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R. File Research Corp. S.I.C. N.

99th CONGRESS
2d Session S. _____

IN THE SENATE OF THE UNITED STATES

Mr. Gorton introduced the following bill; which was read twice and referred to the Committee on _____

A BILL

To amend the Internal Revenue Code of 1954 to provide tax-exempt status for organizations which assist in introducing into public use technology developed by operating research organizations.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. TAX-EXEMPT STATUS FOR ORGANIZATIONS INTRODUCING INTO PUBLIC USE TECHNOLOGY DEVELOPED BY OPERATING RESEARCH ORGANIZATIONS.

(a) In General.--Section 501 of the Internal Revenue Code of 1954 (relating to exemption from tax on corporations, certain trusts, etc.) is amended--

(1) by redesignating subsection (m) as subsection (n), and

public use technology developed by operating research

(2) by inserting after subsection (l) the following new subsection:

``(m) Cooperative Service Organizations of Operating Research Organizations.--For purpcses of this title, an organization shall be treated as an organization crganized and cperated exclusively for charitable purposes if such organization--

``(1) is organized and operated exclusively--

``(A) to provide for (directly or by arranging for and supervising the performance by independent contractors)--

``(i) reviewing technology disclosures from operating research organizations,

``(ii) obtaining prctection for such technology through patents, copyrights, or cther means, and

``(iii) licensing, sale, or other exploitation of such technology,

``(B) to distribute the income therefrom, after payment of expenses and cther amounts agreed upcn with originating research organizations, to such research organizatiens, and

``(C) to make research grants to such research organizatiens,

``(2) regularly provides the services described in

paragraph (1) and research grants exclusively to 1 or more operating research organizations each of which--

''(A) is an organization described in subsection (c)(3) or the income of which is excluded from taxation under section 115, and

''(B) is an organization--

''(i) described in clause (ii), (iii), (iv), or (v) of section 170(b)(1)(A), or

''(ii) described in clause (viii) of section 170(b)(1)(A), whose primary activity is the conduct of research,

except that research grants may be made to such operating research organizations through an organization described in paragraph (3), and

''(3) is controlled by 1 or more organizations each of which is an organization described in subsection (c)(3) or the income of which is excluded from taxation under section 115.

For the purposes of this title, any organization which, by reason of the preceding sentence, is an organization described in subsection (c)(3) and exempt from taxation under subsection (a), shall be treated as an organization described in section 170(b)(1)(A)(ii).''.

(b) Effective Date.--The amendment made by this section shall apply to taxable years beginning after December 31,

1 1985.

RESEARCH CORPORATION

405 LEXINGTON AVENUE, NEW YORK, NEW YORK 10174-0370
212/907-9400 CABLES: RESCORP NEWYORK TELEX: 645208 RESEARCH NYK

George M. Stadler
Vice President—Patents and Licensing
212/907-9421

File w/ Research Corp.

February 19, 1983

To : A. Mitchell Liftig

From : G. M. Stadler

Re : Proposed Foundation Subsidiary

I. Introduction

Research Corporation ("Foundation") was founded in 1912 by Frederick Gardner Cottrell, a professor of physical chemistry at the University of California at Berkeley, an inventor of the electrostatic precipitator. Cottrell's goal, in essence, was to make practical use of discoveries resulting from university research and to apply resources thus generated to further the advancement of science. The Foundation is incorporated in New York State under the not-for-profit corporate law, and has offices in New York City and Tucson Arizona.

The Foundation's first objective is carried out through the Invention Administration Program, which evaluates inventions made at scientific and educational institutions. The Foundation has servicing agreements with over 280 universities and non-profit institutions to handle their inventions and research projects that show commercial potential. These agreements generally provide for the division of income on a basis of sixty per cent to the university and inventor and forty per cent to the Foundation.

Its patent services to universities include the location and identification of technology concepts, and the evaluation of the economic feasibility of such concepts, the prosecution of applications for patents on concepts deemed commercially and technically feasible where patents have not already been obtained, and licensing and administering the patents. The Foundation

generally does not engage in research, development, manufacturing or product marketing activities but intends that such activities be undertaken by its licensees. The major product and process areas of the Foundation's technology are medical-pharmaceutical, agricultural, animal health, chemicals, energy and electronics. The Foundation evaluates on average 400 disclosures each year of which it accepts for handling approximately 10 per cent. The Foundation currently administers about 500 active inventions and 200 licensed inventions. Royalties generated from these technologies will reach the $10 million per year level in 1983.

The advancement of science, the Foundation's second objective, is carried out through grants-in-aid for basic research in the natural and physical sciences. Through these programs the Foundation assists significant research proposals by faculty members at colleges and universities throughout the U.S. and Canada. These programs aim at young university researchers because they are yet unknown as established researchers, and generally cannot successfully compete for Federal funds. Most of the Foundation's grantees, after completing initial projects under its patronage, are able to win Federal money for further projects. Approximately 300 research grants are awarded each year.

Among members of the science and technology community who have conducted research under grants from the Foundation are 17 Nobel Prize winners. The distinguished scientists, none of whom received the prize prior to their research grant, include the five chemists (Herbert C. Brown, Georg Wittig, Robert B. Woodward, Manfred Eigen and William N. Lipscomb, Jr.) five physicists (Ernest O. Lawrence, Isdor I. Rabi, Felix Bloch, Edward M. Purcell and Robert Hofstadter) and seven medical researchers (Edward C. Kendall, Edward L. Tatum, Severo Ochoa, Feodor Lynen, George Wald, Robert W. Holley and Max Delbruck).

The Foundation has a professional staff of twenty-five scientists, engineers, technology transfer/marketing specialists, patent attorneys and new venture experts. It also retains several business/scientific consultants and legal firms in the areas of patent, tax, and corporate law. (Copies of the Foundation's Annual Report and several other information hand-outs are attached.)

II. Background

Industry has seen its technological base erode in the face of intensifying foreign competition. It has turned to universities both as a source of research talent and future employees. On the other hand, universities are caught in a financial squeeze that is being intensified by dwindling enrollments and cut-backs in Federal support to education. Such shortfalls already have left many schools with badly outdated research laboratories and the inability to pay faculty salaries that are competitive with those in industry.

Unfortunately, industry has to fund R&D from retained earnings, borrowing, or new equity and thus has to move cautiously and thoughtfully when allocating for its R&D activities. This cautious attitude becomes even more pronounced when industry is asked to invest in third party research such as university research. Small business has an even greater problem in this area because of the limited resources and limited talent.

Even though the Federal Government must fund R&D which is necessary for our national defense and basic, long-term, high risk research in the non-defense sector, Federal support for R&D demonstrations and commercial development has been and will continue to be reduced. Thus, it appears that the private (or institutional investor will have to be called on in order to help promote scientific research and technological growth.

University research laboratories have always been a source of leading-edge technology. However, universities because of a lack of development funds have had to turn to industry for help in getting their technologies ready for the marketplace. University technologies had to be licensed to industry and while this traditional technology transfer process has met with some degree of success in the past, it really does not maximize the total university research resource. The Foundation believes that through the innovated use of R&D limited partnerships new product and process technology can be funded and developed for the marketplace. The R&D partnership is the ideal vehicle for marrying university research to large and small businesses by a variety of joint ventures, new companies start-ups, and/or third party licenses.

III. Concept

In order to take advantage of the many university and small business research opportunities that are available it is proposed that the Foundation establish a subsidiary charged with the task

of commercializing selected promising ideas from among the body of patents, invention disclosures and research opportunities available (or which will become available) to the Foundation from its university clients.

This subsidiary would act as a new venture management company and would have two principal objectives. First, the solicitation and identification of research projects likely to have potential as new products. The second objective would be to organize, structure and successfully place with various investment bankers and/or registered brokers/dealers financial proposals in the form of R&D partnerships.

IV. The Business

The new subsidiary would have access to an abundant source of university technology because of the Foundation's relationship with over 280 universities; it would endeavor to establish a similar relationship with various agencies of the Federal Government and with the small business R&D community. In point of fact, the subsidiary would become a clearinghouse for R&D partnership opportunities and for information and counseling on structuring these types of partnerships.

Because of the range of technology with regard to cost, development time, and degree of risk and because of the importance of justifying a sound projection for "return-on-investment" the subsidiary will have to offer a variety of partnership structures. Fortunately, the R&D partnership allows for the coupling of university generated technology to new company start-ups; joint ventures with existing large and or small businesses; and/or traditional third party licensing.

Since the Foundation's mission is to "advance science" most of the profits generated by the subsidiary would be used to support those projects identified as "too risky" for the private investor because of the technology's present stage of development or projected time to market. Thus the subsidiary would create a much needed "seed capital" fund for the exploitation of those "early on" ideas that have commercial potential.

Subsidiary business will be to provide consulting services to clients interested in R&D partnerships at the lowest possible cost, and, in addition, provide the mechanism and organization needed to completely structure and market partnerships. The subsidiary would endeavor to:

1. Solicit and evaluate technology suitable for R&D partnerships so that a continuous source of these opportunities are established;

2. Create, organize and package technology opportunities and develop appropriate business plans to meet the needs of each specific opportunity;

3. Provide a mechanism for the transfer (licensing, joint venturing, etc.) of technology resulting from the partnership;

4. Develop an internal capability for the marketing of developed R&D partnerships, as well as establishing a mechanism (relationship) for this marketing through established investment banking firms and registered broker/dealers;

and

5. Interface on a continuing basis with the partnerships established by the subsidiary to provide long-term (second and third round) financing either through the use of venture capital, equity placements, and/or various debt instruments.

V. Partnership Structures

As previously mentioned, high technology investment can take many forms and in order to maximize the new subsidiary's opportunities partnerships will have to be structured accordingly. The Foundation has access to an experienced group of professionals which have sucessfully organized and placed several different types of R&D partnerships. The following is a brief description of some of the different types of R&D partnerships that the subsidiary could use:

a. "Seed capital" type of investment in high risk/early on technology.

Perhaps the hardest partnership to structure and sell would be those for early on research in technologies with attractive commercial potential. These partnerships would be classical in structure and relatively modest in size ($50,000 to $350,000). The objective of the partnership will be to enhance or "add value" to the subject technology. The technology could then be transferred for further development via several established routes.

These "seed capital" partnerships could be marketed by the new subsidiary to alumni, benefactors, faculty and/or friends

of the institution from which the subject technology originated. In addition, depending upon the number of these types of investments available (a minimum of 50 to 75 would be needed) the new subsidiary could publish a quarterly newsletter which would briefly outline the type of research each partnership is interested in exploring for clients of associated investment bankers. If a client expressed an interest in one or more of these partnerships he could get more information by contacting the general partner of the desired partnership.

Some specific examples of projects that might lend themself to this type of structure would be: nonlinear optical materials, biochips, highly absorbent cellulose substrates, synthetic enzymes/catalysts, various pharmaceutical products and diagnostic tests (See Appendix 1).

b. The R&D partnership fund for university investment in a specific technology area.

A large pool of investment capital ($3 million to $50 million dollars) could be raised for investment in university technology in a certain area (i.e. genetic engineering, medical imaging, computer software development, robotics, etc.) these funds would be allocated on a competitive basis over a period of years by the general partner to investigators to work on core research projects. The results of this research could be licensed to an associated corporate partner or packaged into potential "spin-off" new companies for further development and commercialization.

Some examples of this type partnership are: - University Genetics, Agrigentics (see Appendix 2).

c. A university invention that serves as a basis for a new company start-up.

Some university inventions because of their advanced state of development or because of large commercial potential if successfully developed and marketed lend themselves to providing the basis of a new company start-up.

These would be R&D partnerships structures wherein the investor would get tax write-offs, a percentage of royalties and equity in the new company. Size of these partnerships would be from several hundred thousands of dollars to several million dollars. Some examples would be: Fiber View Corporation; Beta, Inc.; Interactive Video Ventures, Inc.; Biological Submergible Filter Venture; Free Piston Stirling Engine Venture (See Appendix 3).

d. Focused inter-university research core organized into a new company.

The attribute of this approach is having previously competitive research groups at different universities which possess know-how and/or patent rights in an area coordinated and focused on problem solving and the production of specific marketable end-products. The manufacturing and marketing arrangements with an existing corporate partner may or may not be part of this deal. The size of these types of partnerships would be between one million and ten million dollars. Some examples would be: Targeted Pharmacueticals, Inc.; Medical Image Associates,; Arid-Agrobiologics, Inc.; Biocentrix Research Groups, Inc. (See Appendix 4).

e. A licensed (and possibly marketed) university invention which becomes the basis for expanding an R&D program through the creation of a partnership/ new joint venture.

A proven technology which would be assigned to a new joint venture could be used as a means for attracting additional funding for an expanded R&D program on related technology. The original licensee would become the joint venture's manufacturer and marketer of successfully developed products. The size of these partnerships would be from $5 million to $50 million dollars. Some examples: Bristol-Myers/Research Corporation cancer program, Evans and Sutherland/NYIT high definition television, light modulator and fiber optics screen program (Appendix 5).

f. High-tech/small business involvement with university R&D groups.

Small business can interface with universities to have the university help them with the development of their technology, generate support data and/or purchase necessary equipment. These partnership interactions can and do take various directions. Their size also can vary from several hundreds of thousand dollars to several millions of dollars. Some examples: Les Carden, Ltd.; International Institute for Medical Sciences (Appendix 6).

g. Small business expansion program using R&D partnerships.

Like Example "a." above these partnerships would be fairly straightforward classical partnerships. However, unlike the "Seed Capital" investments at universities the research component would be small and the development component large making these investments much more "risk free."

However, up-side potential from investments in these types of partnerships are lower in conparison to those in high tech university research. Some examples of these types of of partnerships would be: Betty Wilkinson Designs; CDS Associates (Appendix 7).

VI. Advantages of the Concept

The advantages of forming a new subsidiary of the Foundation with the business objectives as described would be to maximize the utilization of the research base which is presently available to the Foundation. The subsidiary would also take action to expand its base of technology to include small business opportunities and Federal Government laboratory inventions. This subsidiary would become an active center that would complete deals using the R&D partnership vehicle by monitoring and promoting appropriate partnership structures. There will always be the potential for misuse when attempting to promote financial structure of this type. Therefore, a joint effort with the Department of Commerce and Research Corporation working within the structure of the subsidiary would go a long way to insuring proper partnership utilization.

Research Corporation can provide the basis and know-how to make this program work. However, it will take the support of the Department of Commerce to make the program a success.

GMS:kp

Research Corporation

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Tucson, Arizona 85710-2815
Telephone (602) 296-6400

George M. Stadler
Executive Vice President

October 15, 1984

R.
File W/ Research Corp.
N.

Mr. Norman Latker
Director for the Office of
Patent Policy
U.S. Department of Commerce
Room 4816
14th and Constitution N.W.
Washington, D.C. 20230

Dear Norm:

I understand from Jess Laskin that the new small business and university patent bill passed Congress. Congratulations!

Perhaps we can now move forward with RC's modified proposal to the Department of Commerce to provide a training for on-site patent administrators and back-up technology transfer/commercialization services for the government laboratories.

I have also enclosed a copy of the venture capital fund we are raising with E.F. Hutton for university technology -- UTECH. I have talked with the people at Hutton about developing a similar venture fund ($20-40 million) for use with government laboratory inventions. They are interested, especially is someone like yourself could take a leave of absense and become involved with the initial management and direction of such a fund. The same concept of "pre-seed" and "seed" capital would be involved. We would have to modify section II (UTECH concept); section III (Background); and section IV (Present Environment) to reflect the present situation as it pertains to the government laboratories.

Any interest in helping to develop -- LabTECH?

Let's discuss.

Very truly yours,

George M. Stadler

GMS/sk
Enclosures

SEP 07 1984

E. F. Hutton & Company Inc. 101 California Street, San Francisco, California 94111 (415) 362-5225

Thomas B. Calhoun
First Vice President

(Attachment a)

September 6, 1984

Mr. Alan N. Alpern
25 Sutton Place
New York, New York 10022

Dear Mr. Alpern:

I am writing in response to your letter of August 8, 1984 forwarding a proposal for the formation and funding of University Technology Fund "UTECH" in association with Research Corporation of Tucson, Arizona.

We have been in discussions with officers of Research Corporation and you since March of this year and feel that the proposal forwarded with your letter reflects those discussions and is in a form which will permit us to act as Placement Agent in an effort to raise $25 million privately from institutional sources. We believe that the concept is sound and that there are institutional sources which would be interested in the opportunity to invest at the "pre-seed" and "seed" levels in new technologies, particularly given the very broad access to billions of dollars of annual R&D effort represented by UTECH's association with Research Corporation.

Accordingly, we are prepared to use our best efforts to market the UTECH Fund when an acceptable Offering Memorandum and related legal documents have been prepared. We will review with you periodically the progress made in the marketing effort and propose that after 90 days we jointly evaluate the response of the marketplace.

We look forward to working with you, the other principals of UTECH and the officers of Research Corporation to achieve UTECH's objectives.

Very truly yours,

Thomas B. Calhoun

TBC/ld

cc: John P. Schaefer
BCC. G. STADLER

MEMO TO: File

FROM: G. M. Stadler

DATE: November 1, 1984

RE: UTECH Fund Structure

I. Summary

II. UTECH Concept

III. Background

IV. Present Environment

V. UTECH'S Relationship with University Technology Transfer Professionals

VI. UTECH'S Structure

VII. Pro-Forma Example Transaction

I. SUMMARY

1. There is a widely-held view that innovations necessary for enhanced productivity of American business enterprise can be fueled by university-based technologies.

2. Many universities are strengthening their administrations and pursuing a wide range of initiatives in an effort to attract support for their R&D activities and to exploit the inventions that result therefrom.

3. University administrators and faculty perceive a need for a venture fund dedicated to the earliest stages of innovation; stages during which the government and traditional venture funds typically are not involved. Such a fund would complement traditional university technology transfer -- i.e., licensing established companies. The UTECH Fund has been designed to accomplish this objective.

4. UTECH will be a $25,000,000 venture fund designed to make "pre-seed" and "seed" investments in university technologies. E.F. Hutton will market the fund to institutional and corporate investors in units of $1 million or more.

5. UTECH will be a limited partnership. The corporate general partner (UTMC) will be responsible for all investment decisions and will manage the fund's activities concerned with the commercialization of university inventions. UTMC will benefit from an Advisory Board of university technology transfer professionals.

6. UTECH will deal with university technology transfer agents including Research Corporation (RC) and University Patents, Inc. (UPI) and with certain universities directly. UTECH does not expect to have any right of first refusal to any organization's or university's technology. However, these organizations will show UTECH, as well as other interested parties, those projects which would benefit from venture development.

7. Universities will also benefit from a Special Grants Fund, which will be structured out of a portion of UTMC's profits to support basic research in the physical and life sciences. UTMC will select an appropriate institution/organization to administer this fund.

II. UTECH CONCEPT

1. The UTECH fund is designed to finance "pre-seed" and "seed" phases of new technologies, during which university-based technologies will be assessed for their potential for the venture stage of development. Because of the number and diversity of university-based inventions, it will be the general policy of UTECH to review only those disclosures that have been screened and evaluated by experts in technology transfer. The UTECH staff, assisted by consultants having expertise in specific industries and markets, will investigate, select, and negotiate agreements with the university technology transfer community including RC, UPI and other recognized professionals. Concentrating on the early stages of development, UTECH intends to provide the entrepreneurial skills and to perform the business functions necessary to establish the technological, manufacturing, and marketing feasibility of projects. The three phases envisaged for UTECH involvement are as follows:

A. "Pre-Seed" Phase. UTECH will fund approximately twenty (20) contracts annually in the amount of $50,000 to $150,000 for R&D to be conducted at the originating institution. UTECH will receive an option to license the technology. Approximately $2 million per year for a period of four years (a total of $8 million) is thus allocated for university-based research and development activities. These activities will include prototype development and/or further testing to establish operability and technical feasibility, or in certain special cases, reduction to practice or data collection to support proof of principle.

B. "Seed" Phase. Over the first five years, it is anticipated that approximately $6 million will be committed to about twenty projects. Ranging from $150,000 to $500,000, these investments will be used to refine the technology -- up to the stage of pre-manufacturing and/or production prototypes; begin establishing FDA protocols and initiate appropriate IND studies; develop a business plan for its exploitation; and create the business infrastructure necessary to bring the technology to the venture phase. A portion of the investment may be expected to take the form of an R&D contract with the originating institution. The "seed phase" will involve exercising the option to the aforementioned license. In the event a company is formed to exploit the technology, consideration for the license agreement may include the opportunity to obtain an equity interest, either as all or part of the initial license fee or through a convertable royalty provision of the license agreement.

C. "Venture" Phase. Although UTECH plans to concentrate on the "pre-seed" and "seed" phases, allocating some $14 million to these purposes, investments of up to thirty-five percent of the funds required in the venture phase are anticipated for approximately eleven projects. When combined with funds from other sources (e.g., traditional venture funds) these investments will bring new companies to the point of initial operation. UTECH plans to be the central party in forming, staffing, and supervising the management of entities formed at the venture stage. Hutton may assist UTMC in arranging the further financing for these entities.

event a company is formed to

III. BACKGROUND

1. The United States technological leadership has eroded in recent years.

A. Over the past 20 years R&D expenditures as a percentage of GNP have declined in the U.S. while Japan and West Germany were increasing these expenditures.

B. In the 1950's the U.S. was credited with 80% of all major inventions made during that period. However, in the 1970's the U.S. share of major inventions dropped to 60%.

2. During the 1970's the U.S.'s high technology industries exhibited an outstanding performance in the area of new job formation and after-tax return on equity. As a result:

A. More than 100 bills to promote high technology development have been introduced in the U.S. Congress with the intent of establishing a proper high technology industrial policy; and

B. More than $4.1 billion of venture capital was raised in 1983 by 87 venture firms for future investment in high technology opportunities, and $2.33 billion was invested in 1983 as follows: $571 million (29%) in 833 start-ups; $543 million (27%) in second, third, fourth, and mezzanine-round financing in 685 deals; $280 million (14%) in 135 leveraged buyout situations; and $940 million (40%) in "follow-on" investments made by these firms in previously financed deals.

3. Research expenditures at U.S. universities represent a significant national investment. During fiscal 1982 universities had slightly more than $7.2 billion of R&D support -- life science, $4 billion; engineering, $1 billion; physical science, $.8 billion; other fields, $1.4 billion. However, the support of university research has not kept pace with inflation and, as a result, has declined in real terms.

4. As a result of annual research funding, U.S. universities have always been a source of leading-edge technology. However, these technologies are usually very early-on in their development cycles and generally require development capital -- "pre-seed" capital -- in order to clarify their commercial potential.

5. Unfortunately, "pre-seed" capital for university technology is generally neither available from government sources nor from traditional venture capital sources. Thus, in the past, university technologies had to be licensed to established companies for possible commercialization.

6. Established companies have not always proven to be the best environment for the development of university technologies because of a variety of circumstances:

A. No in-house product champion;

B. Changing corporate business objectives;

C. Competition for both internal development funds and with internally competitive products; etc.

7. If university technology is to be developed outside traditional licensing, more than just "pre-seed" capital will be required. Availability of additional "seed" capital will also be necessary to finance prototype development and to begin creating the business infrastructure needed to bring the technology to the manufacture/marketing stage -- "venture" phase.

8. In addition to both "pre-seed" and "seed" capital, the entrepreneurial spirit and drive must be added to each venture through the development of the appropriate management team and the team's phasing/timing into the new venture must be properly integrated.

9. If the university's technology base is to be maximized, a vehicle needs to be established which would provide an alternative to traditional licensing for certain technologies.

10. The appropriate university technology transfer alternative should provide:

A. Investment capital (both "pre-seed" and "seed");

B. New venture planning and implementation;

C. Creation of new business infrastructure and their related entrepreneurial management team; and

D. Ease and speed of finalizing venture transactions within the normal/traditional mechanisms used by the university technology transfer community and their agents (RC, UPI, etc.) for the transfer process.

IV. PRESENT ENVIRONMENT

1. University administrators and faculty are becoming increasingly aware of the importance technology transfer holds for their institutions; not only as a source of revenue to accommodate opportunities for growth or to offset losses from other sources, but also as a measure of their contributions to society. This phenomenon has occurred for a number of reasons. Principal among them, however, is the widely-held perception that technological development is particularly important, perhaps crucial, for the future of American business enterprise and that our universities can and should be the birthplace of the concepts that will fuel that development.

2. University trustees, administrators, and faculty are reacting in varied ways to this phenomenon. Some prefer to maintain traditional values of the academy and avoid relationships that might compromise those values. Many are finding it desirable if not necessary to accommodate these values without foregoing the intellectual and economic benefits resulting from government-industry-university cooperation in advancing science and technology.

3. In their enthusiasm to be at the "state-of-the-art" in university-business relationships, college and university administrators and faculty have naturally directed their attention to what they themselves can do to accelerate the flow of support for research and to fully exploit the economic potential of their inventions.

A. Work more closely with university technology transfer agents; and

B. Establish in-house technology transfer programs.

4. An increasing number of universities and their faculty inventors are expressing interest in receiving equity positions (or combinations of equity and royalties) for their technologies. Equity positions in new ventures are perceived as growing assets that will last beyond the life of most patent/license agreements, thus providing larger returns. These ventures often provide an improved environment for faster product development and market entry.

5. Therefore, the stage is set for the establishment of a university technology transfer mechanism which will satisfy the present objectives of university trustees, administrators and faculty; and, which would make available the resources needed to achieve success. The UTECH FUND was conceived and developed for this purpose.

6. The $7.2 billion of university support is spread over more than 500 institutions of the U.S. university community. However, almost four of every five research dollars were expended by one hundred institutions. These top one hundred institutions can be further broken down into the "top fifty" and the "second fifty."

A. The "top fifty" institutions expended $4.42 billion or 60.9% of the total university research dollars. RC* clients number 32 and account for $2.7 billion and UPI* clients number 6, accounting for an additional $570 million.

B. The "second fifty' institutions expend more than $1.58 billion or 21.8% of the total university research dollars. RC clients number 39 and account for $1.2 billion and UPI clients number 2 accounting for an additional $50 million.

C. Neither RC nor UPI have agreements with schools in the California system (UC-San Diego, UCLA, UC-Berkeley, UC-San Francisco, UC-Davis, UC-Riverside, and UC-Irvine -- $596 million); MIT ($192 million); University of Wis-Madison ($160 million); Columbia ($115 million); Harvard ($114 million); and several other important research institutions.

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*RC's clients operate under non-exclusive agreements and many of these clients also operate various levels of in-house programs; UPI clients operate under exclusive agreements -- i.e., UPI has a right of first refusal.

7. Thus, if UTECH is to be successful in identifying and supporting those university technologies which have commercial potential and would benefit from venture development rather than traditional licensing, UTECH must be free to deal with all sources of university technology including agents such as RC and UPI, and directly with certain universities having established in-house programs.

A. From a cost effectiveness standpoint, UTECH plans primarily to work with the university technology transfer agents or established university professionals because these agents/professionals will have already established contact with the faculty inventor; evaluated the technology's patentability, technical feasibility and marketability; and will have filed both domestic and foreign patent applications.

B. UTECH when dealing directly with universities not having established professionally operated in-house programs will not see highly screened and evaluated technologies and will thus have to conduct this analysis internally. If UTECH operates in this mode, it will have to allocate resources for activities which are not the primary objectives of the fund. As a result, this mode of interaction will not be encouraged.

V. UTECH'S RELATIONSHIP WITH UNIVERSITY TECHNOLOGY TRANFER PROFESSIONALS

1. UTECH sees the professional technology transfer community as a cost effective source of investment opportunities. Although UTECH may receive, evaluate, and invest in opportunities from institutions not represented by a technology transfer agent, it sees this as not the most desirable route for various reasons and will encourage universities to work through these agents. It is therefore anticipated that institutions represented by agents such as RC and UPI will be a principal source of investment opportunities.

2. The availability to the university community of a fund of this unique type represents a much needed service that the agents can offer to its institutional clients. Funding for the support of promising but unproven concepts, new opportunities for the commercialization of university-based inventions, and the option to participate in the growth of companies formed to exploit the technology represent services viewed by university administrators and faculty as being essential for "state-of-the-art" management of technology transfer.

3. Technology transfer agent's relationship with UTECH will be similar to relationships now extant with other industrial and/or financial organizations. The principal difference is one of having available an organization (UTECH) funded and structured in such a way that specific needs of the agent's client institutions can be met more efficiently and effectively. Characteristics of the relationship are as follows:

investment opportuniti

A. The agents will represent UTECH to their institutional clients.

B. The agent's staff will evaluate disclosures and assess the opportunities available for commercialization. When UTECH offers the best alternative, disclosures will be referred to UTECH's management for action.

C. The agent will represent client universities/inventors in negotiations with UTECH regarding all aspects of any transactions, e.g., terms of options and license agreements, R&D contracts, consulting agreements, etc.

4. The agent will not have an equity position in the general partnership nor will it participate in the profits of the partnership.

5. An individual representing the agent may be on UTECH's Advisory Board in addition to other members of the university technology transfer community.

6. The agent will have no obligation to submit disclosures for UTECH's evaluation. UTECH will have no right to review, no right-of-first-refusal.

7. The agent's financial interest will be realized on a project-by-project basis through the acquisition of a mixture of equity and/or royalties.

VI. UTECH'S STRUCTURE

1. UTECH will be a $25,000,000 limited partnership. E.F. Hutton will use its best efforts to market the fund privately in units of $1,000,000 or more with pension funds and other institutional and corporate investors.

2. Hutton will receive a placement fee equal to two and one-half (2.5) percent of gross proceeds and will participate in the net profits realized by the general partner.

3. UTECH's General Partner, UTM Corporation (UTMC) will be a newly formed Delaware Corporation owned by Alan N. Alpern, George M. Stadler and Ron Stephens, each of whom will serve as officers and directors of the corporation.

4. UTECH will have an Advisory Committee which will include Thomas B. Calhoun of E.F. Hutton; John P. Schaefer of RC; L.W. Miles of UPI; and several additional members of the university technology transfer community.

5. Profits and losses accruing over the life of the partnership (UTECH) and upon its termination at the end of ten years will be assigned to the limited partners (80%) and general partnership (20%).

Eighteen percent of the General Partnership's profits will be contributed to colleges and universities through a special grants program designed to support basic research in the physical and life sciences. Hutton will receive nine percent of the profits accruing to the general partnership for certain investment banking services.

6. Profitshare of UTECH's corporate general partner, UTMC, will be as follows:

Alan N. Alpern	18%
George M. Stadler	18%
Ron Stephens	18%
Unassigned (add. Sr. Mgmt.)	11%
Reserved (add. Jr. Mgmt.)	6%
Special Grants Fund	18%
E.F. Hutton	9%
Advisory Committee	2%
Total	100%

7. The Grants Fund will support basic research in U.S. colleges and universities in the areas of the physical and life sciences. Participation in the Fund will be free of any technology ownership restrictions. Administration of the Special Grants Fund will be designated by the board of UTMC at some future date; however, the managing

directors of UTMC will not participate in its administration. Depending on the degree of success experienced by UTECH, the Special Grants Fund can be expected to produce nothing or as much as $3.6 million in support of academic science.

8. Brief resumes of UTMC's managing directors follows:

A. ALAN N. ALPERN holds a B.A. degree from Harvard College and a J.D. degree in Law from Harvard Law School. He is a member of the Bar in both New York and Massachusetts. From 1977 through 1983, Mr. Alpern served as President or Chairman of the Executive Committee of XOIL Energy Resources, Inc., a corporation which engaged in the syndication of over fifteen oil and gas exploration projects, and as President of Energy Solutions, Inc. and Xplor, Inc., its subsidiaries. From 1975 to 1977, and since his resignation from XOIL and its subsidiaries in 1983, he has been a financial consultant in New York City. Since 1959, Mr. Alpern has also been engaged in various financial and industrial activities. For example, he founded On-Line Systems, Inc., a company involved in computer operations and listed on the American Stock Exchange prior to its acquisition by United Telecommunications, and was an original director of MCI, New England, Inc., a constituent company of MCI, Inc. He was also Chairman of the Executive Committee of Aberdeen Petroleum, listed on the American Stock Exchange, prior to its sale to Adobe Oil & Gas in 1974.

Mr. Alpern has also served as a full-time financial consultant to Ladenburg, Thalmann & Company, a member of the New York Stock Exchange, for Corporate Finance, and to Walter Kidde & Co. for divestitures. He is presently the Principal of Ceresana, N.V., engaged in experimental agricultural production in Pakistan, Italy and the Dominican Republic.

B. GEORGE M. STADLER holds B.S. degrees in Chemistry and Biology, 1969, and an M.S. degree in Physics from John Carroll University. Since 1982, he has been Executive Vice President of Research Corporation of Tucson, Arizona and New York City, a foundation established to advance technology through its grants and patent/licensing programs. In 1980, Mr. Stadler co-founded University Genetics Company (Norwalk, Connecticut), a venture capital company engaged in medical research. From 1976 through 1982, he was Assistant to the President of University Patents (Norwalk, Connecticut), a company involved in licensing of technologies, assessment of new venture opportunities, and the creation and formation of university technology transfer vehicles, including the design of R&D limited partnerships.

C. RON STEPHENS holds a B.S.E.E. degree from California State University, 1964; an M.B.A. degree from California State University, 1969; and a J.D. degree from Boalt School of Law, University of California, Berkeley, 1969. From 1981-1984, Mr. Stephens was President and Chief Executive Officer of Votan, Inc., a voice technology company, located in Fremont, California, which he founded. In 1978, he was employed by Arthur D. Little to develop a high technology consulting practice in the Western U.S. After successfully completing the assignment, Mr. Stephens took a leave of absence to launch Votan, Inc. From 1976-1978, Mr. Stephens was General Manager of Microprocessor Products at General Instrument, Inc. (Hicksville, New York). Prior to that, he was President of Xebec Systems, Inc., which he joined in 1975. Mr. Stephens has also held positions as Division Manager, High Reliability IC Products at Signetics Corporation and Management Consultant at McKinsey & Company.