschungsjahres in den USA zu verbessern.

- Die zu verbessernden Chancen sind nicht nur auf Auswahl beschränkt, sondern erstrecken sich auf ein gezielt 'förderndes Millieu' im Institut. (Beispiel 7, Anhang B zeigt wie effektiv ein gezieltes Programm sein kann.)
ERFÜLLEUNG DER BEDIENUNGEN

Die untersuchten Möglichkeiten:

Universitäten:

- Carnegie Mellon University, Pittsburg
- Massachussets Institute of Technology, Cambridge
- Stanford University, Palo Alto
- University of California, Berkeley
- University of California, Los Angeles
- SRI, Menlo Park
- University of California, Santa Cruz
- RIACS, Sunnyvale

(Siehe Anhang C & D für eine allgemeine und eine ICSI spezifische Auswertung von den in Betracht gezogenen Organisationen)

Kandidaten für die Position des Direktors:

- Algirdas Avizienis, ’32 Litauen; Ill. ’54, ’55, ’60
  JPL 60-68, UCLA 68 – present
- Manuel Blum, ’38 Caracas; MIT ’61, ’64
  MIT 64-72, UCB 72-present, Chair 77-82
- Peter Denning, ’42 N.Y.; ’65, ’68 MIT
  Princeton 68-72, Purdue 72-83, RIACS 83 – present
- Wolfgang Gilo, ’30 Sobernheim; Stuttgart ’57, ’60,
  AEG 60-64, TU Berlin 65-70, U Minnesota 71-77,
  TU Berlin 78 – present
- Dick Karp, ’35 Boston; Harvard ’55, ’59
  IBM Yorktown 59-68, UCB 68 – present
- Nils Nilsson, ’33 Michigan; Stanford ’56, ’58
  SRI AI Lab 61-84, Stanford 84 –
- Carlo Sequin, ’41 Schweiz; Basel ’65
  Basel 65-69, Bell Labs 70-76, UCB 76 – present
- Michael Tanner, ’46 Utah; ’66, ’67 & 71 Stanford
  Tenn State 70-71, UCSC 72 – present
- Joseph Traub, ’32 W.Germany; CCNY ’54, Columbia ’59,
  Bell Labs 59-70, CMU 71-79, Columbia 79 – present
Leitlinien für die Forschung im ICSI.

Leitlinien können nur in Zusammenarbeit zwischen dem Direktor und dem Wissenschaftsrat zustande kommen.

Es wird empfohlen, dass die Vorstellungen der GMD bezüglich Leitlinien explizit formuliert werden, in Vorbereitung zu der Wahl der Universität und des Direktors.

Die GMD spielt sodann die Rolle eines Mitgliedes des Wissenschaftlichen Rates dessen Vorschläge von dem Board of Trustees begutachtet werden müssen, bei dem die GMD auch vertreten ist.

Finanzbedarf für das ICSI

Der in dem Schreiben vom 12. July 1984 (Kay->Szyperski) detaillierte Finanzplan ist hier zusammengefasst und ergänzt:

Die Kosten für 17 Personen Fest-Personal kam auf $ 2.139 K einschließlich von Lohn, 30% Sozialkosten und 100% Infrastruktur, sowohl von $300 K pro Jahr für Geräte.

In diesem Plan sind weder die Unkosten für das Board of Trustees noch für das Gastforscher Programm berücksichtigt. Diese sind jeweils $ 250 K und $ 750 K pro Jahr.
(Vergleichsbasis: Anhang [E]).

Auf Grund unserer Untersuchungen sind wir zu der Ueberzeugung gekommen dass das Gastforscher Programm unbedingt in dem ICSI Budget mit eingeschlossen sein muss.

Bis ein auf eine spezifische Situation gestimmter Plan entwickelt werden kann, sollte für Planungszwecke die Summe von $ 3 Millionen pro Jahr als ein absolutes Minimum angesehen werden.

In den USA erstrecken sich Förderungsanträge für Unternehmen wie das ICSI auf 5 Jahre.
DURCHFÜHRUNGSPLAN

1. - GMD Akzeptanz des Vorschlages

2. - Besuch der Universitäten und der und Direktor Kandidaten durch die GMD Leitung

3. - BMFT Akzeptanz des Vorschlages

4. - Gründung der Non-Profit Corporation (Finanzielle Basis muss vorhanden sein)

5. - Wahl der Universität

6. - Auswahl eines Direktor Kandidaten

7. - Akzeptanz des Direktors bei der Fakultät

8. - Erarbeitung einer gemeinsame Zielsetzung - (GMD, Direktor)

9. - Iteration der Punkte 5 - 8.

10. - Vertrag mit Direktor

11. - Mietvertrag für 1986-87 (Gebäude)

12. - Auswahl des Board of Trustees

13. - Auswahl des Wissenschaftsrats

14. - Entwurf von Forschungs-Leitlinien

15. - Gründung des ICSI; Aktivitätenanfang

01/11/1985
01/22/1985
01/30/1985
02/08/1985
02/12/1985
02/28/1985
03/05/1985

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DEUTSCHE TEILNAHME AN DER FORSCHUNG IN DEN USA
(Beispiele)

Beispiel [1]: MIT Studenten (Graduate) 1981 - 84, EE & CS
Von den US 1800 (82%) Ausland (*) 400 (18%)
BDR 1
Andere Länder: Frankreich 16, Taiwan 11, China 8, Israel 5,
England 4, Japan 4, Belgien 3, Schweiz 2, Holland 1.

(*) Insgesamt 44 Länder.

Beispiel [2]: MIT Advanced Study Program, Fall 1984
Von den US 17 (34%) Ausland 33 (66%)
BDR 0
Andere Länder: Japan 20, Korea 2, Brazil 2.

Beispiel [3]: MIT Alumni 1983 (MIT Alumni Register, 1984)
In den US lebend: 60736 Im Ausland: 7397 (11%)
1. Canada 1138 8. Israel 213
2. Canada 1138 9. Brazil 204
3. Frankreich 554 10. Hong Kong 193
6. India 313 13. Taiwan 179
15. BDR 157

Von den US 34 (74%) Ausland 12 (26%)
BDR 1
Andere Länder: Israel 5, England 2, Holland,
Belgien, Italien, Pakistan - je 1.

BDR Teilnehmer: Egon Krause, Aerodynamic Institute, RWTH
(MSRI Grant Proposal, Nov.30 1984 pg.40)

Von den US 86 (70%) Ausland 37 (30%)

BRD 4

Ander Länder: Frankreich 7, Japan 7, England 5, Holland, Italien je 3, 8 andere mit je 1.

BRD Teilnehmer: H.Lerche, Heidelberg ('82);
P.Slowdovy, Bonn ('83);
A.Derdzinski, Mat.Inst.Bonn
V.Schroeder, Münster ('84)

Beispiel [6]: Forschungsaufenthalt von ausländischen Professoren in dem Computer Science Department der University of California in Los Angeles, im Jahre 1983-84
(UCLA CS Dept.Quarterly, V.12,1 pg.54)

China 3, Japan 2, Frankreich 2, Yugoslavien 2, Israel 1, Egypten 1, BRD 0.

Beispiel [7]: Verteilung ausländischer Post Docs im IBM San Jose Forschungslabor (1969-79)

1. BRD 116 (37%) 6. Holland 19
2. Schweiz 29 7. Italien 12
3. Frankreich 26 8. England 10
5. Japan 21 10. Dänemark 6

Insgesamt 311 Personen aus 27 Ländern.

RKK:pe
2/17/1985
AUSWERTUNG VON COMPUTER SCIENCE DEPARTMENTS
IN US UNIVERSITAETEN (*)

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(*) An Assessment of Research-Doctorate Programs in the United States.  
National Academy Press, 1982 pp. 62-67
ANHANG [D]  

ICSIVORSCHLAG

ERFOLGSRICHTUNGEN

BEI DEN IN DIESEM VORSCHLAG IN BEETRACHT GEZOGENEN

UNIVERSITAETEN

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| GESAMTWERBUNG         |         | 31 | 24 | 25 | 22 | 21 | 15 | 16 |

| RUF X INTERESSE       |         | 64 | 48 | 30 | 24 | 10 | 16 | 0  |
ANHANG [E]  ICSI VORSCHLAG

ANALYSE DES MSRI BUDGET FÜR DIE JAHRE
1986 / 1987

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(*) Bei SRI ist der <NETTO> Anteil 30 %

(**) Siehe Anhang [F]
## ANHANG [E-1] ICSI VORSCHLAG

**ANALYSE DES MSRI BUDGET FUER DIE JAHRE 1986 / 1987**

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ANHANG [F] ICSI VORSCHLAG
MSRI - BOARD OF TRUSTEES
COMMITTEES (*)

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(*) MSRI Grant Proposal, Nov. 1984, pp. 60-61
Memo to File: ICIS.030

Subject: Request by Uwe Thomas (BMFT) for a review of alternatives for German participation in Computer Science Research in the U.S.

- The objective of this analysis is to evaluate alternatives for German participation in U.S. Computer Science (CS) research.

- The motivation for this analysis is based upon the fact that the magnitude and quality of CS research in the U.S. at this time exceeds that of other countries. Therefore, participation on the part of German CS scientists could provide significant leverage to the German resources devoted to such participation.

- Three alternatives have been considered:

1. Participation in selected projects in the U.S. which have a well established counterpart in the BRD.

2. Establishment of a CS institute in the BRD with largely non-German faculty.

3. Establishment of a U.S.-BRD institute for CS in the U.S.

   It should be noted that these three alternatives are not mutually exclusive.

OBJECTIVES AND BOUNDARY CONDITIONS

The overall objective of German participation in U.S. CS research is to provide a means of advancing CS research in the BRD. While there are isolated individuals and groups engaged in CS research in the BRD who have international status, at least in the U.S., none of these are considered to be at the leading edge of current research. Both quantitative and qualitative considerations suggest, that the currently feasible rate of staffing and funding of CS research in the BRD is not likely to narrow the gap.
The following information may help to convey the relative magnitude of U.S. computer science research.

Japan's R & D Effort in the Information Sciences

In an address by Justin Bloom, President of Technology International, (December 1984) it was pointed out that

"...MITI of Japan is spending an average of $50 Million per year over a 25 year period in large information technology projects. MITI funds are generally matched by private industry.

On its own, private industry in Japan spends about $1.6 Billion per year on communications and electronics R & D. NTT, a government-owned corporation has an annual research budget of about $400 Million per year, financed from revenues and not appropriations.

Comparison of All R & D Funding in the U.S. and in Japan.

For comparison, the U.S. -- with a GNP about three times that of Japan, and twice the population -- spends about three times as much for R & D as does Japan, considering all sources. The private sector contributes a higher proportion of the total in Japan than in the U.S. -- perhaps 75% vs. 50%. The biggest perturbation in the comparison occurs, however, from the enormous amounts spent in the U.S. by the defense, space and energy R & D. The U.S. space budget alone is about the size of the total Japanese Government budget for R & D.

Specific Comparison

The cost of operating MITI's 16 AIST (Agency of Industrial Science and Technology) laboratories employing about 3500 people is about $154 Million. A single US national laboratory, the Lawrence Livermore National Laboratory, employing 7500 people has a budget of $631 Million."

Information Science and Technology at Livermore

While the Livermore laboratory has as its primary mission the development of nuclear weapons, according to Daniel Ruby in the April 30 1985 issue of PC Week,

"...weapons programs comprise only one half of Livermore's work and budget. The other half is devoted to a wide range of fields, including research in nuclear-fusion energy, lasers, environmental sciences and alternative energy sources."
Computing forms the nucleus of work at Livermore. Unlike most organizations where computers perform a support role, Livermore’s main function is computing.

A completely separate computer center for non-classified work, based on four Crays and one Control Data machine is linked to Department of Energy sites around the country.

The lab also runs thousands of smaller machines ranging from five Control Data 7600s to dozens of big supporting machines, scores of specialized scientific workstations, hundreds of DEC VAX machines and thousands of smaller HP and DEC minis. And 2,800 PC’s."

(On a per capita basis, this latter figure is 4 times larger than the number of PC’s at the GMD.)

Important to note is the fact that Livermore is generally not counted as part of the Computer Science resources in the U.S. Nor are other organizations which play a significant role in computer science research but are funded under the aegis of other programs.

For example, the 60 person private company, Thinking Machines, Inc. (founded in 1983 in Cambridge, Mass.) is developing a supercomputer funded by the Department of Defense, a machine which will be available for the general market in 1986.

Similarly, the Research Institute for Advanced Computer Science (RIACS) established in 1982 is funded by NASA.

German Response

Since the availability of qualified people is the limiting factor in computer science research, one would expect to find significant numbers of German students and computer scientists at U.S. universities attempting to avail themselves of the training and experience offered at the best CS departments.

All available data suggests, that the BRD is among the LEAST represented countries in U.S. universities with well established CS departments.

Not only Japan, Taiwan and Korea, but France, Holland, Israel and Switzerland are better represented.
According to German sources, the reasons for this lack of German participation are:

1. Financial considerations

2. The fact that in the past some Germans have stayed in the U.S.

3. The potential loss of opportunity for tenured positions in Germany while abroad.

To the extend that these reasons are valid, efforts should be made to correct the underlying causes. But it is difficult to believe that all the other countries have been able to avoid such problems.

Feasibility of Alternative Response.

There is at least one program which has had a disproportionately high participation of German scientists. For the past 15 years, the IBM Research Laboratories have drawn a high percentage of the foreign participants in their Visiting Scientist program from Germany (1969-1979: 37 percent). This program involving foreign scientists has continued only because of the large number of highly qualified people who are interested in participating.

Basis for Successful Participation in U.S. Research

An understanding of the operation of this program should give some insight into the necessary conditions for successful participation in U.S. research.

1. Candidates are recommended by German professors, but selected by the group responsible for the project in which the visiting scientist is to participate. Thus related allocation of funds is also controlled by the hosting group.

2. In each research laboratory there exists an infrastructure to support the visiting scientist in matters of housing, salary advances to purchase an automobile, insurance, visa and tax affairs, etc.
3. The project manager to whom the visiting scientist is assigned understands that he/she is responsible for the welfare and success of the visitor. This makes necessary the personal involvement of one or more members of the project. The infrastructure plays a supporting role. Responsibility rests with the people responsible for the work-product.

4. The program is based on continuous feedback: it functions only as long as both sides perceive the program to provide benefit to their respective interests. Among those interests, on the part of the visiting scientists, is long term collaboration.

Basis for Long Term Collaboration

Generally not appreciated is the fact that effective long term collaboration is based as much upon personal contact, as it is upon mutual professional respect, or — the latter is difficult to realize without the former. While international meetings provide access to what has been done in the recent past, only the inner circle is aware of current work and future directions. To establish a basis for long term collaboration, people have to work together intimately and long enough to develop common understanding and trust. Experience suggests that this is rarely accomplished in less than one year, in the case of a first time visitor.

[The Siemens program at MIT, CMU, Stanford and UC Berkeley (established in 1984) provides for 6 people per year for 4 months each. Whether or not 4 months is adequate to accomplish the result desired by Siemens is not clear.]

One of the more important aspects of the understanding and trust, referred to above, is the matter of candidate selection. The person proposing the candidate, ideally is familiar with the people and environment of the hosting institution. It is essential that the selection of the candidate be the responsibility of the hosting organization. To separate candidate selection from the overall responsibility for a project, undermines accountability.

Following is an evaluation of the three alternatives, based upon the above considerations.
1. PARTICIPATION IN SELECTED PROJECTS IN U.S. RESEARCH INSTITUTIONS

Ideally, participation in U.S. CS research would take the form of joint efforts where each side contributes equally. To succeed, such joint efforts must satisfy the following conditions:

a. A German research group recognized in the U.S. as capable of making a unique contribution to the joint effort.

b. An individual, representing the German group, capable and willing to take the initiative and devote sufficient time to assure the success of the joint effort. Since such collaboration implies extensive travel cost and time, both partners must have something to offer which is not available at closer range.

c. A clear understanding on the part of the German sponsors, as to the motivation of both groups, U.S. and German. In the U.S. today, well-established CS research groups are able to choose their joint venture partners.

By definition, the opportunities for this type of collaboration are likely to be limited at this time. Nevertheless, every effort should be made to identify and facilitate such opportunities. In the foreseeable future such joint efforts are not likely to have a significant impact upon CS research in the BRD.

(It is interesting to note that there is growing conviction in the U.S. that within 5 years, U.S. research groups will seek collaboration with Japanese CS groups. To this end, the National Research Council initiated a program of Japanese Language instruction as part of the information science curriculum in universities).

The pursuit of specific know-how in the U.S., in response to requests for such know-how identified in the BRD, can only serve to quantitatively measure the distance the BRD has fallen behind. Results from CS research can only be evaluated after some level of implementation. In the case of important projects this would require a minimum of 2 years, more commonly 3 - 4 years. To learn about a project 4 years after the conception could be useful if it is recognized that such a project is the key to future developments. But this approach will do very little to advance CS research in the BRD.
2. CS INSTITUTE IN THE BRD STAFFED BY NON-GERMAN FACULTY.

The demand for outstanding CS scientists, particularly people with enough experience to start up and lead a new organization is so great at this time, that for each such person there are 10 positions within the U.S. Numerous government agencies, industrial organizations and universities are actively recruiting for outstanding CS people. Having asked 30 such people what would prompt them to leave their current positions, here is what they agree upon:

1. By far most important is the desire to associate with the best people in the field. (Star athletes want to compete in the Olympics!)

2. Location in the broadest sense: The best professional environment for themselves and the best cultural and geographic environment for their families.

3. Financial support beyond salary: assistant positions, equipment and facilities. Top people cannot be moved by salary alone.

4. Proximity to CS related industry to facilitate interaction, opportunity for consulting and research support.

5. Long term commitment for support and freedom equivalent to that found in the best universities, i.e., reasonable teaching load or management obligations.

Among the organizations which have started up during the recent past, (DEC and Fairchild in Palo Alto, MCC in Austin, RIACS in Sunnyvale) competition has been keen. Well established major laboratories (Bell, IBM, HP, Xerox and Apple) have lost experienced people to the start ups. This situation is significantly different from that prevailing in physics, mathematics or material science, where supply and demand is more nearly in balance. The market place for top computer scientists is the world; the best have come to the U.S. for the reasons stated above.

Another issue which limits the possible sites for a major CS institute is the need for access to a nearby custom VLSI facility which provides high priority, fast turn-around service to a CS research institute. This is one of the major attractions of Silicon Valley.

Hence, while the idea of establishing a major CS facility in the BRD staffed by non-German faculty is not to be dismissed as undesirable, realistically, it has little chance for success under current conditions.
3. GERMAN – U.S. INSTITUTE FOR CS IN THE U.S.

Consideration of the above alternatives has led to the GMD proposal for a BRD supported CS institute in the U.S. as the most promising approach. This proposal aims to satisfy the conditions imposed by the worldwide shortage of computer scientists and the relatively high concentration of top people in a number of U.S. universities.

This proposal has been received with considerable interest by five U.S. Computer Science groups (3 Major universities among them). Likewise, the response of the U.S. Government has been favorable.

This represents a major opportunity for this GMD initiative, first suggested by Prof. Szyperski.

An important aspect of such an institute is the composition of its board of trustees and advisory board. Both should be made up of people who represent the top CS departments in U.S. Universities and provide their German counterparts with an opportunity to work with key U.S. people toward a common objective. While in its start-up phase the institute is necessarily limited to a few areas of CS in a given location, alternative and/or additional arrangements with other universities would be a natural concern of such a board. In fact, board participation on the part of people from universities other than the Institute site, would be based upon their interest in gaining similar support for their institutions.

Together with a stepped-up program for CS German graduate students and Post-doctoral fellows, it should allow the BRD to best take advantage of the capabilities available in the U.S. with a view toward establishing long term collaboration, and with the BRD assuming the role of an equal partner at the earliest time possible.
Vorschlag zur Gründung einer wissenschaftlichen Non-Profit Organisation in den USA auf dem Gebiet der Informationstechnologie zur Vorlage beim Bundesminister für Forschung und Technologie, Dr. Heinz Riesenuhber

ENTWURF

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Inhalt:

1. Ziele
2. Interesse in den USA
3. Finanzielle Voraussetzungen
4. Juristische Aspekte / Organisatorische Struktur
5. Themen für F&E in den USA
6. Randbedingungen
7. Alternativen zu einer Institutsgründung in den USA
8. Verweise

1. Ziele

Das Hauptziel bei der Gründung eines wissenschaftlichen Institutes in den USA besteht darin, die Informatik in Deutschland zu fördern und den Engpass von vorhandenen Spitzenforschern in Deutschland zu umgehen. Dies soll erreicht werden durch

+ die Durchführung von innovativer F&E in den USA
  ++ Einstellung von in den USA ansässigen Spitzenforschern
  ++ Mitnutzung der Arbeiten, die in den USA getan werden
  ++ Anziehung von deutschen Wissenschaftlern, die wegen der besseren Möglichkeiten die BRD verlassen haben und in den USA arbeiten.
  ++ die Möglichkeit vor Ort Dinge zu tun, die in der BRD nicht möglich sind (z.B. wegen der vorhandenen Ausfuhrbeschränkungen bei AI- und VLSI/CAD-Software)

+ die Einbettung von deutscher F&E auf dem Gebiet der Informationstechnologie in eine wettbewerbsstärkere Umgebung
  ++ Chancen eines Forschungsjahres für die besten jungen Informatiker in Deutschland
  ++ Förderung des Rufes deutscher Informatiker
  ++ Verbesserung der Entsendung von Studenten und Gastprofessoren in die USA, z.B. durch die Einrichtung eines Post Doctoral Programms.

Personalausstattung und effektive Zusammenarbeit erfordern eine enge Verbindung mit einer in der Informatik renommierten Universität oder einem solchen Forschungszentrum.
2. Interesse in den USA

Intensive Recherchen, die von Dr. Ronald Kay im Auftrag der GMD durchgeführt wurden (siehe [1]), haben gezeigt, dass ein großes Interesse in den USA an einem solchen Institut besteht. Drei der besten Computer Science Departments der USA (Berkeley, Stanford, UCLA) sind an einer Kooperation interessiert; die Stellungnahme der amerikanischen Regierung ist uneingeschränkt positiv.


Eine Auswahl des Kooperationspartners sollte erst getroffen werden, nachdem die Interessenten Gelegenheit hatten auf den finanziell abgesicherten Vorschlag zu reagieren.

3. Finanzielle Voraussetzungen

Die Finanzplanung soll sich über 5 Jahre erstrecken; dabei wird eine jährliche Ausgabensteigerung um 8% als realistisch angesehen. An Ausgaben würden in den ersten fünf Jahren anfallen (in 1000 $):

Zuwendungsbedarf im ersten Jahr:

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Zu diesen Personalkosten kommen die folgenden Investitionen:

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Zuwendungsbedarf im zweiten Jahr:

Personalkosten (17 Pers., siehe Anhang 1) $2,205 k
Computer-Miete $100 k
Gastforscher (15 MJ * 50 k) $750 k
Board of Trustees (MSRI) $250 k

Summe $3,305 k

Die Gesamtkosten (ohne Gastforscher und Board) pro Annum im 2. Jahr, einschließlich der Investitionen (über 5 Jahre abgeschrieben) sind:

$2,205 + $100 + ($750/5) = $2,456 oder $144 k pro Person,

vergleichbar mit IBM Forschung und Xerox Parc (SRI ist $200k).

Für die Jahre 3 bis 5 wird eine Steigerung der Personalausgaben um 8% zugrunde gelegt. Somit ergeben sich die folgenden Zahlen:

Zuwendungsbedarf im dritten Jahr:

Personalkosten $2,381 k
Computer-Miete $100 k
Gastforscher (15 MJ * 50 k) $750 k
Board of Trustees (MSRI) $250 k

Summe $3,481 k

Zuwendungsbedarf im vierten Jahr:

Personalkosten $2,571 k
Computer-Miete $100 k
Gastforscher (15 MJ * 50 k) $750 k
Board of Trustees (MSRI) $250 k

Summe $3,671 k

Zuwendungsbedarf im fünften Jahr:

Personalkosten $2,777 k
Computer-Miete $100 k
Gastforscher (15 MJ * 50 k) $750 k
Board of Trustees (MSRI) $250 k

Summe $3,877 k

Es sollen 12 wissenschaftliche und 5 administrative Personen als Dauerpersonal eingestellt werden. Eine kleinere Gruppe wurde lt. Untersuchung von R. Kay von den massgebenden Persönlichkeiten in den USA nicht ernst genommen, d.h., die besten Wissenschaftler würden nicht ihre relativ guten Positionen verlassen.

4. Juristische Aspekte/Organisatorische Struktur


Die deutsche Repräsentanz im Institut kann z.B. darin bestehen, dass die GMD oder das BMFT die Position des "chairman" des board of trustees einnimmt und massgeblich im scientific advisory board vertreten ist. Weiterhin wäre die GMD für die Bildung eines Auswahlkomitees verantwortlich, das aus führenden Wissenschaftlern der BRD besteht und Empfehlungen für die Entsendung deutscher Wissenschaftler zum Institut gibt.
5. Themen für F&E in den USA

Ein F&E-Programm würde von der GMD zusammen mit der Institutsführung und den wichtigsten Wissenschaftlern festgelegt sobald letztere ausgewählt sind. Dadurch soll sichergestellt werden, dass möglicherweise vorhandene brillante Ideen nicht vorab ausgeschlossen werden und das Interesse von verfügbaren Fakultätsmitgliedern nicht unnötig eingeschränkt wird. Attraktive Themen für F&E in den USA, die in Zusammenhang mit GMD-Vorhaben stehen, waren:

+ Expertensysteme für den VLSI-Entwurf
  GMD: EIS, Babylon

+ Software für den VLSI-Entwurf; Silicon Compiler
  GMD: EIS

+ Objektorientierte Architekturen (z.B. für wissensbasierte Systeme)
  GMD: Profemo, Babylon

+ Parallele Systeme
  ++ parallele Rechnerarchitekturen
  ++ System-Software für parallele Architekturen
  ++ Programmierung von hochparallelen Systemen
  ++ Entwicklung leistungsfähiger Algorithmen für parallele Systeme
  GMD: Supreum (Muehlenbein, Trottenberg, Giloi)

6. Randbedingungen


C) Sollte die Wahl des Kooperationspartners auf die Universität Berkeley fallen, so koennen die Einrichtung des MSRI von 1981 als Modell herangezogen und wertvolle Erfahrungen transferiert werden; z.B. hat damals der "Vice Chancellor for Legal Affairs" die Inkorporation durchgeführt.

Anhang 1:

Personalplan fuer die Jahre 1986 und 1987


Abkuerzungen:

G & A = General and Administrative
PT = Part Time
MGR = Manager
RSM = Research Staff Member
SR = Senior
SUP = Support

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Gesamtsomme der Personalkosten fuer 1986 1611
7. Alternativen zu einer Institutsgründung in den USA


Verweise:

[4] Ron Kay: Memo - Request by Dr. Thomas (BMFT) for a review of alternatives for German participation in Computer Science Research in the US, 11. März 1985
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<th>Department</th>
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Gesamtsumme der Personalkosten fuer 1987: 2205

Der Deputy Director ist fuer 1987 nur als halbe Stelle vorgesehen, waehrend der Startphase von ICSI dafuer eine volle Stelle notwendig erscheint.
I, MARCH FONG EU, Secretary of State of the State of California, hereby certify:

That the annexed transcript has been compared with the record on file in this office, of which it purports to be a copy, and that same is full, true and correct.

IN WITNESS WHEREOF, I execute this certificate and affix the Great Seal of the State of California this

JUL 09 1986

March Fong
ARTICLES OF INCORPORATION
OF
INTERNATIONAL COMPUTER SCIENCE INSTITUTE

JUN 26 1986

I

The name of the corporation is International Computer Science Institute.

II

A. This corporation is a nonprofit public benefit corporation and is not organized for the private gain of any person. It is organized under the Nonprofit Public Benefit Corporation Law for charitable purposes.

B. The specific purpose of this corporation is to conduct research in the field of fundamental computer science and to promote international cooperation in the pursuit of such research among computer scientists in the United States and abroad.

III

The name in the State of California of this Corporation's initial agent for service of process is:

C T Corporation System

IV

A. This corporation is organized and operated exclusively for educational and scientific purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code.

B. Notwithstanding any other provision of these articles, the corporation shall not carry on any other activities not permitted to be carried on (a) by a corporation exempt from federal income tax under Section 501(c)(3) of the Internal Revenue Code or (b) by a corporation contributions to which are deductible under Section 170(c)(2) of the Internal Revenue Code.

C. No substantial part of the activities of this corporation shall consist of carrying on propaganda, or
otherwise attempting to influence legislation, and the corporation shall not participate or intervene in any political campaign (including the publishing or distribution of statements) on behalf of any candidate for public office.

V

The property of this corporation is irrevocably dedicated to educational and scientific purposes and no part of the net income or assets of this corporation shall ever inure to the benefit of any director, officer or member thereof or to the benefit of any private person. Upon the dissolution or winding up of the corporation, its assets remaining after payment, or provision for payment, of all debts and liabilities of this corporation shall be distributed to a nonprofit fund, foundation or corporation which is organized and operated exclusively for educational and scientific purposes and which has established its tax exempt status under Section 501(c)(3) of the Internal Revenue Code.

DATED: June 20, 1986

[Signature]
Philip J. Wilson

I hereby declare that I am the person who executed the foregoing Articles of Incorporation, which execution is my act and deed.

[Signature]
Philip V. Wilson
BYLAWS

OF

INTERNATIONAL COMPUTER SCIENCE INSTITUTE
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BYLAWS OF
INTERNATIONAL COMPUTER SCIENCE INSTITUTE

ARTICLE I
OFFICES

Section 1.01. Principal Offices. The principal office for the transaction of the business of this corporation shall be in Berkeley, County of Alameda, California.

Section 1.02 Other Offices. Branch or subordinate offices may be established at any time by the Board of Trustees at any place or places.

ARTICLE II
MEMBERSHIP

Section 2.01 No Members. This corporation shall have no members. Any action for which there is no specific provision of Division 2 Part 2 of the California Corporations Code applicable to a corporation which has no members and which would otherwise require approval by a majority of all members or approval by the members shall require only approval of the Board of Trustees.

ARTICLE III
TRUSTEES

Section 3.01 Use of Terms "Board" and "Trustees". As used herein in relation to any power or duty requiring collective action, the terms "Board" and "Trustees" mean "Board of Trustees".

Section 3.02. General Powers of the Board of Trustees. Subject to any limitations provided by law, all corporate powers shall be exercised by or under the authority of, and the business, property and affairs of this corporation shall be controlled by the Board of Trustees.

Without limiting the foregoing, the Board shall have the following powers and duties:

(a) to accept or refuse, with absolute discretion, any gift offered to the corporation;

(b) to invest and manage, directly or through agents or advisors, the funds and other assets.

1.
(c) to select and remove, or employ and discharge, all officers, agents and employees of the corporation and to fix their compensation, if any;

(d) to prescribe such powers and duties for such officers, agents and employees as are not inconsistent with the Articles of Incorporation, these Bylaws or applicable law, and to supervise all such persons to ensure that their duties are properly performed;

(e) to conduct, manage and control the business and affairs of the corporation, and to make such rules and regulations for that purpose as are not inconsistent with the Articles of Incorporation, these Bylaws or applicable law;

(f) to seek and accept grants, to borrow money and incur indebtedness for the purposes of the corporation, and to that end to cause to be executed and delivered in the corporate name promissory notes, deeds of trust, mortgages, bonds, debentures, hypothecations, pledges or other evidence of indebtedness; and

(g) to adopt, make and use a corporate seal and to alter the form of such seal from time to time as they may deem best.

The Trustees are to be vested with the broadest discretion permissible under the law and the corporation's Articles of Incorporation in connection with the investment, reinvestment and management of the funds and other assets of the corporation. Except as otherwise provided by law, no Trustee shall be responsible for any error in judgment or for anything that such Trustee may do or refrain from doing in good faith in connection with investment, reinvestment and management of the funds and assets of the corporation.

Section 3.03 Number of Trustees. The corporation shall have fifteen (15) Trustees and collectively they shall be known as the Board of Trustees. The number may be changed by amendment of this Bylaw, or by the repeal of this Bylaw and adoption of a new Bylaw.

Section 3.04 Election and Term of Office. Trustees shall be elected to the Board by the members of the founding Board and their elected successors. The founding Board shall be comprised of the following individuals: Professor J. Cerny, Chancellor's Office, University of California, Berkeley, ex officio; Professor D. Ferrari, Chairman of the Computer Science
Division, University of California, Berkeley, ex officio; Professor G. Goos, Vorstand, The Gesellschaft fuer Mathematik und Datenverarbeitung, Federal Republic of Germany; Professor R. Karp, Computer Science Division, University of California, Berkeley; Mr. R. Kay, Acting Director, International Computer Science Institute; Professor E. Kuh, Electrical Engineering and Computer Science Department, University of California, Berkeley; Professor M. Rabin, Harvard University and Jerusalem University; Professor N. Szyperski, Aufsichtsrat, The Gesellschaft fuer Mathematik und Datenverarbeitung, Federal Republic of Germany.

Except for the special terms of Trustees that commence upon enactment of these Bylaws and the terms of the ex officio members of the Board, the term of office of each Trustee shall be for three (3) years and until his or her successor is elected. Successors for Trustees whose terms of office are then expiring shall be elected at the annual meeting of the members in the year such terms expire. A Trustee may succeed himself or herself in office.

In order to achieve an orderly succession of staggered terms, the Secretary will divide the twelve (12) elected Trustees by lot into three (3) groups of four (4) members each. Each member of the first group shall have a special term ending December 31, 1987. Each member of the second group shall have a special term ending December 31, 1988 and each member of the third group shall have a special term ending December 31, 1989.

The Director and the Deputy Director shall serve as ex officio members of the Board.

Section 3.05. Resignations and Vacancies. Except as otherwise provided by law, any Trustee of the corporation may resign at any time by giving written notice to the President or Board of Trustees. Such resignation shall take effect at the time specified therein, and, unless otherwise specified therein, the acceptance of such resignation shall not be necessary to make it effective.

A vacancy or vacancies in the Board shall be deemed to exist in the event of the death, resignation or removal of any Trustee, or the failure or inability of any person designated to be a Trustee to accept. Vacancies on the Board of Trustees shall be filled by a majority of the remaining Trustees then in office even though less than a quorum or by the sole remaining Trustee. Each Trustee so designated shall hold office until the end of the term of the replaced Trustee and until a successor has been designated and elected.
Section 3.06. Annual Meetings. The Trustees shall meet annually at the principal office of the corporation, the date and time of such annual meetings to be determined upon resolution by the Board.

Section 3.07 Regular Meetings. Regular meetings of the Board of Trustees shall be held without call or notice on such dates as at such times as may be fixed by the Board.

Section 3.08. Special Meetings, Notice, Waiver. A special meeting of the Board of Trustees shall be held whenever called by the President, or by any two (2) Trustees. Notice of such meeting shall be given to each Trustee by the Secretary at least twenty (20) days prior to the date of the meeting if sent by first-class mail or seven (7) days prior to the date of the meeting if delivered personally or by telephone, telegraph, telex or other similar means of communication, charges prepaid. Notice of any meeting need not be given to any Trustee if waived by such Trustee in writing or by telephone, telegraph, telex or other similar means of communication.

The transactions of any meeting of the Board of Trustees, however called and noticed, and wherever held, shall be as valid as though had at a meeting duly held after regular call and notice, if a quorum is present and if, either before or after the meeting, each of the Trustees not present signs a written waiver of notice or a consent to holding such meeting or an approval of the minutes thereof. All waivers, consents or approvals shall be filed with the corporate records and made a part of the minutes of the meeting.

Section 3.09. Place of Trustees' Meetings. Meetings of the Trustees shall be held at such place as may be designated from time to time by the Board of Trustees.

Section 3.10. Quorum and Manner of Action. Except as otherwise expressly provided by these Bylaws, at all meetings of the Board of Trustees, three-fifths (3/5) of the Trustees in office at the time, present in person at such meeting or participating pursuant to Section 3.11, shall be sufficient to constitute a quorum. Unless a greater number is expressly required by statute or by these Bylaws, every act or decision done or made by a majority of the Trustees present at a meeting duly held, at which a quorum is present and acting, shall be regarded as the act of the Board of Trustees.

Section 3.11 Participation by Conference Telephone. Trustees may participate in meetings of the Board of Trustees through use of conference telephone or similar
communications equipment, so long as all persons participating in such meeting can hear one another.

Section 3.12. Conduct of Meetings. Meetings of the Board of Trustees shall be governed by Roberts Rules of Order, as such rules may be revised from time to time, insofar as such rules are not inconsistent or in conflict with these Bylaws, with the Articles, or with applicable law.

Section 3.13. Action Without Meeting. Any action required or permitted to be taken by the Board of Trustees under any provision of these Bylaws may be taken without a meeting if all Trustees individually or collectively consent in writing to such action. Such written consent or consents shall be filed with the minutes of the proceedings of the Board. Such action by written consent shall have the same force and effect as a unanimous vote of the Trustees.

Section 3.14. Committees. The Board of Trustees may, by resolution adopted by a majority of the number of Trustees then in office, and provided that a quorum is present, appoint one or more committees, each consisting of two or more Trustees, and delegate to any such committee any of the powers and affairs of the corporation, except with respect to (i) filling a vacancy on the Board or in any committee having the authority of the Board; (ii) fixing the compensation of any Trustee; (iii) amending, repealing or adopting any Bylaw; (iv) amending or repealing any resolution of the Board which by its express terms is not so amendable or repealable; (v) appointing committees of the Board or the members thereof; and (vi) approving any self-dealing transaction.

Section 3.15. Fees and Compensation. Directors shall not receive any stated salary for their services as directors, but by resolution of the Board of Directors, a fixed fee may be allowed for attendance at each meeting. Directors may be reimbursed in such amounts as may be determined from time to time by the Board of Directors for expenses paid while acting on behalf of the corporation and/or expenses incurred in attending meetings of the Board of Directors. Nothing herein contained shall be construed to preclude any director from serving the corporation in any other capacity as an officer agent, employee, or otherwise, and receiving compensation therefore.
ARTICLE IV
OFFICERS

Section 4.01. Number and Qualifications. The officers of the corporation shall be a President, a Vice President, a Treasurer, a Secretary and such other officers as the Board of Trustees may appoint. The President may sometimes be referred to as the Director and the Vice President may sometimes be referred to as the Deputy Director. One person may hold more than one office at the same time, except that neither the Secretary nor the Treasurer may serve concurrently as the President.

Section 4.02. Election, Term of Office. Each officer shall be elected by the Trustees and shall hold office for a one (1) year term and until such officers's successor shall have been elected and qualified, or until death, resignation or removal by vote of a majority of the Board of Trustees. Vacancies shall be filled by the Board of Trustees.

Section 4.03. President. Subject to the control of the Board of Trustees, the President shall be the general manager and chief executive officer of the corporation and shall have general supervision, direction and control of the business and affairs of the corporation. The President shall, if present, preside at all meetings of the Board of Trustees and shall have such other powers and shall perform such other duties as may from time to time be assigned by the Board of Trustees.

Section 4.04. Vice President. In the absence or disability of the President, the Vice President shall perform all the duties of the President and in so acting shall have such other powers and perform such other duties as may be prescribed from time to time by the Board of Trustees.

Section 4.05. Secretary. The Secretary shall:
(a) Certify and keep at the office of the corporation, or at such other place as the Board of Trustees may order, the original or a copy of the Bylaws, as amended;

(b) Certify and keep at the office of the corporation, or at such other place as the Board of Trustees may order, a book of minutes of all meetings of the Trustees, recording therein the time and place of holding, whether regular or special and, if special how authorized, notice thereof given, the names of those present at Trustees' meetings and the proceedings thereof;

(c) See that all notices are duly given in accordance with the provisions of these Bylaws or as required by law;
(d) Be custodian of the records and seal of the corporation;

(e) Upon application, exhibit at all reasonable times to any Trustee the bylaws and the minutes of all meetings of the Trustees of the corporation; and

(f) Generally perform all duties incident to the office of Secretary and such other duties as may from time to time be assigned by the Board of Trustees or the other officers of the corporation.

Section 4.06. Treasurer. The Treasurer shall be the chief financial officer of the corporation and shall receive and have charge of all funds of the corporation, and shall deposit all such funds in the name of the corporation in such banks, trust companies or other depositaries as the Board of Trustees may prescribe; shall receive and give receipt for monies due and payable to the corporation from any source whatever; shall disburse or cause to be disbursed the funds of the corporation as the Board of Trustees may prescribe; shall keep and maintain adequate accounts of the corporation's properties and business transactions including accounts of the assets, liabilities, receipts, disbursements, gains and losses; shall render reports and accountings to the Board of Trustees; and generally shall perform all duties incident to the office of the Treasurer and such other duties as may from time to time be assigned by the Board of Trustees or the other officers of the corporation.

Except as otherwise provided by law, checks, drafts, promissory notes, orders for payment of money, and other evidence of indebtedness by the corporation, shall be signed by the Treasurer. The Board, upon recommendation of the Treasurer, however, may extend signature authority to other officers or employees of the corporation for selected types of checks, drafts, promissory notes, orders for payment of money and other evidence of indebtedness involving a dollar amount not exceeding an amount to be determined by the Board. In addition, the Board may require that other selected types of checks, drafts, promissory notes, orders for payment of money, and other evidence of indebtedness by the corporation be signed by the Treasurer and countersigned by the President or Vice President of the corporation.

ARTICLE V
DISSOLUTION

Section 5.01. Dissolution. The corporation shall not be voluntarily dissolved except by approval by the Board of Trustees. In the event of dissolution of the corporation in any
manner and for any cause, after the payment or adequate provision for the payment of all of its debts and liabilities, all of the remaining funds, assets and properties, or proceeds of sale thereof, of the corporation shall be donated and paid as provided in the Articles of Incorporation of the corporation.

ARTICLE VI
GENERAL

Section 6.01. Annual Report. The Board of Trustees shall cause an annual report to be sent to each Trustee not later than one hundred twenty (120) days after the close of the corporation's fiscal year. Such report shall contain the information required by law.

Section 6.02. Fiscal Year. The fiscal year of the corporation shall end on December 31 of each year.

Section 6.03. Voting Shares Held by Corporation. The officers of this corporation or such other persons as the Board of Trustees may designate, are authorized to vote, represent and exercise on behalf of this corporation all rights incident to any and all voting securities of any other corporation or corporations standing in the name of this corporation. The authority granted hereby may be exercised either by the officers in person or by any person authorized to do so by proxy or power of attorney duly executed by the officers.

Section 6.04. Construction. As used in these Bylaws, the present tense includes the past and the future tenses, and the future tense includes the present; the singular number includes the plural and the plural includes the singular; and the word "shall" is mandatory and the word "may" is permissive. The captions are for convenience only and shall not define or limit any of the terms or provisions of these Bylaws.

Section 6.05. Amendment of Bylaws. These Bylaws may be amended or repealed and new Bylaws adopted by the vote of a majority of the members of the Board of Trustees.

Section 6.06. Effective Date. These Bylaws shall become effective immediately upon their adoption. Amendments to these Bylaws shall become effective immediately upon their adoption unless the Trustees, in adopting them as provided in Section 6.05, shall specify that they are to become effective at a later date.

Section 6.07. Reciprocal Access to Research. Without limiting the absolute discretion of the Board of
Trustees to accept or refuse access to and participation in the research activities of the corporation by any person, such access and participation shall generally be limited to members of research organizations which extend reciprocal access and participation in their research activities to the corporation.

Section 6.08. No Restrictions on Funding. Without limiting the scope of the general purpose of this corporation as set forth in its Articles of Incorporation, the specific purpose of this corporation is to conduct research in the field of fundamental computer science and to promote international cooperation in the pursuit of such research among computer scientists in the United States and abroad. In light of this purpose, and consistent with the stated policy of the University of California, Berkeley, the corporation shall neither solicit nor accept any gifts, grants or contract funds for research projects for which University of California, or corporation research facilities are used if such funding is in any way conditioned upon placing restrictions on the use of, or access to, the results of the research projects so funded.
Dear Mr. Kay,

the GMD has planned the following funding for the "International Computer Science Institute" (ICSI) to be established in Berkeley for a period starting October 1, 1986, and ending December 31, 1991:

For 1986: US-$ 182 K

For the years 1989 through 1991, the 1988 funding is to be increased by 6 percent per annum.

The funding is expected to provide startup costs in 1986/87 and support, in 1987 and beyond, for a permanent scientific staff of 12, for an administrative staff of 5 and for 15 visiting scientists.

Dollar amounts are based on an exchange rate of 2.50 DM/US-$. The GMD has asked the BMFT for total funding of the startup costs. Ongoing funding will be shared 50/50 between the BMFT and German industry sources. Prof. Szymanski has taken responsibility for establishing an Industrial Associates Program in Germany, which will provide the industrial part of this funding.

The GMD will establish a foundation in the U.S.A., through which all funds will be disbursed to the ICSI.

The startup should make it possible for the management of the ICSI to provide us with a projects' based budget plan to serve as the basis for the ongoing commitment by the BMFT. This informal commitment is intended to allow you to proceed with the recruitment of a director. We will follow-up with the startup funding and a letter of intent from the BMFT for the remaining commitment.

Best regards

[Signature]
Dietmar Poetter
MINUTES OF THE FIRST MEETING
OF THE BOARD OF DIRECTORS OF
INTERNATIONAL COMPUTER SCIENCE INSTITUTE,
A CALIFORNIA NON-PROFIT CORPORATION

The board of trustees of INTERNATIONAL COMPUTER SCIENCE INSTITUTE, a California non-profit corporation (the "Institute"), held its first meeting on November 24, 1986, at the Faculty Club, University of California, Berkeley, California.

Present were:

Professor J. Cerny
Professor D. Ferrari
Professor G. Goos
Professor R. Karp
Mr. R. Kay
Professor E. Kuh
Professor M. Rabin
Professor N. Szyperski

being all of the trustees and a quorum. Also present were Mr. Karl Glaesser of the GMD, Philip J. Wilson, Esq. of Graham & James, counsel to the Institute, Ms. Jean Richter, secretary to Professor Ferrari, and Mr. F. Winkelhage of the GMD.

On motion duly made and seconded, and by unanimous vote, Kay was elected Chairman and Ferrari was elected Secretary of the meeting.

REPORT ON INSTITUTE FUNDING

Szyperski announced that he is no longer an active member of the GMD, but is still on its supervisory board. He then made a report concerning the status of ICSI funding. The three major funding objectives are:

1) To get the GMD formally involved with ICSI,

2) To obtain a longterm commitment from the German Ministry of Research and Technology, and

3) To obtain a longterm commitment from industry.

Winkelhage reported on the contents of a letter of intent received from the Ministry of Research and Technology
the week before the board meeting: 36 million DeutschMarks are pledged for the next 5 years, 50% of which (18 million DM) will be provided by the government if the remainder can be obtained from industry. Additionally, a start-up fund of 6 million DM has been appropriated for 1986 through 1988. 4.5 million DM are allocated for 1986-87, and will be taken from the 18 million DM the government is providing. The additional 1.5 million DM is allocated for 1988 and will come from the GMD.

The current plan is to initiate talks with industry regarding funding immediately, and to present the government with the results by April 1, 1987. Szyperski will approach industrial executives through banking officials, who often sit on the governing boards of the industries we would be interested in.

Kay asked what will happen if support from industry is not immediately forthcoming; will the government still release the committed funds if less than 18 million DM is raised? Szyperski replied that, although this is not specifically stated in the letter of intent, the government officials would still release the funds even if less than that amount had been raised from industry. He further stated that ICSI has bipartisan support within the government, so that a change in government would have no effect on ICSI funding.

Szyperski mentioned that all funds for ICSI from both government and industry will be channeled through the GMD. Kay mentioned that ICSI will have both a bank account and a University account for intra-university charges.

Szyperski reported that industry is particularly interested in the possibility of sending researchers to ICSI. Kuh mentioned that the ICSI should be able to maintain control over who visits. Kay proposed that visitors be funded by ICSI, in order to maintain control.

Goos reported on the effort to involve German universities in ICSI. What is needed is to create a movement among the universities to recognize the value of an international computer science research institute. He has already begun to approach universities in this regard. The primary university visitors would probably be postdoctoral researchers rather than professors.

INCORPORATION OF THE CORPORATION

The Chairman stated that the Articles of Incorporation of the Institute had been filed in the office of the Secretary of State of California on June 26, 1986. He presented
to the meeting a certified copy of said Articles of Incorporation showing the filing as stated and instructed the Secretary to cause a certified copy of said Articles to be inserted in the minute book of the Institute.

STATEMENT OF ORGANIZATION

Rabin asked whether a preamble stating the purposes of ICSI could be included in the Bylaws, and asked that the word "open" be used in the statement of purpose to make clear that there will be no restrictions on the dissemination of research results.

The Secretary presented the Statement of Organization by Philip J. Wilson, as sole incorporator of the Institute, dated November 24, 1986, together with a copy of the Bylaws the incorporator had adopted. Upon motion duly made and seconded, it was unanimously:

RESOLVED, that the Statement of Organization by the incorporator of the Institute dated November 24, 1986, which has been presented to this meeting, be and it hereby is in all respects approved and that all action of every nature thereby shown to have been taken be and the same hereby is in all respects approved, ratified and confirmed.

FURTHER RESOLVED, that the first sentence of Section 3.04 of the Bylaws be and it is hereby amended by the insertion of the phrase "ex officio" after the phrase "Professor J. Cerny, Chancellor's Office, University of California at Berkeley" and that the Bylaws, as so amended, be and they are hereby adopted as and for the Bylaws of the Institute.

FURTHER RESOLVED, that counsel to the Institute be instructed to prepare such further amendments to Articles II and VI of the Bylaws as are appropriate and to present such further amendments at the next meeting of the board of trustees.

Kay mentioned that liability insurance possibilities for ICSI trustees are being worked on.

Karp moved to pursue this issue in a timely manner, Rabin seconded, and asked that the board be kept informed of its status. All approved.

Kuh asked if the board members can be indemnified.
Wilson answered that they can be, within reasonable limits. Kuh mentioned that, if ICSI can't get insurance, perhaps it could incorporate in another state.

Kay mentioned that the board, since it has at the moment an even number of voting members, may wish to elect a chairman to break ties. The board unanimously rejected this idea. A motion will therefore fail if the vote is a tie.

ADOPTION OF FISCAL YEAR

The Chairman stated that it would be in order for the Institute to adopt a fiscal year. Upon motion duly made and seconded, it was unanimously:

RESOLVED, that the fiscal year of the Institute shall start on January 1 in each year and shall end on December 31.

FILING OF THE STATEMENT BY DOMESTIC NON-PROFIT CORPORATION

The Secretary was instructed to prepare and file with the Secretary of State of the State of California the "Statement by Domestic Non-Profit Corporation," in compliance with the California Corporations Code.

RECRUITMENT REPORT AND ELECTION OF OFFICERS

Kay reported on progress toward recruiting a permanent Director for the Institute. An advertisement was placed in the Communications of the ACM. 14 responses were received for the position of Director, and 3 for the position of Deputy Director. The preferred candidate is Professor Jerome Feldman of the University of Rochester. Professor Feldman will visit Germany, Washington, and Berkeley in December or January. He wishes to determine the commitment of the University of California and of the GMD to ICSI, and the acceptability of such an institute to the US government. He will respond officially to our offer of the Directorship by the end of January 1987. Kay has offered Feldman a consulting contract to pay for his efforts on ICSI's behalf, to be extended beyond his appointment date until he will be able to be in Berkeley full time.

A motion was duly made, seconded and unanimously approved to nominate Feldman as the official candidate for the Institute's Directorship.

Kay suggested that an Acting Director be elected to serve until such time as a permanent Director is found. The
meeting then proceeded to elect the corporate officers. Upon motion duly made and seconded, the following persons were duly elected to the offices set forth opposite their respective names:

<table>
<thead>
<tr>
<th>Name</th>
<th>Office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ronald Kay</td>
<td>Acting Director</td>
</tr>
<tr>
<td>Prof. Domenico Ferrari</td>
<td>Acting Chief Financial Officer (Treasurer)</td>
</tr>
<tr>
<td>Prof. Domenico Ferrari</td>
<td>Acting Secretary</td>
</tr>
</tbody>
</table>

The duties and terms of office of the officers are set out in the Bylaws of the Institute.

GROWTH AND ULTIMATE SIZE OF ICSI

Kay presented several handouts detailing personnel, space requirements, and building and operation costs for several research institutions that would be similar to ICSI. He mentioned that the cost figures were probably low. Rabin stated that a nucleus of permanent technical staff should work at the institute to provide continuity for the institute's projects. Kay stated that the minimum personnel figure in the original ICSI budget was 30 staff members. The size of individual projects and the total number of projects in progress at any given time were discussed.

Ferrari stated that, in his opinion, a maximum of 3 or 4 Computer Science Division professors would be working at ICSI, with perhaps 12 to 15 graduate students, at any given time.

After considerable discussion, a figure of 100 people was agreed upon as the ultimate size of the institute after 5 years. It was emphasized that the personnel growth should be slow, to ensure the high quality of the staff involved. Rough percentages of various types of staff would be:

- 5% UC Berkeley Computer Science Division faculty,
- 15% graduate students,
- 30% postdoctoral visiting researchers,
- 15% permanent technical support personnel,
- 15% permanent research staff,
- 10% clerical/administrative staff, and
- 10% sabbatical visitors.

The board thus recommended an ultimate personnel size figure of 100 people for the purpose of defining the requirements for permanent space. A site allowing for the
possibility of expansion to accommodate 150 people was considered desirable.

ESTABLISHMENT OF PRINCIPAL EXECUTIVE OFFICE
AND AUTHORIZATION OF LEASE

The Chairman stated that it would be in order for the Institute to establish a principal executive office and that, in order to do so, it would be appropriate to authorize the Acting Director to identify such office space and negotiate an appropriate lease agreement therefor on behalf of the Institute. On motion duly made, seconded and unanimously approved, the following resolution was adopted:

RESOLVED, that the Acting Director of the Institute be, and he hereby is, directed and authorized on behalf of the Institute to identify office space for the principal executive office of the Institute and negotiate an appropriate lease agreement for the Institute's principal executive office.

The Chairman stated that the plan for short-term office space is to lease off-campus space, and then persuade Computer Science Division personnel to move into this space, thus freeing space within Evans Hall for ICSI use. Ferrari pointed out the difficulties of implementing this plan, but said that an attempt will be made to identify programs or groups in the Division that could move out of Evans Hall.

OPENING OF BANK ACCOUNT

The Chairman next stated that it would be necessary for the Institute to open an account or accounts with one or more banks. Upon motion duly made, seconded, and unanimously approved, the following resolution was adopted:

RESOLVED, that the Acting Director be and he is hereby authorized and directed on behalf of the Institute to identify a suitable banking institution and make appropriate arrangements for the opening one or more bank accounts; and that the Acting Director be and he is hereby further authorized and directed on behalf of the Institute to execute any and all standard bank resolutions or other documents deemed necessary and appropriate to accomplish the purpose of this resolution.
APPOINTMENT OF ACCOUNTANTS

The Chairman then informed the board that it is necessary and proper that accountants be appointed to advise and serve the management of the Institute in connection with various matters. On motion duly made and seconded, it was unanimously:

RESOLVED, that the Acting Director be and he is hereby authorized and directed on behalf of the Institute to negotiate with and retain an accounting firm as accountants for the Institute, to serve until successors are appointed by resolution of the board of trustees.

POLICY ON FUTURE FUNDRAISING

There was discussion on the possibility of fundraising from other governments or companies outside of Germany and the US. Italy, France, Holland, England and Switzerland were all mentioned as possible additional sources of funding. Fundraising will probably take the form of contacting government agencies with functions similar to the GMD, and a minimum level of support (e.g., a significant fraction of the German support) will be required for participation. Szyperski emphasized that any negotiation with other countries should not begin until the negotiations with the German government are completely settled. Kay stated that the board will be informed before negotiations with any other country are initiated.

SCHEDULING OF NEXT MEETING

Kay proposed that a formal dedication of ICSI be held in Spring 1987 at Berkeley, and that the next board meeting coincide with this event. The preferred date was set as May 18, 1987 (with the celebration following on May 19), an alternate date being June 8 (with the celebration following on June 9).

There being no further business to come before the meeting, upon motion duly made, seconded and unanimously carried, the meeting was adjourned.

Respectfully submitted,

Professor Domenico Ferrari
Acting Secretary
International Computer Science Institute
OFFICE LEASE

LANDLORD: 1947 Center Street Associates

TENANT: International Computer Science Institute
THIS LEASE is made this 12th day of October, 1987, by and between 1947 Center Street Associates, "Landlord", and International Computer Science Institute, "Tenant", in accordance with the following terms and conditions:

1. SALIENT LEASE TERMS.

1.1 Property: 1947 Center Street, Berkeley, CA 94705 (Section 3).

1.2 Premises: approximately 14,086 square feet. Building Address: 1947 Center Street Berkeley, CA 94705 Suite Number(s): 600 on the 6th floor(s) of said building. (Section 3).

1.3 Lease Term: 60 months. Commencement of term: January 1, 1988 (Section 5).

1.4 Minimum Monthly Rent: $18,558.31 for year 1, (January 1, 1988 December 31, 1988) **Continued in Lease Continuation (Section 7.1).

C.P.I. increase in minimum rent annually commencing July 1, 1990 over C.P.I. for Jan 1, 1988 to be calculated upon the average minimum monthly rent over the five year term of $21,833.30. (Section 7.2).

1.5 Rent is payable to 1947 Center Street Associates, c/o Gerson Bakar & Associates 201 Filbert Street, Suite 700, San Francisco, CA 94133. (Section 7.4).

1.6 Broker(s) commissions payable to Norheim and Yost and CPS (Section 47).

1.7 Direct Operating Expenses: 100% over $6,000 per square foot. (Section 8).

1.8 Security Deposit: $25,000.00 due when Lease is executed. (Section 28).


1.10 Special Provisions:
The following terms of the Lease form have been modified:
1.4, 4, 6.1, 7.2, 8, 8.1, 10.2, 11, 12.1, 12.2, 12.3, 13, 15, 19, 20, 21, 27.1, 29.2, 46.

48. Option to Extend Original Lease Term
49. Tenant Improvements
50. Utility Services
51. Partial Subletting
52. Compliance with Laws
53. Receptionist
54. Parking
55. Noise Proofing
56. Reliance on lease provisions

1.11 Contents of Lease: Pages 1 through 16: Sections 1.1 through 56. Exhibits: A-Site Plan; B-Floor Plan; C-Work Letter; D-Rules and Regulations; Addendum Nos. 9.

* Rent shall commence the latter of January 15 or 90 days after completion of asbestos removal in the Premises in accordance with Section 52.

**Continuation of Minimum Monthly Rent:
January 1, 1988 through December 31, 1988 = $18,558.31
January 1, 1989 through December 31, 1989 = $19,649.97
January 1, 1990 through December 31, 1990 = $21,833.30
January 1, 1991 through December 31, 1991 = $24,016.63

1988
Professor Dr. Jerome A. Feldman

Dear Professor Feldman,

First of all, congratulations and thanks for the excellent presentation you gave us at GMD on February 26, 1988 concerning the design and plans for ICSI.

The firms of
- Bertelsmann
- Daimler Benz AG
- Krupp AG
- Manessemann AG
- MBB
- Siemens AG

confirmed their readiness to set up a Förderverein. This means that, when adding the GMD and Herr Hüsser of the German Patent Office, there is a sufficient number of partners who intend to found the Förderverein, so that I am rather sure it will be established.

The contribution of funds to support work at the ICSI is subject, however, to approval by the firms' boards of directors. Since all parties concerned are aware of your time constraints, the firms have agreed that they will give their binding commitment to contribute funds within the short interval of two weeks at the latest. Only the firm of Bertelsmann, for internal organizational reasons, will not be able to respond within such a short time span.

I very much trust that we shall have a viable basis when the deadline ends in a fortnight.

In view of this situation I wish to modify the offer to promote the envisaged Förderverein. If the amounts contributed by the firms do not at first come up to initial expectations, I am ready to increase promotion of the Förderverein from 50% to a maximum of 75% during the first two years. The ratio between industrial funds and public funds would be 1:3 instead of the previous 1:1 during the first two years. The upper limit of BMFT funds of DM 3 million per annum would, however, be retained. In this way the launching of ICSI will I think be much easier.

In view of the threefold result, namely
- confirmation of the intention to set up a Förderverein
- fixing of a final date for the definite assurance by firms to contribute funds
- easing the burden of industry during the first two years through higher contributions by BMFT

I trust that ICSI will be able to take up its work according to schedule.

In connection with the promise to provide funds in support of the Förderverein, a period of five years has so far been mentioned. I do not think, however, that BMFT commitment will be limited to this period. Budgetary regulations, it is true, only permit the promotion of projects of limited duration, but subsequent awards of funds are possible. The model discussed during your visit to Bonn is, I think, one possible approach. It would involve peer review of ICSI's work every two years and drawing up a plan for the following four years. This would make a long-term commitment compatible with budgetary requirements here.

Sincerely yours,

F.R. Gintsch
March 25, 1988

The International Computer Science Institute, an independent research facility in Berkeley, has named Jerome A. Feldman as its new director. Feldman has also been newly appointed a professor in electrical engineering and computer science at the University of California at Berkeley.

The Institute, developed to provide an international facility for fundamental computer science research, received initial support with matching funds from a consortium of German industry and the German Ministry for Research and Technology. It is expected to attract U.S. and foreign funding in the future.

Established in 1986, the Institute has just moved to a newly designed 14,000 square foot research facility, just off the UC campus in downtown Berkeley. Both changes are part of a significant expansion of the Institute's program of advanced research in parallel computation.

Prof. Feldman comes to Berkeley from the University of Rochester, where he served as its Computer Science chairman for a number of years. Prior to that he was at Stanford University, where he was Associate Director of the Artificial Intelligence Laboratory and Associate Professor of Computer Science. He
received his Ph.D. in 1964 from Carnegie-Mellon University. In recent years he has been best known for his pioneering work in Connectionist Models for massive parallelism.

The establishment of the ICSI in 1986 was a joint effort between the faculty of the Computer Science Division of the Department of Electrical Engineering and Computer Science at UC Berkeley and the German National Research Center for Computer Science (GMD). The initial funding provides support for a staff of 30 for at least five years.

The GMD initiative was motivated by a recognition of the lack of an international facility for fundamental research in the field of computer science. The GMD and the supporting industrial consortium expect the participation of foreign scientists to do for fundamental computer science what such international collaboration has done for the field of physics. They also expect to benefit from the experience that young scientists from Germany and other countries will gain from participation in the work of the Institute and ultimately enhance international recognition of the work which goes on in their own countries. The selection of Berkeley for the Institute was based on the outstanding reputation of the UCB Computer Science Faculty and on their enthusiasm for the project.

According to Prof. Feldman, the ICSI represents a unique opportunity for international cooperation in basic computer science research. "The pressures for immediate application are severe in most countries and pre-competitive fundamental research can suffer. The ICSI will focus on basic questions in
the theory, realization, and applications to science of massively parallel computation. These are problems of considerable international interest and can benefit from the more focussed effort of an institute, complementing individual research projects. Berkeley provides an ideal setting because of the strengths and interests of the UC faculty and the cosmopolitan character of the city."

The establishment of the ICSI has had the support of a distinguished Board of Trustees, including Provost J. Cerny representing the Office of the Chancellor of UC Berkeley, Professor R. Fateman, Chairman of the CS Division of EECS representing the CS faculty, Professor D. Ferrari, Past Chairman of the CS Division, Professor E. Kuh, EECS, Professor R. Karp, EECS, Professor M. Rabin of Harvard and Jerusalem, Professor N. Szyperski, Chairman of the Supervisory Board, GMD, Professor G. Goos, Member of the Board of the GMD and Ronald Kay who has also served as Acting Director of ICSI since its inception.

CONTACTS:

Jerome Feldman    phone # (415) 643-9153
ICSI               phone # (415) 643-9153
Prof. Fateman     phone # (415) 642-1879
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