BUSINESS

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MEMO TO: Kevin Maxwell

FROM: Norm Latker NJL

SUBJECT: Requested Plan

At our meeting on January 24th, you asked for a "plan" to:

I. Create a new database of licensable new products and processes.

II. Improve the P&L of the USET license brokerage business.

The plan for both these items is attached.

Number I. includes a discussion of:

A. The Opportunity
B. Sources Of Licensable Technology
C. The Competition
D. MCC's Advantage
E. Marketing
F. Financial Requirements To Create A Database Of Licensable Technology.

Number II. includes a discussion of:

A. The Problem
B. Recommended Changes In The Practices Of The License Brokerage Business.

If you wish to proceed further, I believe that an oral presentation providing more detail would be helpful.

I. CREATION OF A NEW DATABASE OF LICENSABLE NEW PRODUCTS AND PROCESS

A. The Opportunity

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I. CREATION OF A NEW DATABASE OF LICENSABLE NEW PRODUCTS AND PROCESS

A. The Opportunity

Industry and entrepreneurs everywhere have recognized that they are in the midst of a worldwide explosion of new technology that may enure to the benefit of their competition unless they themselves can pursue its application. The pursuit of technologies developed by universities, government laboratories and other laboratories has become essential, as the cost of some internal research and development projects is increasingly moving out of reach even in large companies.

At the same time governments who fund research are creating new incentives to encourage exchange of scientific and technical information especially between business and government supported research institutions. This is being done to expedite application of research by industry and to justify the continuing government investment in R&D. These facts have created an unprecedented environment in which government supported research institutions who own their technology are under increasing pressure to collaborate with industry manufacturers in order to complete the innovation process and produce jobs.

Because the scientific journals are not the most efficient or timely way of communicating a new product or process to industry or to entrepreneurs, an increasing number of institutions with large government funded programs have employed Technology Managers to supplement journal publications with other disclosures tailored to attract industry's attention.

In addition to the support provided to research institutions, governments like the U.S. have recently started funding small businesses to test concepts and develop prototypes of new products and processes that have been evaluated by government review bodies to be potentially useful. These small businesses are the backbone of America, and account for a substantial portion of the technological breakthroughs that produce new jobs.

Because of these new funding programs there exists an opportunity to match industry manufacturers with technologies from innovative, aggressive small businesses who have won awards. Abstracts of the 18,000 awards which cover an investment of over $1.5 billion dollars since the programs began are publicly available in hardcopy. These abstracts have been accumulated from participating Federal agencies for inclusion in our database. Surprisingly this database is not presently available from any on-line vendor.

Finally, there is a growing number of large industrial firms that have begun licensing technology that they perceive to be in excess of their own needs. For instance, some of these technologies are valuable industrial processes being used by the creating company but believed to have other uses. There is no known single source for hardcopy disclosures of this class of technology.

There is a rapidly growing cottage industry feeding off

Finally, there is a growing number of large industrial firms that have begun licensing technology that they perceive to be in excess of their own needs. For instance, some of these technologies are valuable industrial processes being used by the creating company but believed to have other uses. There is no known single source for hardcopy disclosures of this class of technology.

There is a rapidly growing cottage industry feeding off parts of the above described hardcopy information for the purpose of selling information services to industry. Some technology sources indicate they are uneasy dealing with this group because "they have no staying power" i.e., they do not have the strong financial backing to ensure an adequate and stable institutional framework for continual growth and update of available technology information.

CONCLUSION:

<u>There is clearly no single credible entity in the worldwide business of identifying the finite number of organizations attempting to license technology, accumulating those technologies in a database, and then selling access to industry.</u> The preliminary findings of a market study conducted on behalf of USET indicate that industry would be interested in subscribing to such a database. This is not surprising since the database will create savings over that which they themselves would have to incur to find the same information. MCC has some of the resources necessary to take advantage of this opportunity in place now and with reasonable effort can rapidly become a dominant force in this arena.

B. <u>Sources of Licensable Technology</u>

In the last six months we have identified a core of licensable technology sources who are likely contributors to a database which can be demonstrated to have "staying power". It is not predictable in advance how many of those identified would cooperate with MCC if we decided to proceed. However, it is clear that many have Technology Managers that pursue outreach programs that include hardcopy dissemination of technology available for licensing. To facilitate dissemination, this information is not copyrighted. These existing hardcopy abstracts could clearly serve as the initial critical mass to support the marketing of a licensable technology database. However, future additions of technology sources would necessarily proceed more slowly much like the addition of new journals to Pergamon Press.

Since these disclosures are emanating from different sources there is no uniform format. However, our review indicates that virtually all disclosures cover common fields of interest to

industry users, i.e., performing organization, inventors, technical description, advantages over prior art, patent coverage, availability of licenses, etc. Given staff that can accurately identify these fields, new optical scanning technology which permit machine tagging of fields can create an electronic database with a uniform format. Our experiments with this scanning technology while converting 5,000 of the total 18,000 abstracts of awards to small businesses to electronic form has produced near 100% accuracy and is not resource intensive.

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If we proceed and gain credibility, we could convince some technology sources to manage their technology with software being developed by T.I.C. This software will include an up-load to our electronic database. When the software is available this could be done immediately with technology from the ten clients USET exclusively manages.

With the above in mind the following are potential licensable technology sources listed in order of importance[1]

1) 150 U.S. Universities

We have identified the technology management contacts including telephone numbers and addresses at 150 U.S. universities with an R&D budget in excess of $10 million dollars. Many of the technology managers are familiar with USET personnel, which we hope will foster their cooperation. Preliminary discussions with some of the Technology Managers make it clear that by close collaboration we can secure new potential technology disclosures for our technology database even prior to submission of the research for publication or issuance of patents. This arrangement would maintain us at the cutting edge of technology. Clearly the 10 USET clients in the listing are obligated to participate. Further, in a dry run we contacted a small number of non-clients and were able to solicit abstracts of over 300 technologies. The technology managers in this group are networked through the Society of University Patent Administrators. Continued credibility with the Society to gain membership cooperation is essential to development of the database. (At our request Pergamon Press has agreed to assist the Society in publishing a bi annual journal. Other inexpensive initiatives can also be undertaken as a means of gaining cooperation.)

2) 305 U.S. and Foreign Industrial Concerns Who Have

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[1] Importance of the technology source is a subjective determination based on our view of ease of access to important technology disclosures at this time. Ease of access will be clearly affected by the manner in which MCC establishes and maintains its contact with technology sources.

Indicated Their Desire to License Company Technology

We have identified the technology management contact including telephone number and address at each of 305 businesses who have announced in Licensing Executive Society publications their interest in licensing their excess technology. In a dry run we accumulated a number of abstracts from technology conferences. This group of technology managers is networked

Indicated Their Desire to License Company Technology

We have identified the technology management contact including telephone number and address at each of 305 businesses who have announced in Licensing Executive Society publications their interest in licensing their excess technology. In a dry run we accumulated a number of abstracts from technology conferences. This group of technology managers is networked through the Licensing Executive Society. Continued credibility with this organization also is essential.

3) The Small Business Innovation Research Program (SBIR)

The U.S. SBIR program was created in 1982 by Public Law 97-219. The law requires that all federal agencies set aside 1-1/4% of their annual R&D budget to fund development of promising technology in the hands of small businesses. Since 1983 approximately $1.5 billion dollars has been spent on 10,000 awards. Uncopyrighted descriptions of each award and the technology involved is available from each funding agency. All 10,000 announced awards have been accumulated from the 11 agency contact points and are now being converted into an electronic database. Since only 1 of 8 submissions from small businesses are granted funding, industry should be very interested in the technology that survived the government evaluation and screening process. As noted, while hardcopy is publicly available, no on-line vendor is managing the database.

4) The D.O.E. Energy Related Inventions Program

The D.O.E. program was created by statute in 1976. The law creates a funding program to develop energy related products and processes brought to the attention of D.O.E. by small businesses and individuals. The evaluation and recommendations for funding have been assigned to the National Bureau of Standards. In the last 10 years NBS has recommended funding of 8,000 technologies. We have uncopyrighted hardcopy abstracts of these technologies and are proceeding to convert them into an electronic database. Recent legislation has expanded NBS's evaluation service to all other inventors not just those with an energy oriented technology. How this authority will be implemented remains to be seen but could result in an increase in evaluated technologies.

5) The Pergamon Journals

Editors of the Journals could as part of the review process ask authors whether the paper submitted describes any new product or process which he or his organization was interested in licensing or further developing. If so, an abstract of that paper could be created for inclusion in our database. The submitter's incentive to participate would be explained as

possible royalty return or additional research funding from industry.

6) Foreign Sources of Licensable Technology with Agreements to Disclose to USET

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The British Technology Group--serves as the nonexclusive licensing agent for the United Kingdom's government funded research institutes.

GKSS--A German Funded environmental research institute that licenses its own technology.

INRA--A French funded agricultural research institute that licenses its own technology.

7) Foreign Sources of Licensable Technology Who Have Not Been Contacted But Are Likely Contributors

Licensingtorg--The designated exclusive licensing agent for all technology from USSR funded research institutes.

Invar--The designated nonexclusive licensing agent for France's government funded research institutes.

JITA--The designated exclusive licensing agent for Japan's government funded research institutes. (JITA's technology has been disclosed to the Dvorkowitz proprietary database.)

Technical Research Centre of Finland--Licenses technology from 35 research institutes funded by the Finnish government.

AKADIMPEX--Licensing agent for Hungary's government funded research institutes.

Austrian Trade Commission--Nonexclusive licensing agent for Austrian businesses.

Canadian Patents and Developments Ltd.--Exclusive licensing agent for Canadian research institutes and some Canadian universities.

Israeli Industry Center for R&D (MATIMOP)--Nonexclusive licensing agent for Israeli businesses.

Italian Trade Commission--Nonexclusive licensing agent for Italian businesses.

Swedish National Board for Technical Development--Swedish licensing agent--claims to cover all sources of technology in Sweden.

8) Existing Electronic Databases Disclosing Technology

Before listing the possibilities of using existing databases, it is important to discuss the problems they entail. First, with one exception, none of the accessible databases are limited to licensable technology. Further, other than the U.S. Patent Office's Official Gazette, none appear to be limited to new products and processes. They all appear to commingle

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However, to the extent that the information on such an electronic database can be obtained on a media (i.e., magnetic tapes) that can be leased and moved to a MCC site with no copyright or other conditions attached, disclosures of licensable new products and processes can be electronically screened out, reformatted and used in our database. We believe that this can be undertaken with the sorting software being developed at T.I.C.

Since the following NTIS and U.S. Patent Office databases are uncopyrighted and meet this access test they are being acquired or being considered for acquisition to screen for licensable technology and reformatting:

Federal Research In Progress Database--Summaries of U.S. government research and engineering projects currently funded by 10 Federal agencies primarily at universities (141 K records). Project description includes title, starting date, investigator, performing and sponsoring organization and detailed abstract.

Federal Applied Technology Database--Contains abstracts of selected processes, instruments, materials, equipment, software, and techniques generated by federal laboratories (20 K records).

Bibliographic Database--Contains the abstracts from all foreign and domestic technical reports announced by NTIS (1.5 million records).

The U.S. Patent Office Weekly Official Gazette--Contains the abstracts of patented inventions issued during the week prior to the Gazette's publication date.

It is emphasized that this plan does not address the T.I.C. proposed initiative of using its new sorting software to develop an on-line technology database consisting of existing copyrighted databases. The T.I.C. exercise is aimed at creating a comprehensive technology database for use by business in reviewing prior art (whether or not licensable) for the primary purpose of determining whether investments in selected R&D programs are justified. This can be an important business but is

not limited to a database of licensable technology.

9) Biomedical Business International (BBI) (MacMillan)

BBI solicits abstracts of new medical products and processes for disclosure in their newsletters. We do not know the extent

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to which they have gained the cooperation of relevant technology sources but it appears insubstantial in comparison to what is available. Indeed, they solicit abstracts from USET periodically without much success.

10) U.S. Government Laboratories

In 1986, federal laboratories were given the authority for the first time to license their technology. These laboratories are actively creating the infrastructure to proceed and a few have appointed technology managers who function much like university technology managers. Over a period of time this area will be extremely fertile grounds for technology disclosure aimed at industry but presently is in a state of flux. However, we are assisting the National Center for Toxicological Research in converting their technology database into electronic format. If this is successful we believe other laboratories will wish to participate.

CONCLUSION:

While the above list of technology sources is not complete, it does suggest that the critical mass for a licensable technology database could be reached rapidly. The databases under development have a value in and of themselves. If MCC does not proceed with the licensable technology database in a restructured USET, they are identified below for use by another MCC component able to undertake their maintenance:

1. SBIR Abstracts
2. Energy-Related Inventions Abstracts
3. University Technology Manager Database
4. Industry Technology Manager Database

C. **The Competition**

All existing businesses offering services based on an accumulation of licensable technology do so as follows:

1) Solicit abstracts of current technology on a specified format;

2) Create a database that is searchable by only its employees, and

3) Sell hardcopy access to only technology areas in which subscribers have indicated an interest. (We are not aware of anyone using CD-ROM or floppy disks to communicate the results of a search to subscribers.)

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Another characteristic that is not entirely common to the companies reviewed is a conference capability. Conferences are structured around sources of technology interested in licensing and those looking for new technology. Both the technology sources and the lookers pay to attend. Not only does the conference supplement income, it also builds the business's database.

The following are companies generally following the approach described above:

Dr. Dvorkowitz & Associates, Ormond Beach, FL--Dr. Dvorkowitz is franchising his database overseas and solicits a great deal of foreign technology. Dr. Dvorkowitz, who is 72 years old, recently sold his conference capability and is also interested in selling his database activity which purportedly includes 20 K technologies. Subscriptions for selected technology areas are $10K annually.

Lloyd Patterson, International, Ormond Beach, FL--Lloyd Patterson has only twenty one clients which he services on a very personal basis including small conferences. Patterson is interested in being acquired. He claims to have 20 K technologies in his database. Subscriptions for selected technology areas are $30K annually.

NERAC, Tolland, CT--NERAC searches not only the database it has solicited, but other on-line databases to address specific technology problems. Most of NERAC emphasis is "batch" searching to solve technology problems. Subscriptions are $6K annually.

Technology Catalysts, Washington DC--Technology Catalysts claim that its database has much technology from small businesses. They have a conference capability. Subscription rates unknown.

Technology Insights, Englewood, NJ--Technology Insights discloses its technology by newsletter. Technology Insights puts great emphasis on reviewing the Patent Office's weekly Gazette for new patents with high technology potential. It is not limited to licensable new products and processes. Subscription rate for newsletters are approximately $250 annually.

TECHSTART International, New York, NY--TECHSTART indicates that Arthur Anderson Company is their alliance partner. While access is provided by hardcopy, they indicate that floppy disks will be available in the future. Subscription rates unknown.

BBI (MacMillan), Tustin, CA--BBI discloses its technology by newsletter. They limit themselves to the Life Sciences and also have a conference capability. They are now part of MCC through

TECHSTART International, New York, NY--TECHSTART indicates that Arthur Anderson Company is their alliance partner. While access is provided by hardcopy, they indicate that floppy disks will be available in the future. Subscription rates unknown.

BBI (MacMillan), Tustin, CA--BBI discloses its technology by newsletter. They limit themselves to the Life Sciences and also have a conference capability. They are now part of MCC through the MacMillan acquisition.

Regis McKenna, Inc. (Center for Technology Licensing), Palo Alto, CA--Not much is known about Regis McKenna, though most of their activity appears to be focused on the electronic industry. However, on February 2, 1989 the company offered a seminar entitled "University Research: The R&D Gold Mine."

While, in theory, all the companies have access to all technology sources, it does not appear that any one company has attempted to pursue all available sources. There appears to be little evidence that the federal laboratories are being tapped at all. NERAC, Patterson, and Technology Catalysts appear uninterested in universities. Most provide a surprising amount of technology available from industry sources.

With the possible exception of Technology Catalysts, there is no evidence that these companies have tapped the SBIR abstracts.

As best as could be determined, all the companies are running in the black. While this is in no means an exhaustive study of the companies reviewed, it will assist in designing any service we intend to provide around a proprietary technology database.

D. MCC's Advantage

If MCC proceeds with the licensable technology database gathered from the technology sources identified we believe that the following factors will make it superior to that in the hands of competitors.

1. Better access to a greater number of technology sources (i.e., Pergamon Journals, universities, foreign licensing agents, government laboratories, etc.).

2. More efficient creation and, therefore, a larger electronic database from hardcopy through use of new optical scanning technology.

3. Inclusion of SBIR database.

4. Inclusion of Energy-Related Invention database.

5. Availability of technology management and up-load software as incentive for technology source cooperation.

6. Superior database sorting and retrieval software to more efficiently serve subscribers.

7. Screening and reformatting of existing electronic

5. Availability of technology management and up-load software as incentive for technology source cooperation.

6. Superior database sorting and retrieval software to more efficiently serve subscribers.

7. Screening and reformatting of existing electronic databases for licensable technology made more efficient by T.I.C. sorting software. The Patent Office Official Gazette offers an important opportunity that does not appear to have been electronically exploited by competitors. This makes for the possibility of a much more comprehensive database than competitors.

8. Distribution on CD-ROM or floppy disk to subscribers who wish to create their own searchable database in their area of interest. On-line searching for subscribers limited to their designated area of interest is also a possibility and could be the delivery mechanism of choice given superiority of T.I.C.'s sorting software. This approach is in contrast to that of our competitions' who limit searching to their employees.

E. Marketing

While we feel we could create an outstanding database of licensable new products and processes it is essential that we develop a first class marketing effort to make this program a financial success. Since USET does not have a marketing staff, we recommend that some assistance be obtained from BBI, BRS, or Orbit, all of which have database marketing experience, to develop a marketing plan.

F. Financial Requirements for Creation of a Database of Licensable Technology

The following table and attached notes present the resources required for creation of an effective database of licensable technology. This is based on the best information currently available.

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FOUR YEAR OPERATING STATEMENT
for
DATABASE PROGRAM
(Amounts in 000's)

	1st	2nd	3rd	4th
SUBSCRIPTION REVENUE (A)	$ 250	$1,700	$2,880	$3,960
Cost of sales				
TIC (C)	543	250	260	280
Washington (D)	344	368	393	420
Addition Data Operators (D) (Input - Output)	277	585	592	654
Computer Center (E)	75	150	175	200
Marketing (B)	345	927	1,172	1,193
Administration (5% of Revenue (F)	25	83	143	198
Depreciation	50	50	50	50
TOTAL COST	$1,659	$2,413	$2,785	$2,995
NET PROFIT (LOSS)	$(1,409)	$ (713)	$ 95	$ 965

FOOTNOTES

(A) Revenue Projection (Amounts in 000s)

	1989	1990	1991	1992
1st year 100	$ 250	$ 950	$ 780	$ 720

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	1989	1990	1991	1992
1st year 100	$ 250	$ 950	$ 780	$ 720
2nd year 150		750	1,350	1,140
3rd year 150			750	1,350
4th year 150				750
	$ 250	$1,700	$2,880	$3,960

- Assumes that annual subscriptions are $10,000.
- Assumes 80% renew after 1st year; 90% renew after second year and 100% after third year.

(B) Marketing Costs - Marketing plan must be worked out with the assistance of Orbit, BRS & BBI. For purposes of this plan we assumed that the marketing function consisted of the director of marketing and three support people. The sales effort would be performed by Telemarketing and/or independent agents or other Maxwell organizations on a commission basis. Commission is included at 33% on new subscriptions and 100% on subscription renewals.

	1989	1990	1991	1992
Market Staff Expenses	$262	$407	$ 434	$ 447
Commissions	83	520	638	746
TOTAL MARKETING	$345	$927	$1,172	$1,193

(C) TIC software development is included at 1989 budgeted expenditure level for 1989. The plan assumes that 50% of TIC's effort is required after software package is completed to maintain and enhance system.

FOOTNOTES (cont'd.)

(D) Washington would be the operation's center for the database business. All input to database would be obtained and inputted and all call-ins from subscribers would be handled through to the Washington office. In addition to the executive administration function, a function would be

FOOTNOTES (cont'd.)

(D) Washington would be the operation's center for the database business. All input to database would be obtained and inputted and all call-ins from subscribers would be handled through to the Washington office. In addition to the executive administration function, a function would be established to handle the input-output from the database. The staffing of the Washington office is budgeted at the following levels:

	Management Administration Office	Data Base Operations	Total
1989	3	9	12
1990	3	10	13
1991	3	12	15
1992	3	15	18

(F) It is assumed that the general administration would be handled out of another Maxwell organization. For purposes of the plan, a cost of 5% of revenues is assumed.

(E) Estimated computer center. Cost for proprietary data base.

II. **IMPROVE THE P&L OF THE USET LICENSE BROKERAGE BUSINESS.**

A. The Problem

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During the last six months the primary assignment of the Washington office included in addition to the design of a technology database, an assessment of how the license brokerage business might be made more efficient.

USET has no ability in-of-itself to speed a licensed new product or process to the market so as to obtain a faster return of royalty from the licensee. Control of marketing a new product or process is in the exclusive hands of the industrial manufacturer and to some extent the government regulatory agencies that bar market entry until safety and efficacy concerns have been met. Notwithstanding, it is within USET control to reduce the cost of licensing while increasing the number of licenses and future potential for royalty and equity return. If this is achieved the increase in licenses makes the potential of royalty return in the future larger and more predictable.

B. Recommended Changes in the Practices of the License Brokerage Business.

1. Licensable Technology Database

The primary means of reducing costs while increasing the number of licenses is inclusion of USET technology in the proprietary licensable technology database described in I. above. Inclusion of the USET technology in the database is intended to increase its exposure to industry subscribers and decrease the amount of time that USET licensing executives now devote to finding licensees. This should create an industry "pull" for USET technology and decrease the necessity of USET "push". In addition, the ability of USET licensing executives to search the electronic database will speed response time to inquiries from business that are not subscribers to the database. At present, general requests for technology in areas of interest are not answered. In short, we believe that the electronic database being developed is essential to success and growth of the license brokerage business.

2. Matching USET Technology to SBIR Awardees

Having SBIR awards on the licensable technology database not only enhances the marketability of the database, but permits USET licensing executives to match USET technology to prior SBIR awardees. Licensing small businesses that have had previous SBIR awards not only enhances the prospect of royalty return, but can reduce costs if a government agency funds the further development of USET technology. For instance, such funding will cover the

costs of filing patent applications which otherwise would need to be undertaken by USET. Other substantial cost saving and benefits are discussed in the Appendix A which describes the SBIR program in greater detail.

3. Use of a Standard Evaluation Process

At present USET licensing executives do not use standard criteria to evaluate market potential of USET technology. The

costs of filing patent applications which otherwise would need to be undertaken by USET. Other substantial cost saving and benefits are discussed in the Appendix A which describes the SBIR program in greater detail.

3. Use of a Standard Evaluation Process

At present USET licensing executives do not use standard criteria to evaluate market potential of USET technology. The lack of common criteria and a process for disposition of technology clearly impedes rapid disposition of large streams of technology. Indeed, the lack of a standard evaluation process interferes with the ability of licensing executives to confer with one another to assist in dispositions.

The attached evaluation form was developed to improve this fundamental problem, but had not been implemented prior to Bill Miles departure. (See Appendix B)

4. Development of Standard Responses to University Clients

With a standard evaluation process in place, the use of standard replies to university clients after evaluation of their technology is greatly simplified and eliminates the present practice of crafting entirely unique responses to every evaluated technology.

5. Standard Technology Report Form

It is essential that a standard invention report form be developed for USET clients. If this is not undertaken each disclosure may need to be reformatted before entry into the electronic database.

6. The Westport and Washington Environments

Unfortunately, past management of UPI, who retained control after MCC acquisition, had both ignored and resisted the changes required to remain competitive in a radically changed environment.

We believe that the habits acquired over many years by some staff that came with UPI cannot be overcome without new management. The simplest way of achieving this is to make the Washington office the headquarters for USET especially since all the emphasis for improvement is being originated by and pursued from Washington. In addition, it is recommended that the operating function at Westport be gradually phased down and transferred to Washington. As a first step it is especially important that the two new licensing executives be moved to Washington since they have not yet permanently located in Westport nor have they been instilled with past UPI practices.

Interaction between USET and various parts of the US Government are essential to the success of the organization. Washington is the central collection point for a major portion of the data that constitutes our databases. It is the focal point for the decision makers regarding government funding of SBIR technology efforts as well as for the $65 billion R&D efforts. It is the home of the US Patent Office, and the headquarters for

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Finally, it is important that USET achieve a critical mass in one place. With the scattering of resources as they now are, such a critical mass will be most difficult, if not impossible. At this time when all resources should be sharply focused it is impossible to do so because of the lack of day to day interaction. This situation sorely needs remedying.

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SMALL BUSINESS INNOVATION RESEARCH PROGRAM

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SMALL BUSINESS INNOVATION RESEARCH PROGRAM

It is predictable that new technology management organizations, such as USET, will eventually profit from the licensing of their client's technology. However, the heavy front-end investment in establishing a technology portfolio and the minimum five-year period required to bring such technology to the marketplace causes understandable uneasiness. The inherently long development phase for products leads to questions of whether the initial investment was wise, clients are being well served, and the morale of operating personnel can be maintained before profitability is reached. We believe that moving a substantial portion of USET's client technology through the Small Business Innovation Research (SBIR) program not only responds to these questions but will lead to an increase in USET technologies reaching the marketplace.

The SBIR program was created in 1982 by Public Law 97-219. The law requires that all federal agencies with extramural R&D programs in excess of $100 million set aside 1.25 percent annually of their extramural R&D budget to fund the development of technology, which could assist in meeting the agency's mission, from small businesses (businesses having under 500 employees). In 1987, the Departments of Defense, Health and Human Services, Energy, Transportation, Agriculture, Education, and Commerce and National Aeronautics and Space Administration, the National Science Foundation, the Nuclear Regulatory Commission, and the Environmental Protection Agency committed $360 million to the SBIR program.

SBIR funding is awarded in two phases. The first phase, which can be up to $50,000 and last six months, is intended to prove the scientific and technical feasibility of the small business proposal. The second phase, which can be up to $500,000 and last for two years, is committed to the development of a prototype of the technology whose scientific and technical feasibility was proven in Phase I. Approximately one-in-eight proposals are awarded Phase I funding, but more importantly, nearly 40 percent of Phase I awards reach Phase II funding.

Since there is nothing in the law that would preclude a USET small business licensee from using USET controlled technology as a core of a SBIR proposal, USET and its clients can be major beneficiaries of the program. While agency solicitations are aimed to solve Agency problems, they have been sufficiently broad to presume that a home could be found for most technology USET

controls. Since the agencies have interpreted the law as excluding universities and its investigators as "small businesses", organizations such as USET are in an ideal position to move its university technology through the innovation process by licensing small businesses looking for technology to develop with SBIR funding. Indeed given the continued development of our SBIR database, we could, within short order, identify the small businesses who have been most successful in competing for SBIR. We could further start with those small businesses closest to the

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Even though a university or its investigators cannot be recipients of SBIR awards, one-third of Phase I awards and one-half of a second phase award can be subcontracted by a small business awardee to a university. Indeed USET could condition the licensing of a small business on their subcontracting part of their SBIR award to the university who created the technology. Other factors make undertaking this approach attractive for USET. SBIR awardees can use their funding to file patent applications on USET technology and pay other consultating and service costs provided by USET.

Even the current belief that the inability of small business to obtain product liability insurance makes them unreliable licensees, seems to work to our benefit in the SBIR situation. The university community does not seem to recognize that the small business can be used as a vehicle to obtain SBIR funding for value added research and their marketing of a resulting product conditioned on obtaining product liability insurance. If they cannot, the product can be licensed to a company that can, subject to part of the royalty being shared with the small business.

Attached is a schematic that simplifies what we think USET can do under SBIR. We believe this to be a Win-Win possibility that could give USET a very positive new image with clients and the technology community.

Conclusions -

1. The cost principles identified would appear to enable USET to recover its actual costs from a successful SBIR awardee who USET assisted in gaining the award. The USET costs would be additive and would not therefore reduce the awardee's portion of the award.

2. In addition to recovering costs from a funded award, the cost principles appear to allow the payment of option fees for the technology as an indirect cost.

3. SBIR proposals could be the subject of USET technology

that in the past we made no effort to license because of its early stage of development. Given an award, we will have greatly increased the prospect of commercializing this kind of USET technology.

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5. The intent of the SBIR program is to assist small business entrepreneurs. Successfully transferring USET technology to these entrepreneurs as a vehicle for an SBIR award clearly adds to the importance of the program by opening it to technology ideas created anywhere in the world. We could assist in reversing the flow of technology to the U.S. Robert Maxwell may wish to embrace this initiative as the portion of his foundation intended to assist entrepreneurs.

6. Some of the conditions that we believe should be contained in the contract transferring USET technology to a small business licensee in addition to standard royalty or equity returns are:

   a. a promise to pursue Phase I and Phase II SBIR funding;

   b. that if funding is obtained, certain identified USET services will be paid for;

   c. patent protection, if appropriate, will be sought with USET's assistance and paid for out of SBIR funding;

   d. that the small business will have a first option to market the technology within a reasonable time and, if unable, USET will be able to license other manufacturers subject to a portion of the royalty return going to the small business;

   e. that failure to obtain product liability coverage will immediately permit USET to license other manufacturers subject to a portion of the royalty return going to the small business;

   f. that if USET licenses other manufacturers under the circumstances of d) or e) above, inventions, technical data or other know-how created by the small business licensee in performance of the SBIR award may be part of the manufacturing license at USET's discretion;

   g. that there will be an up front option fee from SBIR funding, if permissible;

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JITA--The designated exclusive licensing agent for Japan's government funded research institutes. (JITA's technology has been disclosed to the Dvorkowitz proprietary database.)

Technical Research Centre of Finland--Licenses technology from 35 research institutes funded by the Finnish government.

AKADIMPEX--Licensing agent for Hungary's government funded research institutes.

Austrian Trade Commission--Nonexclusive licensing agent for Austrian businesses.

Canadian Patents and Developments Ltd.--Exclusive licensing agent for Canadian research institutes and some Canadian universities.

Israeli Industry Center for R&D (MATIMOP)--Nonexclusive licensing agent for Israeli businesses.

Italian Trade Commission--Nonexclusive licensing agent for Italian businesses.

Swedish National Board for Technical Development--Swedish licensing agent--claims to cover all sources of technology in Sweden.

8) Existing Electronic Databases Disclosing Technology

Before listing the possibilities of using existing databases, it is important to discuss the problems they entail. First, with one exception, none of the accessible databases are limited to licensable technology. Further, other than the U.S. Patent Office's official Gazette, none appear to be limited to

new products and processes. They all appear to commingle scientific and technology results which are not limited to new products and processes. Further, to the extent they are copyrighted, the right to screen them for licensable technology may be limited.

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Since the following NTIS and U.S. Patent Office databases are uncopyrighted and meet this access test they are being acquired or being considered for acquisition to screen for licensable technology and reformatting:

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Bibliographic Database--Contains the abstracts from all technical reports announced by NTIS both foreign and domestic (1.5 million records).

The U.S. Patent Office Weekly Official Gazette--Contains the abstracts of patented inventions issued during the week prior to the Gazette's publication date.

It is emphasized that this ~~paper~~ plan does not address the T.I.C. proposed initiative of using its new sorting software to develop an on-line technology database consisting of existing copyrighted databases. The T.I.C. exercise is aimed at creating a comprehensive technology database for use by business in reviewing prior art (whether or not licensable) for the purpose of determining whether investments in selected R&D programs are justified. This can be an important business but is not limited to a database of licensable technology.

9) Biomedical Business International (BBI) (MacMillan)

BBI solicits abstracts of new medical products and processes for disclosure in their newsletters. We do not know the extent to which they have gained the cooperation of relevant technology sources but it appears insubstantial in comparison to what is available. Indeed, they solicit abstracts from USET periodically without much success.

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While the above list of technology sources is not complete, it does suggest that the critical mass for a licensable technology database could be reached rapidly.

C. Competitors

All ~~private~~ existing businesses offering services based on an accumulation of licensable technology do so as follows:

1) Solicit abstracts of current technology on a specified format;

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Another characteristic that is not entirely common to the companies reviewed is a conference capability. Conferences are structured around sources of technology interested in licensing and those looking for new technology. Both the technology sources and the lookers pay to attend. Not only does the conference supplement income, it also builds the business's database.

The following are companies generally following the approach described above:

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NERAC, Tolland, CT--NERAC searches not only the database it has solicited, but other on-line databases to address specific technology problems. Most of NERAC emphasis is "batch" searching to solve technology problems. Subscriptions are $6K annually.

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Technology Insights, Englewood, NJ--Technology Insights discloses its technology by newsletter. Technology Insights puts great emphasis on reviewing the Patent Office's weekly Gazette for new patents with high technology potential. It is not limited to licensable new products and processes.

TECHSTART International, New York, NY--TECHSTART indicates that Arthur Anderson Company is their alliance partner. While access is provided by hardcopy, they indicate that floppy disks will be available in the future.

BBI (MacMillan), Tustin, CA--BBI discloses its technology by newsletter. They limit themselves to the Life Sciences and also have a conference capability. They are now part of MCC through the MacMillan acquisition.

Regis McKenna, Inc., Palo Alto, CA--Not much is known about Regis McKenna, though most of their activity appears to be seems focused on the electronic industry. However, on February 2, 1989 the company offered a seminar entitled "University Research: The R&D Gold Mine."

While, in theory, all the companies have access to all technology sources, it does not appear that any one company has attempted to pursue all sources. There appears to be little evidence that the federal laboratories are being tapped at all. NERAC, Patterson, and Technology Catalysts appear uninterested in universities. ~~There is~~ a surprising amount of technology available from industry sources. Most provide

With the possible exception of Technology Catalysts, there is no evidence that these companies have tapped the SBIR abstracts.

As best as could be determined, all the companies are running in the black. While this is in no means an exhaustive study of the companies reviewed, it will assist in designing any service we intend to provide around a proprietary technology database.

D. Value-Added to Planned USET Licensable Technology Database

If MCC proceeds with the licensable technology database gathered from the technology sources identified we believe that the following factors will make it superior to that in the hands

of competitors.

1. Better access to a greater number of technology sources (i.e., Pergamon Journals, universities, foreign licensing agents, government laboratories, etc.).

2. More efficient creation and, therefore, a larger electronic database from hardcopy through use of new optical scanning technology.

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2. More efficient creation and, therefore, a larger electronic database from hardcopy through use of new optical scanning technology.

3. Inclusion of SBIR database.

4. Inclusion of Energy-Related Invention database.

5. Availability of technology management and up-load software as incentive for technology source cooperation.

6. Superior database sorting and retrieval software to more efficiently serve subscribers.

7. Screening and reformatting of existing electronic databases for licensable technology made more efficient by T.I.C. sorting software. The Patent Office Official Gazette offers an important opportunity that does not appear to have been exploited by competitors. This makes for the possibility of a much more comprehensive database than competitors.

8. Distribution on CD-ROM or floppy disk to subscribers who wish to create their own searchable database in their area of interest. On-line searching for subscribers limited to their designated area of interest is also a possibility and could be delivery mechanism of choice given superiority of T.I.C.'s sorting software.

D R A F T

USET BUSINESS PLAN

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1) Create a database of licensable new products and

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1) Create a database of licensable new products and processes accumulated from technology managers throughout the world or screened from existing electronic and hardcopy databases, and

2) Improve the P&L of the USET license brokerage business including the possibility of a joint venture with another organization.

1. Creation of a New Database of Licensable New Products and Processes

A. The Basic Premise for Creating the New Database.

Industry and entrepreneurs everywhere have recognized that they are in the midst of a worldwide explosion of new technology that may enure to the benefit of their competition unless they themselves can pursue its application. At the same time governments who fund research are creating new incentives to encourage exchange of scientific and technical information especially between business and government research institutions. This is being done to speed the better application of research and justify the government investment. These facts have created an unprecedented environment in which government supported research institutions who own their technology are under increasing pressure to collaborate with industry manufacturers in order to complete the innovation process and produce jobs.

Because the scientific journals are not the normal or most timely way of communicating new products or processes to industry or to entrepreneurs, an increasing number of institutions with large government funded programs have employed Technology Managers to supplement journal publications with other disclosures directly tailored to attract industry's attention.

In addition to the support provided to research institutions, Governments like the U.S. have recently started funding small businesses to test concepts and develop prototypes of new products and processes that have been evaluated by government review bodies to be potentially useful to the government and the public. Only about 20% of the proposals received end up with awards. Most of these small business products and processes will need the assistance of larger industry partners or venture partners to reach the marketplace. In most part, the small business-awardees have been left to their

own devices to find partners. However, abstracts of the 18,000 awards which cover an investment of over $1.5 billion dollars since the program began are publicly available in hardcopy. These abstracts have been accumulated for inclusion in our database from participating Federal agencies. Surprisingly this database is not presently available from any on-line vendor.

Finally, there is a growing number of large industrial firms that have begun licensing technology that they perceive to be in excess of their needs. For instance, some of this technology is

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Finally, there is a growing number of large industrial firms that have begun licensing technology that they perceive to be in excess of their needs. For instance, some of this technology is valuable industrial processes being used by the creating company but believed to have other uses. There is no known single source for hardcopy disclosures of this class of technology.

There is a rapidly growing cottage industry feeding off parts of the above described hardcopy information for the purpose of selling information services to industry. Some technology sources indicate they are uneasy dealing with this group because "they have no staying power" i.e., the strong financial backing to ensure an adequate and stable institutional framework for continual growth and update of available technology information. There is clearly no single credible entity in the worldwide business of identifying the finite number of organizations attempting to license technology, accumulating those technologies in a database, and then selling access to industry. The preliminary findings of a market study conducted on behalf of USET is headed to a conclusion that industry would be very interested in subscribing to such a database. This is not surprising since the database will create savings over that which they themselves would have to incur to find the same information.

During the past year as we have reviewed technology oriented electronic databases it has become apparent that such databases to be useful to industry users must identify at least:

1. the performing organization
2. the inventors
3. a technical description
4. advantages over prior art
5. patent coverage, if any
6. availability of licenses

It is very clear that almost none of the available electronic databases meet these basic criteria and one that does is very user unfriendly.

B. <u>Identification of Sources with Licensable Technology</u>

For a number of months we have been attempting to identify a core of licensable technology sources who are likely contributors to a database which can be demonstrated to have "staying power". It is not predictable in advance how many of those identified would cooperate with MCC if we decided to proceed. However, it is clear that many have Technology Managers that pursue outreach

programs that include hardcopy dissemination of technology available for licensing. To facilitate dissemination, this information is not copyrighted. These existing hardcopy abstracts could clearly serve as the initial critical mass to support the marketing of a licensable technology database. However, future additions would necessarily proceed more slowly much like the addition of new journals to Pergamon Press.

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Since these disclosures are emanating from different sources there is no uniform format. However, our review indicates that virtually all disclosures cover common fields of interest to industry users, i.e., performing organization, inventors, technical description, advantages over prior art, patent coverage, availability of licenses, etc. Given staff that can accurately identify these fields, new optical scanning technology which permit machine tagging of fields can create an electronic database with a uniform format. Our experiments with this scanning technology while converting the 18,000 abstracts of awards to small businesses to electronic form has produced near 100% accuracy and is not resource intensive.

If we proceed, it seems likely as we gain credibility that we could convince some technology sources to manage their technology with software being developed by T.I.C. which includes an up-load to our electronic database. When the software is available this could be done immediately with technology from the ten clients USET exclusively manages.

With the above in mind the following are potential licensable technology sources listed in order of importance:

1) <u>150 U.S. Universities</u>

We have identified the technology management contacts including telephone numbers and addresses at 150 U.S. universities with an R&D budget in excess of $10 million dollars. Many of the technology managers are familiar with USET personnel, which we hope will foster their cooperation. Preliminary discussions with some of the Technology Managers make it clear that by close collaboration we can secure new potential technology disclosures for our technology database even prior to submission of the research for publication. This arrangement would maintain us at the cutting edge of technology. Clearly the 10 USET clients in the listing are obligated to participate. Further, in a dry run we contacted a small number of non-clients and were able to solicit abstracts of over 300 technologies. The technology managers in this group are networked through the Society of University Patent Administrators. It is very important that we maintain credibility with the Society to gain membership cooperation.

2) <u>305 U.S. and Foreign Industrial Concerns Who Have Indicated Their Desire to License Company Technology</u>

We have identified the technology management contact including telephone number and address at each of 305 businesses who have announced their interest in licensing their excess technology in Licensing Executive Society publications. In a dry run we accumulated a number of abstracts from technology conferences. This group of technology managers is networked through the Licensing Executive Society.

3) The Small Business Innovation Research Program (SBIR)

We have identified the technology management contact including telephone number and address at each of 305 businesses who have announced their interest in licensing their excess technology in Licensing Executive Society publications. In a dry run we accumulated a number of abstracts from technology conferences. This group of technology managers is networked through the Licensing Executive Society.

3) The Small Business Innovation Research Program (SBIR)

The U.S. SBIR program was created in 1982 by Public Law 97-219. The law requires that all federal agencies set aside 1-1/4% of their annual R&D budget to fund development of promising technology in the hands of small businesses. Since 1983 approximately $1.5 billion dollars has been spent on 10,000 awards. Uncopyrighted descriptions of each award and the technology involved is available from each funding agency. All 10,000 announced awards have been accumulated from the 11 agency contact points and are now being converted into an electronic database. Since only 1 of 8 submissions from small businesses are granted funding, industry should be very interested in the technology that survived the government evaluation and screening process. As noted, while hardcopy is publicly available, no on-line vendor is managing the database.

4) The D.O.E. Energy Related Inventions Program

The D.O.E. program was created by statute in 1976. The law creates a funding program to develop energy related products and processes brought to the attention of D.O.E. by small businesses and individuals. The evaluation and recommendations for funding have been assigned to the National Bureau of Standards. In the last 10 years NBS has recommended funding of 8,000 technologies. We have uncopyrighted hardcopy abstracts of these technologies and are proceeding to convert them into an electronic database. Recent legislation has expanded NBS's evaluation service to all other inventors. How this authority will be implemented remains to be seen but could result in an increase in evaluated technologies.

5) The Pergamon Journals

Editors of the Journals could as part of the review process ask authors whether the paper submitted describes any new product or process which he or his organization was interested in licensing or further developing. If so, an abstract of that paper could be created for inclusion in our database. The submitter's incentive to participate would be explained as possible royalty return or additional research funding from industry.

6) Foreign Sources of Licensable Technology with Agreements to Disclose to USET

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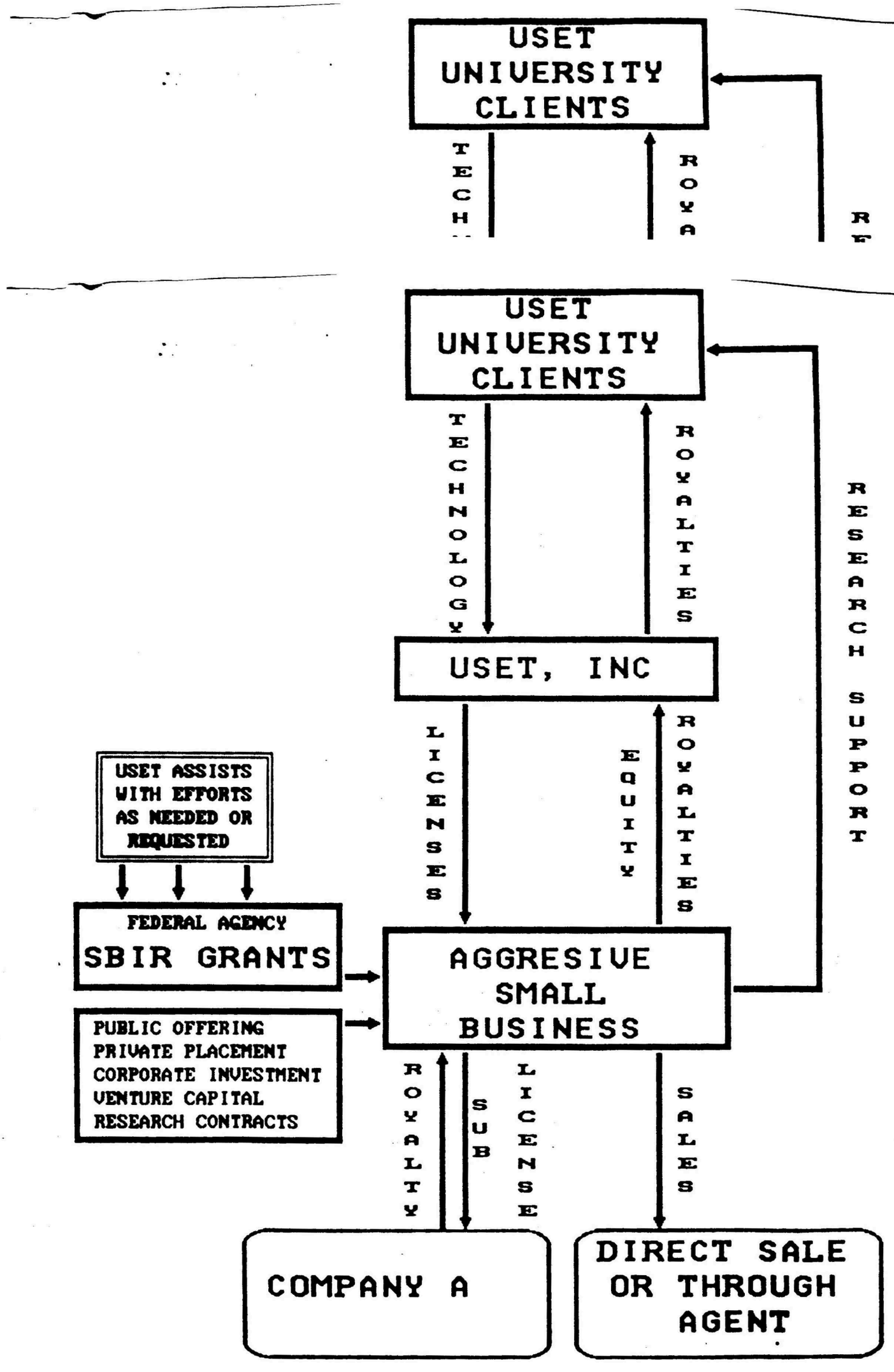
k. that the small business will have a first option to further develop the technology if the SBIR proposal is rejected.

NL:k

Attachment


USET
UNIVERSITY
CLIENTS
TECHNOLOGY
ROYALTIES
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LICENSES
EQUITY
ROYALTIES
USET ASSISTS WITH EFFORTS AS NEEDED OR REQUESTED
FEDERAL AGENCY
SBIR GRANTS
PUBLIC OFFERING
PRIVATE PLACEMENT
CORPORATE INVESTMENT
VENTURE CAPITAL
RESEARCH CONTRACTS
AGGRESIVE
SMALL
BUSINESS
ROYALTY
SUB
LICENSE
SALES
COMPANY A
DIRECT SALE
OR THROUGH
AGENT

PROPOSED USET EVALUATION FORM

Instructions: To be completed following review of the disclosure and initial discussion with University and Inventor.

Title:

USET Number:

APPENDIX B

PROPOSED USET EVALUATION FORM

Instructions: To be completed following review of the disclosure and initial discussion with University and Inventor.

Title:

USET Number:

Brief Description:

Evaluation

1. Technical-Stage Of Development

	Check	Points
* Concept only, expensive/difficult to reduce to practice	-----	2
* Concept only, reduction simple but not done	-----	4
* Proof of concept done, lab model only		
- little data collected	-----	6
- much data collected	-----	8
* Enginering product ready Prototype available	-----	10

Points----
10

2. Technical-Time/Hurdles to Commercial Introduction

Time	Check		Hurdles	Check		
* 1 year	-----	3	Few	-----	2	-----
* 2-3 years	-----	2	Many	-----	1	-----
* Longer	-----	1				Points----
						5

3. Technical-Inventor Support

	Check	Points
a. * Strong support for invention	-----	3
* Average support for invention	-----	2
* Weak support for invention	-----	1
b. * Aware of market	-----	2
* Not aware of market	-----	1
	Points	5

4. Market Factors

	Check	
a. Market Interest		
* Mature market competing products	-----	1
* Growth market, few competitors	-----	5
* Broad technology	-----	10
b. Early Income Potential		
* $5 k or less	-----	1
* $50 k or less	-----	5
* Over $50 k	-----	Points 10
		20

5. **Intellectual Property Protection**

	Check		Points
* Protection Available	-----		10
* Published, Bar Date	-----		5
* No Protection Available	-----	Points	1
			10

5. **Intellectual Property Protection**

	Check		Points
* Protection Available	-----		10
* Published, Bar Date	-----		5
* No Protection Available	-----	Points	1
			10

Literature Survey Done Y_____ N_____

University Patent Survey Done Y_____ N_____

6. Other Factors

	Very Negative Not Controllable	Negative $ to Fix	Negative Minor
Legal Liabilities	-----	-----	-----
Product Regulation	-----	-----	-----
Safety	-----	-----	-----
Environmental Impact	-----	-----	-----
Other	-----	-----	-----
Points	-10	-5	-1

Points -----

7. Likelihood Of Success (Mark in Line)

---------- Total Points -----

0 Poor 50 Good 100

8. Proposed Marketing Strategy:

9. Comments: