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**INVENTION AND INNOVATION SUPPORT
IN MINNESOTA**

**An Interim Report to the Legislature
January 15, 1989**

**Department of Trade and Economic Development
900 American Center
150 East Kellogg Boulevard
St. Paul, MN 55155**

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INTRODUCTION

The Legislature in 1988 directed the Business Promotion Division of the Department of Trade and Economic Development to:

"...contract for the study and design of a comprehensive, integrated, invention and innovation support and marketing system. The study must examine the feasibility of locating an invention and innovation center in the Twin Cities metropolitan area, with a statewide network involving Twin Cities' suburban and greater Minnesota communities. The design must include an educational component to encourage greater interest in innovative and inventive methods. It must also provide proposals for linking Minnesota-based invention and innovation activities with similar efforts occurring nationally and internationally." 1988 Minnesota Laws, Chapter 686, Article 1, Section 14(h).

The legislation required the Department to submit an interim report to the Legislature by January 15, 1989, and to submit a final report to the Legislature by June 30, 1989.

This document is the interim report required by the legislation.

BACKGROUND

There is considerable national interest in programs to expand technology, invention and innovation.

At the federal level, the Omnibus Trade and Competitiveness Act of 1988 (P.L. 100-418, 102 Stat. 1107) contained new federal initiatives on technology transfer (Sec. 1521), technology education (Sec. 6111 and Sec. 6121), and technology assistance programs of small business development centers (Sec. 8006).

In Minnesota, legislative interest in the area of invention and innovation is not new. In earlier years the Legislature funded:

- * A grant to the Minnesota Inventors Congress to establish a focal point for developing an invention support system, coordination of a regionally-based invention support system, primarily in the form of semi-autonomous regional centers, promoting existing inventor and invention support activities, promoting invention research to be disseminated to the state's educational systems, and developing a fiscal design for statewide invention support. 1985 Laws of Minnesota, 1st Special Session, Ch. 13, Sec. 28, Subd. 7.

- * A technology transfer tax credit (in place from 1983 through 1986), which authorized a credit against the transferor's income tax of up to 30 percent of the first \$1,000,000 of the net value of technology transferred to qualified small businesses. 1983 Laws of Minnesota, Ch. 342, Art. 8, Sec. 13, Subd. 2, codified as Minn. Stat. 290.069, Subd. 2.
- * A small business assistance office tax credit (in place from 1983 through 1986), which authorized a credit against income tax of up to \$25,000 for contributions to qualified nonprofit organizations which provided assistance to inventors and entrepreneurs. 1983 Laws of Minnesota, Ch. 342, Art. 8, Sec. 13, Subd. 3, codified as Minn. Stat. 290.069, Subd. 3.

This legislative support augmented the work of other invention-related organizations in Minnesota, including:

- * The Minnesota Inventors Congress, which serves as a focal point for invention support in the state. An annual Inventors Congress provides an opportunity for inventors to display their inventions and to receive public reaction and exposure. The Inventors Congress operates two resource centers to assist inventors and the general public with questions about idea development, patents, trademarks, copyrights, marketing and general invention support.
- * The Minnesota Inventors Hall of Fame, which honors Minnesota inventors and brings to the attention of the public the economic and social importance of their contributions.
- * The Young Inventors Fair, sponsored by the Twin Cities Educational Cooperative Service Unit and the Science Museum of Minnesota. This organization offers workshops and other events to teach and encourage students to invent.
- * The Inventor and Technology Transfer Society, which prepares instructional materials for inventors, and presents various workshops.
- * The Minnesota Small Business Assistance Office, which provides information and assistance to inventors and entrepreneurs in all aspects of business start-up, expansion and operation.
- * The Greater Minnesota Corporation, which was established in part to stimulate economic growth and job creation through applied research, technology transfer, and product development.
- * The Office of Research and Technology Transfer Administration, University of Minnesota, which promotes the transfer of technology developed at the University to companies for commercialization. The Office also negotiates and administers sponsored research agreements with industry and provides advice and assistance to faculty, staff

and students about discoveries, patents, industrial research contracts, and relationships with industry.

- * The Minneapolis Public Library, which maintains a patent depository library to assist inventors and others in researching patent information.
- * Independent consultants, which provide counseling and related services to inventors. Many of these services are fee-based, but in some cases consultants have arranged with state Technical Institutes to provide low-cost assistance to Technical Institute clients in office space provided by the Technical Institutes.
- * The U.S. Small Business Administration, Small Business Development Centers, SCORE organizations, and an array of other groups, which provide counseling and referral services to inventors and entrepreneurs.

As the above indicates, a substantial number of individuals and organizations provide assistance to inventors and entrepreneurs. There is, however, substantial anecdotal evidence that these services and resources are often fragmented, incomplete, and in some cases unavailable outside the Twin Cities metropolitan area.

A major focus of the study, therefore, is to examine the range of resources and services available to inventors and entrepreneurs, and the process of delivering those services, and to determine the feasibility of coordinating service delivery through a statewide system.

APPROPRIATION

The Legislature appropriated \$100,000 for the study.

CONTRACTOR SELECTION

Study proposals were solicited through the State Register and direct contact with potential contractors. The proposals were evaluated by a panel of individuals from the Minnesota Department of Trade and Economic Development, the State Board of Vocational Technical Education, the Attorney General's office, and the U.S. Small Business Administration.

Following the evaluation, the contract was awarded to the Institute for Invention and Innovation, a non-profit organization located in St. Paul.

SCOPE OF WORK

The contract directed the contractor:

- A. To examine the feasibility of locating an invention and innovation center in the Twin Cities metropolitan area, with a statewide network involving Twin Cities' suburban and greater Minnesota communities. The contract provided that the study must include, at minimum:
 1. A taxonomy and a detailed description of the financial, informational, legal, marketing, referral, and other support available to inventors and innovators in the Twin Cities metropolitan area, and in each of the state's economic development regions.
 2. A detailed description of gaps in financial, informational, legal, marketing, referral, and other support available to inventors and innovators in the Twin Cities metropolitan area, and in each of the state's economic development regions.
 3. A detailed description of barriers to the development of a comprehensive, integrated, invention and innovation support and marketing system to remedy those gaps that will serve both Twin Cities metropolitan area and greater Minnesota area residents.
 4. The contractor's recommendation on the feasibility of locating an invention and innovation center in the Twin Cities metropolitan area, with a statewide network involving Twin Cities suburban and greater Minnesota communities, together with reasons for the recommendation.
 5. A detailed description of the contacts the contractor has established and maintained during the study with invention-related organizations and the nature of their contributions to the study.
- B. Following completion of the study, to design a comprehensive, integrated, invention and innovation support and marketing system, to include at a minimum:
 1. A detailed program for invention and innovation support and service delivery within the Twin Cities metropolitan area, in suburban areas, and in greater Minnesota. The program must include the contractor's recommendation on the objectives, structure, work program, and staffing requirements for the invention and innovation center, and the reasons for the recommendation.
 2. An education component to encourage greater interest in innovative and inventive methods. This component at minimum must identify

existing educational resources and curricula and discuss specifically how those resources and curricula will be used in education programs. Where there are gaps in educational resources, the education component must describe specifically how supplemental education programs will be developed. This component also must describe in detail methods for teaching invention and innovation, and disseminating invention research information to the Minnesota educational system.

3. Proposals for linking Minnesota-based invention and innovation activities with similar efforts occurring both nationally and internationally.
4. A detailed proposal for coordinating the efforts of individuals and organizations involved in providing invention and innovation support within Minnesota.

The contractor was also directed to submit monthly progress reports to the Department, and to cooperate with the Department in preparing reports to the Legislature.

CONTRACTOR'S METHODOLOGY

The study consists of a detailed data collection phase, and an analysis and reporting phase.

The data collection phase includes four major components:

1. Survey of inventors, entrepreneurs and service providers (e.g., bankers, marketing professionals, attorneys, economic development professionals, and small business service providers) to determine the nature, extent, and quality of services presently available to inventors and entrepreneurs, and to determine their perceptions of how the state should be involve in inventor and innovation support.
2. An educational component, to determine the nature and extent of inventor and innovation support presently provided through the state's education system, and to determine educators' perceptions of the need for additional or different state involvement in encouraging interest in invention and innovation methods through the schools.
3. A site visit to Scandinavian countries, and contact with invention centers in this country, to determine the feasibility and appropriateness of incorporating those models in Minnesota, and to establish linkages between Minnesota-based invention and innovation activities with similar efforts occurring elsewhere.

4. A literature search to identify current issues in invention and innovation support, and apply that information to study recommendations.

The analysis and reporting phase will focus on detailed examination of the data to determine public policy implications for Minnesota. The results of the analysis will be incorporated into the contractor's final report which must be submitted to the Department by June 1, 1988.

CONTRACTOR'S PROGRESS AND WORK REMAINING

Survey

The contractor has developed a survey instrument which will be administered to approximately 75 inventors, entrepreneurs and service providers. To date, approximately two thirds of those individuals have been contacted, and completed survey instruments have been received from approximately one third. A preliminary analysis of these responses is incorporated into the contractor's interim report, attached to this report. The contractor expects to complete the survey work by March 1.

The survey results will be augmented by interviews with two focus groups. The contractor expects to conduct these interviews in March.

Education Component

The contractor has made arrangements with representatives of the various education systems in the state to collect data for this component. Education systems represented include K-12, community colleges, vocational schools, state universities, and the University of Minnesota. This component of the study will be completed by April 1.

National and International Contacts

The contractor has completed the Scandinavian site visit. While there, he interviewed approximately 15 individuals representing inventors and inventor support organizations. Preliminary findings are included in the interim report. Contact with invention centers in this country will likely occur during May.

Literature Search

The contractor has begun the literature search, and expects to conclude it by May 1.

CONTRACTOR'S INTERIM REPORT

A copy of the contractor's interim report is appended to this report. Readers should be aware that any findings and conclusions stated in the report are preliminary, and are subject to change as additional data are analyzed.

A DESIGN STUDY IN EXPLORATION OF A
COMPREHENSIVE, INTEGRATED INVENTION AND INNOVATION
SUPPORT AND MARKETING SYSTEM

AN INTERIM REPORT
SUBMITTED TO

CHARLES A. SCHAFFER, DIRECTOR
SMALL BUSINESS ASSISTANCE OFFICE
MINNESOTA DEPARTMENT OF TRADE AND ECONOMIC DEVELOPMENT

BY
Daniel A. Ferber, Design Study Coordinator
December 15, 1988

I. PURPOSE AND OBJECTIVES OF THE STUDY

The general purpose of the study is to examine, design and report to the Minnesota legislature on a comprehensive, integrated, invention and innovation support and marketing system. The specific objectives of the study are:

To develop a taxonomy and a detailed description of the financial, informational, legal, marketing, referral and other support services available to inventors and innovators in the Twin Cities metropolitan area, and in each of the state's economic development regions.

To determine a detailed description of gaps in financial, informational, legal, marketing, referral and other support services available to inventors and innovators in the Twin Cities metropolitan area, and in each of the state's economic development regions.

To discover a detailed description of barriers to the development of a comprehensive, integrated invention and innovation support and marketing system, designed to remedy any of the preceding, identifiable gaps, to serve both Twin Cities metropolitan area and greater Minnesota residents.

To make a recommendation on the feasibility of locating an invention and innovation center in the Twin Cities metropolitan area, with a statewide network involving Twin Cities suburban and greater Minnesota communities, together with the reasons for the recommendations.

To design a comprehensive, integrated, invention and innovation support and marketing system which will include at least:

A detailed program for invention and innovation support and service delivery within the Twin Cities metropolitan area, in suburban areas, and in greater Minnesota. The program must include the Contractor's recommendation on the objectives, structure, work program, and staffing requirements for the invention and innovation center and the reasons for the recommendation.

An education component to encourage greater interest in innovative and inventive methods. This component at minimum must identify existing educational resources and curricula and discuss specifically how those resources and curricula will be used in educational programs. Where there are gaps in educational resources, the education component must describe specifically how supplemental education programs will be developed. This component also must describe in detail methods for teaching invention and innovation,

and disseminating invention research information to the Minnesota educational system.

Proposals for linking Minnesota-based invention and innovation activities with similar efforts occurring both nationally and internationally.

A detailed proposal for coordinating the efforts of individuals and organizations involved in providing invention and innovation support within Minnesota.

II. BACKGROUND OF THE STUDY

The study evolved from the increasing perception of the understated value and role of the inventor/innovator in Minnesota, prior to 1983, accompanied by the increasing awareness that then-existing invention-related organizations were not providing services/programs of sufficient force to either maximize or optimize the inventive potential of Minnesotans. Prior to 1983 there were four organizations whose titles explicitly included the term "inventor" and whose focus primarily was on independent inventors, i.e., those not or no longer affiliated with private sector commerce and industry.

- A. 1. The Minnesota Inventors Congress (MIC) provides information and assistance for inventors. It serves as the focal point for an invention support system in the state, and through an annual Inventors Congress provides an opportunity for inventors to display their inventions and to receive public reaction and exposure. The MIC operates two resource centers which provide inventors and the general public with answers to questions about idea development, patents, trademarks and copyrights, marketing inventions and general invention support.
2. Minnesota Inventors Hall of Fame is a nonprofit corporation established in 1976 for the purpose of honoring inventors and bringing to the attention of the public the economic and social importance of their contributions to society. This is done by identifying those Minnesota inventors who have made significant contributions to the betterment of life through their inventions. Any individual or any organization can identify and nominate such inventors. Nominees are judged against established criteria defining what is a Minnesota inventor eligible for induction into the Hall of Fame. MIHF is operated by a volunteer Board of Directors and financially supported by the

Minnesota Inventors Congress and private donations.

3. The Young Inventors Fair was developed by the Educational Cooperative Service Unit, Metropolitan Twin Cities area, and preceded by teacher training and student learning programs, and co-sponsored by the Science Museum of Minnesota. The program consists of several coordinated interrelated workshops and events which teach and encourage students to invent.
4. The Inventor and Technology Transfer Society (ITTS) originated prior to 1980 as a committee of the Saint Paul Chamber of Commerce. The intent was to liaison with inventors and innovators in the St. Paul area, and provide services such as (a) noon meetings to search for needs and brainstorm for solutions and (b) workshops to teach the topics of importance to inventors.

A workshop was implemented in 1981 in cooperation with the U.S. Department of Energy and National Bureau of Standards. In 1983 affiliation of the Committee changed from the Saint Paul Chamber of Commerce to the Minnesota Association for Commerce and Industry (MACI). After the 1984 workshop the members of the Committee incorporated, in accordance with the provisions of the Minnesota Nonprofit Corporation Act, Minnesota Statutes, Chapter 317. In 1984 the Inventors Education Network was founded. The main purpose of this organization was to provide a national instructional newsletter for inventors. The Inventors Education Network is the Minneapolis contractor providing services for the Inventors Resource Center of the Minnesota Inventors Congress. In 1986 and 1987, members of this Society have expanded their workshops by assisting MIC with the "How To Do It" workshop held in Redwood Falls in each June.

B. Other Invention-Related Organizations in Minnesota

1. The Greater Minnesota Corporation is an innovative public-private partnership to stimulate economic growth and job creation through applied research, technology transfer and product development. Designed to promote statewide job growth, the GMC will focus early efforts in rural Minnesota where help is most urgently needed. It will be a catalyst to encourage economic development

cooperation among leaders in agriculture, business, education, labor and local communities.

2. Office of Research and Technology Transfer Administration, University of Minnesota, promotes the transfer of technology developed at the University to companies that will commercialize these technologies in a manner that will benefit the public and provide a financial return to the University. The return to the University is to be used to further university research and reward the University developers of the technology. Additionally, the office negotiates and administers sponsored research agreements with industry and provides advice and assistance to faculty, staff and students concerning discoveries, patents, industrial research contracts, and relationships with industry.
3. The Minneapolis Public Library and Information Center provides free orientation and guidance, in the use of its regional patent depository which, in turn, is electronically linked to the U.S. Patent and Trademark Office in Washington, D.C. for an additional search capability. Also available is a classification manual to facilitate such inquiries. For further detailed, professional searches/information, legal counsel is recommended.
4. The Great Lakes Economic Development Commission and its Research and Development Committee (Chaired by Governor Celeste of Ohio with Ms. Margaret Preska, President, Mankato State University, representing Minnesota) has been established by the Great Lakes Governors Council, Chicago Illinois.
6. Independent consultants for inventors have been provided office space by the Minnesota Technical Institutes, where, for a modest fee, counseling and consultant services are provided. For example, Mr. George Sundin, holder of over 25 patents, now working out of his home in Hermantown, originally used space of the Small Business Management Program, Duluth Technical Institute. Robert Gillson, providing similar services, is available at Brainerd Technical Institute two days a week.
7. In a variety of ways a number of organizations, to be included in more detail in the final report, occasionally do or could assist inventors. Only some of those follow:

- a. Minnesota Chamber of Commerce and Industry
- b. The Entrepreneurs Network and the Entrepreneurs Club
- c. The Business Women's Network
- d. The Minnesota Chapter of the National Association of Women Business Owners
- e. The Metropolitan Economic Development Association
- f. The Minnesota Association of Corporate Growth
- g. Minnesota Intellectual Property Lawyers Association
- h. Minnesota Chapter of the American Marketing Association
- i. Women's Economic Development Corporation
- j. Minnesota Cooperation Office

C. Small Business and Entrepreneur Assistance Programs
(Excerpted from A Guide to Starting a Business in Minnesota, Seventh Edition, September 1988, Copyright 1988, Minnesota Department of Trade and Economic Development)

1. Minnesota Small Business Assistance Office in the Department of Trade and Economic Development delivers two kinds of services: small business assistance and business licensing assistance. These functions are provided through the Bureau of Business Licenses and the Bureau of Small Business. The overall goal of the Minnesota Small Business Assistance Office is to provide accurate, timely and comprehensive information and assistance to business in all areas of start-up, operation and expansion.
2. The Minnesota Technical Assistance Program (MnTAP) provides technical assistance to small companies that may generate hazardous waste. The assistance is both in the form of information and referrals on the regulatory process as well as information on how small businesses can reduce or improve the management of their hazardous wastes.
3. The Minnesota Trade Office manages a variety of programs to assist small and medium-sized companies in developing international trade and export possibilities. The Minnesota Trade Office has a staff of experienced international trade representatives specializing in industries and specific regions of the world. The office also hosts trade delegations from other countries and encourages foreign investment in the state.
4. The Minnesota Extension Service provides education through technical assistance, counseling or

referral assistance in agricultural, community and economic development, forestry, family living, home-based businesses, small business and tourism. Services are provided through offices in each county, area technical specialists, state specialists, and referrals to other agencies, institutions and the private sector. Limited individual counseling is provided in agri-business, forestry-related business, various other small business and tourism-recreation. Educational meetings on economic development and business management are conducted in cooperation with other agencies, local interest groups and various firms on topics most desired by local business groups needing assistance.

5. Procurement Contacts.

(a) The U.S. Small Business Administration operates the PASS System to match government procurement needs with potential small business vendors. It is best to begin exploring sales to the federal government by speaking with the SBA and obtaining a copy of its publication U.S. Government Purchasing and Sales Directory.

(b) Businesses interested in selling their goods or services to state agencies should obtain a copy of Selling your Product to the State of Minnesota. Businesses interested in selling their goods or services to local units of government should obtain a copy of A Seller's Guide to Local Government Purchasing in Minnesota. Outside the immediate Twin Cities area the local city clerk or county auditor is the best first step in determining the potential for sales to local governments.

(c) The Minnesota Small Business Development Center Procurement Assistance Program maintains a network of resources to provide technical assistance to small business seeking to expand their markets by selling their goods or services to federal, state and local government agencies. Funded in part by a cooperative agreement with the Defense Logistics Agency, the goals of this program are to increase competition in government procurement, enhance the national industrial base, and benefit the Minnesota economy. In-depth assistance is available from the Minnesota SBDC through its headquarters and several regional subcenters around the state.

6. Minnesota Project Innovation is a private, nonprofit organization established to promote participation in the Federal Small Business Innovation Research (SBIR) program. Created by the State Legislature in 1983, MPI markets the program statewide and offers technical assistance to Minnesota small businesses and individuals interested in submitting research and development proposals. MPI staff provides (a) information and education support, (b) marketing information, (c) proposal support, and (d) facilities and personnel support.
7. The Minnesota Accounting Aid Society is a non-profit organization that provides accounting services to small businesses, non-profit groups and individuals who could not otherwise afford such services.
8. Small Business Management (SBM) education is available to Minnesota's small business owners at many Technical Institutes. Instruction is provided in individualized sessions at the business site and in conveniently scheduled group sessions. Business planning, record systems, financial analysis, marketing, inventory management, payroll, negotiating for money, computer applications and many other areas are covered, as needed by the business owner. Owners may enroll for up to three years. Short term assistance is available at an hourly rate. Ninety percent of the businesses which enroll in the SBM program have ten or fewer employees. Technical Institutes offer many short courses, workshops and seminars in small business management and entrepreneurship.
9. The Small Business Development Center (SBDC) is a resource center where information, counseling and assistance are coordinated and disseminated to persons who plan to start a small business or are presently operating one. The SBDC provides the entrepreneur with education and training opportunities which cover a wide range of business topics. These services include in-depth counseling assistance; business plans and loan packaging assistance; small business workshops/seminars; assistance to minorities and women; referral system linkage with other small business assistance organizations. The SBDC also provides procurement assistance. The sizes of the businesses services must be within the standards set by the Small Business administration's

definition of small business. Services are provided without cost.

10. Community College Small Business Management Education offers courses in small business management at all 18 community colleges in Minnesota. All colleges offer a variety of courses helpful to small business owners and entrepreneurs, such as accounting, sales and marketing, advertising and sales promotion, financial management personnel management and computer applications. Community colleges credit and non-credit seminars and workshops in specialized areas of small business management.

D. Increasing Interest in Serving Audiences of Entrepreneurs and innovators

Several forces, only some of which follow, are combining to encourage providing more attention and services to inventors and innovators. In an ever-increasingly complex and rapidly changing society, inventive behavior is more in demand to solve some of the resultant problems. Global competitiveness for new technology has stimulated parallel competition for inventors as well as administrators who know how to manage the invention/innovation process. New technologies are becoming more valued as a major key to economic leadership and development, i.e., the wellspring of each nation's and state's economic future may well reside in the yet relatively untapped inventive potential of its citizenry. Moreover, a subtle shift from primarily short-term to greater long-term management and policy attitudes also help stimulate invention which needs time to reach fruition and application. Although barriers to invention gradually are being reduced, therefore, the absence of early risk capital for new product development and its commercial marketing remain major problems.

In this context, invention as a crucial human activity, long left primarily to chance except in large Federal and corporate laboratories, is increasingly being perceived as needing more explicit, systematic and dispersed support. Public attitude seems to be awakening to the need for a better balance between (a) now extensive services available and increasing for the entrepreneur and small business person and (b) now limited assistance for inventors and innovators whose new product work feeds the former. Such a better balance will need to be accelerated even more by the economic adjustment created by the fall-out from increased international disarmament and the need to

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reinvent the character and future of rural
Minnesota/United States.

III. METHODOLOGY

A. Selection of Audiences to be Queried

Given the statewide character of the design study, the audiences selected for query necessarily had to be as geographically representative as possible within the time limits permitted. Hence phase I of the study in Minnesota needed to include its varied areas, e.g., the Iron Range, rural northcentral Minnesota and metropolitan (Duluth, Twin Cities) regions. Moreover, within these and subsequent economic development regions, a cross-section of persons directly related to the inventive process was required and identified, i.e., inventors, inventor/innovator support personnel as well as appropriate persons within the financial, marketing and legal communities. In this manner, the basic groundwork would be laid for whatever future study and work may be required or requested.

B. Recruitment of Participants

Within these general locales and audiences it was necessary to identify specific individuals by responsible persons. Hence interviewee recommendations were requested and received from the following organizations:

1. Duluth Technical Institute (Adult Education) Extension Program as well as the Duluth Public School System, c/o Roger Palmer;
2. Minnesota Chamber of Commerce c/o Winston Borden, President, and Greg Dewitt;
3. Minnesota Bankers Association, Minneapolis, c/o Ron Johnson, Vice President for Economic Development and Head, Minnesota Enterprise Network;
4. Minnesota Project Innovation c/o James Swiderski, Executive Director;
5. Iron Range Resource and Rehabilitation Board c/o Phil Bakken;
6. Regional Development Commissions, c/o Carol-Pressley Olson, Community Development Division, DTED and all RDC Executive Directors;

7. Northeastern Minnesota Initiative Fund, c/o Tom Regnier and then all other MIF Executive Directors;
8. The Blandin Foundation c/o Paul Olson, Executive Director;
9. Minnesota Inventors Congress c/o Ms. Penny Becker, whose list has yet to be recieved.

C. Development of Questionnaire

Mr. Frank Cook, CML Marketing Services, was enlisted to design integrated questions for a structured interview guide used throughout the study to collect pertinent data. That guide was approved by DTED staff.

D. Administration of Interview Guide

Using the interviewee recommendations of the preceding organizations as fully as possible, those individuals were contacted personally and appointment scheduled on a region-by-region basis. Interviews were held, accompanied by the distribution of copies of (a) the enabling legislation, (b) the contract award letter to 3I, and (c) the DTED Request for Proposal format. After discussion of the information requested, the survey guide was completed by the interviewees themselves, and returned to the project contractor. In turn, those same materials, once tabulated, were submitted (unedited) to the DTED Agreement Representative. In this manner, information could flow in an uninterrupted and undiluted cycle from the DTED approved structured interview guide to its concrete results returned to DTED. Interim conclusions were prepared by Mr. Cook.

E. Follow-up and Future Work

Whatever ambiguities or incomplete responses exist from the preceding process will be clarified by follow-up telephone contacts so that the final report will be as useful as possible. Within the time frame permitted, as many other economic development regions as possible will be contacted and will follow the same pattern as reported above. In addition to the completion of those interviews, at least two focus groups will be conducted to probe in detail selected issues arising from the interview process. The remainder of the work will involve:

1. Continue interview survey in the Twin Cities, its suburbs, northwest, northcentral, western and southern Minnesota in consultation with the 3I

advisory Council and others not originally identified. In this manner, inadvertent exclusion of any organization or person, whose contribution to the study could be significant, can be avoided or at least minimized.

2. Meet with educational component personnel to assess and evaluate progress.
3. Complete first phase interview process, design and conduct focus group process in collaboration with Mr. Frank Cook and DTED staff.
4. Analyze results of structured interview survey and all other information gathered to date and prepare a written recommendation on the feasibility of locating an invention and innovation center in the Twin Cities metropolitan area, with a statewide network involving Twin Cities suburban and greater Minnesota communities with reasons for the recommendations.
5. Begin to develop and integrate:
 - (a) a detailed design for a statewide comprehensive, integrated invention/innovation support and marketing system "beginning with a detailed program for invention and innovation support and service delivery within the Twin Cities metropolitan area, in suburban areas and greater Minnesota. This design proposal will include recommendations on the objectives, structure, work and staffing requirements for the invention and innovation center described and the reasons for such recommendations."
 - (b) a detailed proposal for coordinating the efforts of individuals and organizations involved in providing invention and innovation support and marketing within Minnesota. Again, all appropriate groups and individuals will be asked to comment and contribute.
 - (c) proposals to link Minnesota-based invention and innovation activities and similar national and international efforts.
6. Write final detailed, comprehensive, year-end project report for which sections will be completed incrementally as data collection, analysis and consultation process permits.

7. Study and design an educational component to encourage greater interest in innovative and inventive methods. This component at minimum must identify existing educational resources and curricula and discuss specifically how those resources and curricula will be used in education programs. Where there are gaps in educational resources, the education component must describe specifically how supplemental education programs will be developed. This component also must describe in detail methods for teaching invention and innovation, and disseminating invention research information to the Minnesota educational system.

To accomplish these objectives each Minnesota educational system head was contacted to designate his or her project director who, in turn, will be subcontracted to administer and coordinate a system survey and response. Those persons, currently conducting these respective studies, and the educational systems they represent, are as follows.

For the University of Minnesota system, Fred Amram, Professor of Speech Communication, University of Minnesota, Minneapolis.

For the Minnesota State University System, James Swenson, Professor Business Administration, Moorhead State University, Moorhead.

For the Minnesota Community College System, Ms. Hope Thornberg, Director of Program Design, St. Paul.

For the Minnesota State Board of Vocational-Technical Education, Ms. Janice Templin, Specialist, Adult (Extension) Programs, St. Paul.

For the Department of Education, Ms. Linda Silrum, Director, Special Programs and Services, Educational Cooperative Service Unit, Metropolitan Twin Cities Area, Arden Hills.

Representing the Minnesota Private Colleges and Editor for the final report integrating from all above systems (to be submitted to the Higher Education Coordinating Commission and the Department of Education for comment), Jack Rossmann, Professor of Psychology, Macalester College, St. Paul.

Tabulated results of these systems' surveys are due February 15, 1989 and will be combined into Dr. Rossman's single, report by April 1, 1989.

8. Complete the review of the literature and prepare a comprehensive bibliography.

F. Interviews with Staff of Foreign (Scandinavian) Organizations

The legislature wisely included an international dimension in the design study. Specifically, it requested "proposals for linking Minnesota-based invention and innovation activities with similar efforts occurring (nationally and) internationally." That international dimension was pursued with an initial focus on Sweden, Norway and Denmark.

Interviews with foreign invention-related organizations in those countries, the results of which follow, accompanied by their "linkage proposals," were revealing and subsequently were reinforced by the Minnesota data on inventor service needs.

Contacts, Discussions and Proposals

1. Torbjorn Larsson, President, Swedish Inventors Association (Stockholm), the oldest such group in the world (over 100 years in existence). Representing himself and over 800 constituent members with whom he is in regular contact. Key observations: (a) Swedish independent inventors suffer from lack of project development money and marketing capability; (b) they face greater hurdles than their U.S. counterparts because the national government and their regional development funds are such dominant forces. By lacking the U.S. pluralistic sources of money and other support (however modest), Swedish inventions must fit the prescribed needs of those structures (with their attendant bureaucratic hurdles and red tape), thereby limiting independent initiative and originality; (c) the private sector is not as significant in Sweden as it is in the U.S.; (d) a philanthropic/volunteer (independent) sector is virtually non-existent.

Linkage Proposal. To change the by-laws of the Swedish Inventors Association to permit membership by Minnesota commerce, industry and inventors, thereby facilitating the exchange of information, experience and products.

2. Alan Klingstrom, Liaison Officer, Uppsala University, the oldest such institution in Sweden. He facilitates technology transfer from the university research laboratories to nearby Swedish commerce and industry and entrepreneurial incubators while communicating to university researchers the interests/needs of the private sector. But he observes that university faculty research seldom is driven by its commercial application. If the latter does have commercial value, it usually has to be "discovered" by an external entrepreneur or business person, (often with the help of the liaison officer) who then enters into a long-term partnership with the researcher/inventor.

Linkage Proposal. To facilitate an invitation for appropriate Minnesotans to join the international network of such liaison officers, again to exchange information, experience and new products.

3. Pelle Molin, Administrator of the annual Skapa Fair, an annual international Stockholm exhibition of inventions, has had substantial experience with inventions over the years of managing this event. He observes that inventors have considerable technical and product experience up to the point of producing a prototype model of their new product. Beyond that point, however, they need a variety of support services and assistance. Especially significant are: (a) new early sources of funding, "inventure capital," to tailor new product development to the marketplace; (b) market research studies; (c) assistance to develop a marketing plan; (d) help to construct a realistic business plan; and (e) dollars to start-up the resultant commercial enterprise.

Linkage Proposal. To establish a collaborative Twin Cities international counterpart to the annual Skapa Fair. It could be offered six months after the Stockholm event. Its focus primarily would be on U.S., Canada and South America, just as the "Skapa" focuses upon primarily Scandinavia and Western Europe, with notable inventions/new products from each to appear and be highlighted at the other exhibition. In such a more international marketplace milieu chances are enhanced for the acquisition of hard-to-find "inventure capital." That capital, in turn, accelerates the commercialization pace of promising new products.

4. Bo-Goran Wallin, a Swedish patent lawyer, was the recent president of both the World Intellectual Property Organization (WIFO) and the International Federation of Inventors Association (IFIA). As a result he is very well versed on the needs of independent inventors in at least 29 developed and developing countries. He recites virtually the same list of inventor needs as does Mr. Molin above. Of course, in developing countries inventor services ironically are more badly needed yet understandably fewer in number.

Linkage Proposal. To urge Minnesota-based invention activities to join WIFO and IFIA. Apparently, the charter of these two entities does not permit the United States or Minnesota per se to become members, only their relevant organizations or associations.

5. Lars-Gunnar Nordin, an unusually active inventor/entrepreneur, heads the ongoing Stockholm Inventors Workshop and knows the Swedish system intimately. Rather than anticipate his own report, now in progress but delayed by health problems, it seems best to await his written comments. But it would be fair to say that frequent contacts with him indicate again that Swedish inventors, (except for the differences between Swedish socialism with its heavy governmental involvement and U.S. free enterprise pluralism) have the same unmet needs and inadequate services as those now recorded in Minnesota. It also should be noted that unusually high taxes to support a "welfare state" so preoccupy the Swedish inventor that the energies he employs to avoid them distract him from more productive use of those same talents.

Linkage Proposal. Lars is a focal point for urging the formation of Minvention Inc., a for-profit technology transfer company, with the central office in the Minnesota World Trade Center and a Swedish branch in the new Stockholm World Trade Center. In this manner, for demonstration and shake-down purposes, appropriate inventions could flow from Sweden to Minnesota while the converse could occur for Minnesota inventors. The for-profit nature of Minvention Inc. would be a strong incentive and a now missing mechanism for Swedish inventors to use the Minnesota marketplace. Swedish inventors, perceiving themselves as over-taxed, hope for a more favorable Minnesota tax-climate and thus a place

to commercialize their products more substantially without leaving their homeland to do so.

6. Jan Freese, Deputy Director General, Federation of Swedish Industries, finds Swedish inventors both sufficiently wary and woefully unprepared to make an effective connection with his constituents. A "bridge" of trust and services, therefore, needs to be built in Sweden to span this chasm. His experience suggests that the large gap between product idea generation and the marketplace is a generic or universal issue. He also mentions the same set of basic services designed to remedy the problem.

Linkage Proposal. He plans to visit Minnesota to better understand its support system structure. He thus hopes that what is either known or learned in both settings can be exchanged and harmonized to mutual advantage in the interests of a two-way technology transfer program. A pragmatic exchange of inventions, inventors and invention support programs is his primary interest and objective.

7. Sam Nilsson is the President of a for-profit Stockholm-based Innovation Institute. That entity employs inventors and its own research to develop products solely with commercial marketing in mind. It has developed, for example, stronger concrete slabs for building construction which the Japanese are now using. His experience indicates that independent inventors, acting alone, have many hurdles (discussed earlier) to market their products. Thus they must interface more with his kind of small and medium-sized, market-driven enterprise which targets research and development activities to the carefully examined and expressed needs of its private sector clientele. As such, his mechanism more clearly resembles the for-profit "innovation centers" being established by the Greater Minnesota Corporation.

Linkage Proposal. Mr. Nilsson also will travel to Minnesota to see how best to mesh his kind of activity with Minnesota. In this context he also hopes Minvention Inc. will be established to expand his marketing outreach strategy to include Minnesota and beyond, including potential connection with GMC. He, moreover, has offered initial Innovation Institute office space to Minvention Inc./Sweden as the former will soon move to larger quarters.

8. Goran Toll, Head of InterPat Sweden, finds that inventors' new product development pace is accelerated if they know at the outset what already has been invented throughout the international community in their area of interest. For that reason, Swedish inventors, and those who use the InterPat service have an especial advantage. InterPat, given Sweden's unique history of global neutrality and world perspective, has a most comprehensive patent data base and search process. It can tell an inventor, more quickly and thoroughly than anywhere else, if his or her work indeed is novel. And the fee for such investigation is very modest for all the time and energy it saves. For example, he has calculated the amount of hours and money expended needlessly by Swedish engineers who failed to use InterPat services. That lost time and dollar amount is staggering and totally unnecessary.

Linkage Proposal. To link Minnesota inventors to that Stockholm resource, so important in a globally fast-paced competitive arena where the proper use of time and other resources is paramount. In this manner they avoid the Swedish engineers' pitfalls. InterPat's two-level search process does charge a fee, e.g., \$700 for a first phase "novelty" search.

9. Knut Baltser has a joint appointment within the Danish Technological Institute. He serves both in its entrepreneur program and its invention center, i.e., the Danish Invention Center founded in 1972, the largest technology transfer organization in Denmark. Hence he is especially well informed about Danish inventors and their path to the marketplace. The activities of that center are described as follows:

After a preliminary evaluation of the incoming ideas, the center takes an active part in the development of promising ideas by offering workshop facilities and laboratory facilities, risk capital and project management, up to a stage of development where a feasibility study of the technical and economic perspectives of the project can be made, an evaluation which may serve as the basis of the establishment of an actual commercial activity in new or existing companies.

It strongly emphasizes the importance of the best possible contact between the suppliers and the buyers of ideas. It takes an active part in the development and subsequent documentation of new

products and, conversely, it searches for new products based on specific wishes from industry. It sets up search profiles for the companies and distributes license offers from Danish and international sources according to these search profiles. The Danish Invention Center also participates directly in drafting the contractual relations which are decisive for a successful start of a project.

Linkage Proposal. It has been suggested by the appropriate persons in Denmark that a collaborative relationship be established, with a Twin Cities invention/innovation center, should the latter be established. In this manner, Minnesota could gain from the 17 years of prior program and staff experience of the Danish Invention Center while Danish and Minnesota inventors both could benefit from such a partnership. To that end the founder of the Danish Invention Center and Mr. Baltser, if invited, plan a consultation, progress report and exploratory visit to Minnesota in the summer of 1989.

10. Kristian Lovenskiold, Managing Director, Norwegian Forestry Society, was the chief contact in a one day visit to Norway. He arranged meetings/interviews with the following persons.

Ole Elsrud, Master of Economics from University of Oslo. Former head of administration in the Royal Norwegian Council for scientific and industrial research, and director for the units of education and design in the council. Project director for projects forwarded by the Nordic cooperative council for applied research. Now working on a Nordic innovation network by listing names and addresses which can be used as contacts in all the Nordic countries.

Marjorie Parker (born in Minnesota), Ph.D. in creativity from New York University, Buffalo. Senior consultant in Norwegian Center for Leadership Development. Marjorie is one of the leading consultants on creativity in Norway.

Leif Runar Forsth, Head of the publishing firm ORIGO and of his own firm of consultants. Member of the board of the magazine "Creativity," the only innovation magazine in Norway.

Ove Hjelmervik, Masters Degree from Babson College, project director in Statoil, the

state-owned oil company in Norway. Innovator of Norwegian Inventor Forum, which he wants to expand to a Nordic forum.

Trond Glesaaen, Manager of the innovative company Forest Development Ltd. and responsible for the data base network built up inside forestry innovation.

The insights of all these persons were most helpful even though Norway is in a period of time in which invention/innovation is not being emphasized. In such an unsupportive socio/political climate, invention services are being kept alive and offered by individuals more than institutions. For example, Ove Hjelmervik, who is developing the Norwegian Inventor Forum, has topics on his program agenda identical to those which concern Swedish and Minnesota inventors. He hopes to develop a broader Nordic inventors forum as well, given the commonality of services, gaps and barriers for Norway, Sweden, Denmark and Finland. Moreover, there is greater interest in Norway than in Sweden in developing educational programs which encourage teaching/learning for and about creative/inventive behavior.

Linkage Proposal. To establish membership and participation by Minnesota inventors in the emerging Norwegian/Nordic forums to encourage (a) cross-cultural information sharing and (b) the development of long term contacts with not only that program but an even larger Norwegian/Nordic invention/innovation network. For example, it has been proposed by Trond Glesaaen (above) that he link his forestry innovation data based network to comparable interests in Minnesota, e.g., the proposed emerging wood products applied research center in Grand Rapids.

V. ANALYSIS AND CONCLUSIONS

A. Analysis

Out of the first 30 contacts, 25 completed questionnaires have been returned to date. Most December interviews are yet to be tabulated and will be included in the final report. These questionnaires were hand-tabulated in two parts corresponding to the questionnaire design. The first tabulation was of the questionnaires that were the same for all participants (white forms). The second tabulation was done by individual group identified by a color-coded questionnaire. Color-coded groups contained questions applicable to that specific group.

Several factors must be kept in mind when analyzing these data. The Northern Minnesota/Twin Cities individual interview and tabulation process is only about 50% complete with 25-30 more interviews to be completed and tabulated by the middle of February, for a total of approximately 60 completed interviews covering those regions. It is possible that additional interview responses could change the conclusions to some of the interview questions. Secondly, the data will be enhanced by two focus groups of 10-12 people, a 40% addition to the base of individual interviews, or 85 total interviews. Each focus group will add more qualitative data to the study upon which to draw final conclusions. Finally, information from 15 foreign contacts, who speak for many others, will bring the total of study respondents to 100.

Moreover, our market research consultant, Mr. Cook advises us, that these are regarded/classified as in-depth, qualitative interviews which contain information, observations, and opinions that cannot be tabulated in a quantitative manner. This kind of inquiry is designed to collect perceptions and opinions, not solely to report the precise numbers related to a given item.

Nevertheless, there are hard data contained in many areas of this study upon which to base valid and supportable conclusions, to the extent that the limited sample to date permits. The final report, with its total complement of interviews from all economic development regions, will provide more substantial conclusions. The following analysis is presented question by question basis.

Question IA. How much time have you, or your company, spent on inventors or inventions during the past year?

When asked how much time was spent with inventors or inventions, over half of the respondents reported that they, or their company, spent less than 10% of their time with inventors or inventions. With such a small sample this is a significant response. Only four respondents reported spending more than half of their time with inventors.

Question IB. How does that time commitment compare with your involvement three years ago?

When asked to compare the time spent this year with the time spent three years ago and whether that time was increasing or decreasing, the majority (13) reported spending about the same amount of time. A few respondents (6) reported spending more time than three years ago with inventors. The reasons given were new programs, more fully developed programs, or more staff. Only two respondents reported less time with inventors. Reasons given were that there was no payoff for the service person involved and that jobs are more plentiful so that perhaps inventors are not as aggressive in seeking help.

Question IC. Do you see your (your company's) time increasing, decreasing or staying the same over the next three years?

The respondents were about evenly split between those who felt their time would increase and those who felt the time would stay the same. Only two felt their time would decrease. Those who felt they would spend more time with inventors cited the greater need for technological developments, more programs of assistance to the inventor, and a greater interest in the work of inventors.

Those who felt their time commitment would remain the same felt that based on past history, numbers would not change much, and that there is limited opportunity for inventors in the region in which they work.

OPTIONAL QUESTIONS - NOT ANSWERED BY ALL RESPONDENTS

Question ID. What services do you (your organization) provide to inventors?

In total, 14 different services were listed by the respondents. These services, with the number of mentions each received, are shown in Exhibit A. The two services

that were listed the most often were (1) marketing assistance and (2) information, referral and networking with other service providers.

Question IE. How many individuals in your organization provide these services and are they paid or volunteer?

The answer to this question ranged from 10 (which was the whole agency and not truly reflective of time spent with inventors) to 1. The majority are paid staff (13) but inventors consume a small percentage of the time of the staff and are not the organization's primary clientele in almost all cases.

Question IF. For how long have you (or your organization) provided these services?

While 3 respondents reported programs that have been in place for 10-20 years, most programs are reportedly less than 10 years old.

Question IG. What criteria do inventors have to meet in order to receive your services?

Slightly over half of the respondents answered this question. Nevertheless, almost half of those responses indicated that the primary criterion was the ability of the inventor to pay for services. Other responses included having a required business plan developed, a residential requirement and passing a screening process. Only two respondents reported "no requirements."

Question IH. Over what period of time, on average, do you provide your services to any one inventor?

This question proved to be the most inconclusive in the questionnaire as most respondents were not able to say how much time was spent. Of the responses recorded, 2 hours was the time most often mentioned. This question would seem to indicate that, in fact, not much time is spent with inventors.

Question I-I. How many inventors do you (your organization) serve in the course of a typical year?

Responses to this question range from a high of 300 (1 response) to a low of 2 (1 response). The response most often given was that 3 inventors were served in a year,

followed by the response of 8-10 inventors served in a year. Respondents could not be sure if this number was increasing, decreasing or staying the same.

Question IJ. How is your service funded?

Services to inventors are funded in a variety of ways including independent sector enterprises such as the Blandin Foundation, state programs such as IRRRB, and Federal programs such as SBDC. The greatest number of respondents, however, (7) cited the inventor himself as the source of funds for services.

Question IK. What is the size of your current budget for your support program?

For the most part, respondents were unable to isolate the amount dedicated to invention support from the total agency budget.

Question IIA. Do you think the world climate currently is favorable or not favorable for invention?

The majority of the respondents (19) felt the world climate was favorable for invention. Reasons cited were the need for high tech development, the demand for increase of products, better patent laws, better management of invention and an increasing awareness of the value the inventor.

No one reported that world climate for invention was unfavorable and 7 had no opinion.

Question IIB. Do you see this world climate changing in the next three years?

Almost half of the respondents (11) felt that world climate would change due to reduced trade barriers, greater trade opportunities, further development of trade groups and the competition for advances in technology and its transfer. Seven of the respondents felt there would be no change and 7 had no opinion.

Question IIC. How would you rate the current socio-economic climate of the U.S. for invention and innovation?

Almost half of the respondents (12) felt the U.S. climate is favorable for invention and innovation. Reasons cited were

very general. Some felt that we are on the cutting edge of a quality productivity change that will encourage inventors. Some feel that our country is seeing the results of not being competitive in the invention arena and others felt that invention was becoming more recognized as very valuable.

Those that felt the U.S. was not a favorable climate for invention and innovation (7) cited the apathy that exists, the scarcity of risk capital, the blocks to invention inherent in state bureaucracy and the lack of a federal support policy. Six respondents had no opinion.

Question IID. How would you rate the climate for invention and innovation of the U.S. with that of other developed countries such as the U.K., etc.?

The largest number of respondents (10) felt that the climate in the U.S. is less favorable than that of other developed countries. Reasons cited were that other countries have more immediate needs and, therefore, are forced to turn to inventors and innovators, other countries have better government support and that the inventors are valued more highly in other countries.

Six respondents felt that the climate in the U.S. is more favorable and 9 had no opinion.

Question IIE. How would you rate the climate for invention and innovation in the State of Minnesota?

Almost half of the respondents (11) felt that the climate in Minnesota was unfavorable to inventors. These respondents cited little leadership or direction for inventors, scarcity of seed capital, no support systems in place, lack of any kind financial support, a lack of networking for idea development and incompetent assistance currently offered to inventors.

The 9 respondents who felt the climate is favorable cited such groups as SBDC, SURE Access as valuable groups to assist the inventor, plus industry support.

Question IIF. Compare the climate of Minnesota for invention with other states.

The majority of the respondents (12) were not sure how the inventive climate of Minnesota compared with that of other states. However, more felt it to be favorable (8) than unfavorable (3). Reasons cited for favorable climate included Minnesota being a progressive state, programs in place and greater awareness of the inventor. Reasons cited for an unfavorable climate included no good support programs and no financing.

Question IIG,H. Record the companies or organizations with which you are familiar that assist inventors and rate them on a five point scale from 1=Excellent, to 5=Poor.

The companies and/or organizations listed by the respondents comprise quite a long list. However, the most revealing aspect of the list is that most of these companies were mentioned only once or twice. That is, although many people know directly or indirectly of many organizations, few people know about more than one or two such support groups.

In addition, while the respondents gave very few organizations an excellent rating, very few gave a poor rating. However, with only 1-3 ratings of any one organization, it is not possible to draw any conclusions about the quality of that group. Most companies or programs were rated good or very good by the respondents. However, out of 104 ratings of companies or programs by the respondents, only two companies or programs received an excellent rating more than once. These programs are SBDC and SBA. In general, the inventors rate the programs lower than do the rest of the respondents. A complete list of companies, organizations, etc. are found in Exhibit B with ratings for each.

Question III. What services should be provided if state government did develop an integrated system of support for inventors?

The respondents were presented with a list of seven services which the state might provide. Number 8 is an optional addition by the respondent. The table below shows responses to this question. As can be seen from the table, financial support is the service most respondents felt should be provided and the services the least number of respondents felt should not be provided. Business planning and market research were the next two choices with the highest number of respondents voting for these services and the fewest number of respondents voting against these services. While

legal assistance was indicated by a large number of respondents as important, a fairly large number also felt these services were not important.

INSTITUTE FOR INVENTION AND INNOVATION FEASIBILITY STUDY
SERVICES STATE SHOULD PROVIDE AN IN INVENTOR SUPPORT SYSTEM

<u>Service</u>	<u>Yes</u>	<u>No</u>	<u>No Opinion</u>
1. Research & Development	13	8	4
2. Business Planning/Cons	18	4	3
3. Financial Support/Assist	20	2	3
4. Market Research/FsbtyStdy	17	5	3
5. Marketing Planing/Consult.	16	7	2
6. Legal Assist/Consult.	15	7	3
7. Education/Training	12	9	4
8. Other:			
Resource Coordination	1		
Total Responses	112	42	22

Question IIJ. Should the State of Minnesota provide support and assistance to individual or corporate inventors in other states or foreign countries provided those inventors agree to use Minnesota as their base for manufacturing/marketing?

Of the 25 respondents, 14 felt that Minnesota should provide such assistance to more aggressively pursue the development of invention and innovation activities thereby stimulating economic development and creating new jobs for Minnesotans. Only five respondents felt that Minnesota should not offer such support services as these programs would be too difficult to monitor with no guarantee that foreign inventors or companies would remain in Minnesota.

The next section of analysis is presented by special interest group (see color-coded sheet for designation of each group). The first group of respondents are 16 inventor and innovator support respondents.

INVENTORS & INVENTOR SUPPORT GROUPS

Question A. Rate the following services on a five point scale with Extremely Important=5 and Not at all Important=1.

Almost all of the respondents felt that all the services listed were either extremely important or somewhat important. Only a few number of respondents felt they were not important. The table below shows the responses to this question.

INSTITUTE FOR INVENTION & INNOVATION FEASIBILITY STUDY:
IMPORTANCE OF SERVICES OFFERED TO INVENTORS

	5	4	3	2	1	0	Mean
	Ext	Smwht	Neither	Smwht	Not		Mean
	Imp	Imp	Imp or	Unimp	AtAll		Avg
			Unimp		Imp	NR	Rating
4. Market Research/ Feasibility Stdies	9	5	1	1	-	-	4.4
2. Business Plng/ Consultation	9	6	2	-	-		4.4
6. Legal Assistance Consultation	9	3	3	-	1	-	4.4
5. Marketing Plnng/ Consultation	8	6	1	1	-	-	4.3
3. Financial Supp/ Assistance	8	5	1	1	1	-	4.1
7. Education/Trng	5	5	1	2	1	2	4.0
1. R&D	5	5	2	-	3	1	3.6
8. Other:							*
Names of MN bus.		1					
Office space	2						
Library		1					
Patent search							
Asst.	1						
Prototype model							
develop asst		1					

* Numbers too small to calculate

Question B,C,D. Which of the following services are available to you, not available to you or available but not satisfactory.

Respondents were asked to note which of selected services were available, not available, or available but unsatisfactory. If services were unsatisfactory, respondents were asked to explain why this was so. In general the respondents were not happy with the available services. Although a good many services were noted as available, many were not satisfactory. The table below shows responses to the question.

INSTITUTE FOR INVENTION AND INNOVATION FEASIBILITY STUDY
AVAILABILITY OF SELECTED SERVICES

	<u>Currently Available</u>	<u>Not Crntly Available</u>	<u>Avail/Not Satisfactory</u>
1. R&D	3	7	6
2. Business Planning/ Consultation	11	1	1
3. Financial Support/ Assistance	3	5	7
4. Market Research/ Feasibility Studies	3	4	8
5. Marketing Planning/ Consultation	4	5	6
6. Legal Assistance/ Referrals	8	4	3
7. Education/Training	9	3	3
8. Other: Office Space			1
Library	1		
Elem/Sec Prog			1
Totals	42	29	36

Reasons cited for unsatisfactory services were varied; but the reasons that appeared most often were: too expensive, too difficult for inventor to use, poor and unskilled staff, service not "user friendly" and services too limited.

Question E. What role should the state play, if any, in a new integrated system of support for inventors?

All respondents to this question felt that the state should facilitate such a system, establish goals and services, provide organizational framework, guarantee statewide outreach, fund the system and guarantee protection of inventor.

Question F. What do you think would be the advantages of such a system?

All 16 of these respondents felt there would be advantages to such a system. The advantages cited most often are: one central place for information, a place to increase chances of success, accelerate inventor's work, a place to encourage inventors. The advantage of a one-stop contact or "single source location" response was given 9 times.

Question G. What do you think would be the disadvantages of such a system?

When asked to cite disadvantages of such a system, responses included cost, political problems, possible inaccessibility to out state inventors and questionable invention protection issues.

FINANCIAL GROUP

The next group of responses to be analyzed are drawn from the Financial community. The number of responses in this group are yet too small to make comparisons or conclusions. However, they are suggestive of the attitudes of some financial people.

Question A. Rate the inventors you have encountered on various business skills using a rating scale of 5=Extremely Capable to 1=Very Weak.

The respondents were asked to rate inventors on business planning, financial planning, financial management, technical know-how, marketing planning, market research, organizational, sales/distribution and production manufacturing skills. The respondents rated inventors somewhat weak or very weak on all skills except technical skills.

Question B. At what point in the invention process do you become involved with the inventor?

Almost all the respondents become involved in the later development stages.

Question C. What are five most important factors an inventor should include in a request for funding from you in order to gain serious consideration?

Respondents cited important factors to include a written business plan, management skills, repayment ability, collateral and market potential of the product.

Question D,E,F. Which of the following support services are currently available to inventors?

Over half of the financial community respondents felt that all services previously listed, i.e., R&D, business planning, financial support, market research, legal assistance, etc. are available to the inventor and almost none were cited as available but not satisfactory. This is in striking contrast to the inventors/innovators support group who felt that many services were unsatisfactory.

Question G. What role, if any, should the State of Minnesota play in such a proposed new support system?

Respondents felt that the State should provide the system itself, provide the organizational framework and the financing and coordinate the new system with existing service programs.

Question H. Rate the importance of selected services in a state program of inventor support

The respondents were asked to rate the following services on a five point scale ranging from Extremely Important=5 to Not at all Important=1: research & development; business planning/consultation, financial support/assistance, market research/feasibility studies, marketing planning/consultation; legal assistance/consultation; and education/training. The respondents felt all the services listed to be either extremely important or somewhat important.

Question I. Finally, the respondents were asked to rate the value of such a support system as extremely valuable, somewhat valuable, neutral, not very valuable or not at all valuable. Every respondent rated such a proposed system as extremely valuable.

MARKETING GROUP

Again, numbers are yet too small to make comparisons but trends can be seen.

Question A. Rate inventors you have encountered for various business skills and capabilities using a rating scale of 5=Extremely Capable to 1=Very Weak.

Respondents were asked to rate inventors on business planning, financial planning, financial management, technical know-how, marketing planning, market research, organizational, sales/distribution and production/manufacturing skills. In all areas, the largest number of responses from the marketing group rated inventors very weak or somewhat weak. A small number of responses rated the inventor average and a very small number of respondents rated the inventor somewhat capable. Only two respondents rated the inventor extremely capable on any of the eight skills listed and that was technical know-how.

Question B,C,D. To your knowledge, which of a selected list of services are available to inventors, not available to inventors or available but not satisfactory?

Respondents rated the following services: R&D, business planning/consultation, financial support/assistance, market research/feasibility studies, marketing planning/consultation, legal assistance/referrals, and education/training.

Responses were evenly distributed between services being currently available, services not being currently available, and services available but not satisfactory. Financial support was the service most often reported as available but not satisfactory and legal assistance the service least mentioned as available but not satisfactory. Reasons cited for the dissatisfaction were service too costly, not available to independent inventors, poor quality staff, too difficult to obtain service, and too many strings attached to any financial support given.

Question E. What role, if any, should state government take in developing an integrated inventor support system?

Respondents felt that the role of the state was to provide for the coordination of all present services, act as advisor/overseer to the system and provide the funding.

Question F. Rate the importance of selected services in a state program of inventor support

The respondents were asked to rate the following services on a five point scale ranging from extremely Important=5 to Not at all Important=1: Research and development, business planning/consultation, financial support/assistance, market research/feasibility studies, marketing planning/consultation, legal assistance/consultation and education/training. The respondents rated all services listed as either extremely important or somewhat important.

Question G. Finally respondents were asked to rate the value of such a state supported invention support system as extremely valuable, somewhat valuable, neutral, not very valuable and not at all valuable. Of the 9 respondents, 7 rated such a support system as extremely valuable and 2 rated it as somewhat valuable.

Reasons cited were product increases, job increases, provide a clear place for the inventor to seek help, a place to facilitate ideas, and a place of diversified services for diversified people.

B. Conclusions

It is clear from these preliminary findings that there are several well-defined issues which separate and, at the same time, unite the invention and innovation community and the supporting infrastructure:

1. Inventors need a broad spectrum of guidance and support services, most of which are rated as "Somewhat Important" to "Extremely Important."
2. While many of those services are available to inventors, there is an apparent lack of centralized and coordinated support. Limited information about available support services, coupled with a significant number of "Not Satisfactory" opinions about existing services, hamper the ability of the inventor to bring his/her invention closer to commercialization.
3. Sufficient opinion regarding the favorable climate and opportunity for invention exists to justify a cautiously optimistic view of future opportunities for invention and innovation, both within the State of Minnesota and the United States. However, the lack of a focal point for invention

support can frustrate the process of invention realization.

4. Members of various components of the invention support community, for the most part, play limited roles in the process. Financial authorities deal with financing issues; marketing authorities deal with marketing issues, etc. These members of the infrastructure are isolated in their individual roles with the result that the inventor is forced to work with a number of individual support services rather than a coordinated "team" of support experts.
5. There are clear differences in the perceived performance of various support services by both sides of the invention/innovation and support services coin: notable, inventors and invention support organizations gave available financial support, market research and marketing consulting services a "Not Satisfactory" rating. In contrast, members of the financial community reported that most services to the inventor currently available are satisfactory. There is a disparity in perceived quality among various members of the support community as well. Marketing professionals, for instance, rate available financial services as "Not Satisfactory."

These preliminary interviews have established that the Minnesota invention and support community is, in reality, many separate groups or segments operating, for the most part, in separate spheres of expertise with little or no awareness of each other, mutual support or even mutual respect. Financial sources provide funding (sometimes); marketers market (sometimes); patent attorneys give legal counsel. And into each of these segments, the inventor - often an individual with limited knowledge beyond his/her field of specialization - tries to make contacts to assist the realization of the invention.

To further complicate the process, the inventor most often works with limited capital, while the various members of the support groups are profit-making entities which, rightfully, expect to be paid for their professional efforts.

The opportunities for frustration are great and real. While lack of awareness and understanding divides invention and support segments, these groups are reasonably close in agreeing to the need for a focused, centralized point - possibly provided by the State - to

bring inventors and the necessary support services into a cohesive whole. Admittedly, there appear to be certain caveats that attend the development of such a service; but, by and large, there is agreement that the State can serve as a catalyst to unify the disparate members of invention and support groups into a mutually beneficial "team" that:

1. Provides a centralized source of coordinated support for the inventor.
2. Facilitates the early and adequate funding for the inventor.
3. Places a specialized and coordinated "team" of professional expertise at the disposal of qualified inventors.
4. Ensures an adequate income opportunity for those professionals providing support services to the inventor.
5. Supports and encourages invention and innovation so that, to some degree, the economic growth opportunities of the State can be enhanced.

EXHIBIT
SOURCES OF INVENTOR SUPPORT SERVICES
QUESTIONS II G&H

<u>Program</u>	<u># of</u> <u>Mentions</u>	<u>Exc</u>	<u>Very</u> <u>Good</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Aitken County Growth	1					
Area Development Commissions	1		1			
Arthur Young	1	1				
City of Duluth	1					1
Community Develop.Corp	1			1		
DTED	3			1	1	
Innotech	1		1			
Inventors Club	1		1			
Inventors Resource Network	1	1				
Inventors Tech.Transfer Soc	2		1	1		
IRRRB	3	1	1		1	
JPG Communications Inc.	1	1				
Merchant & Gould	1	1				
Minnesota Cooperation Office	1		1			
Minnesota Growth Corp	2		1			
Minnesota Initiative Fund	1		1			
Minnesota Inventors Congress	4	1	1	1	4	
Minnesota Power	1				1	
Minnesota Project Innovation	2	1	1			
Minnesota Seed Capital	1			1		
Natural Resource Research Institute	2	1	1			
Northeast Institution Fund	1				1	
Northspan	3		1	1	1	
Northwest MN Ed.Consortium	1		1			
NRRI	2			1		
Pete Marwick	1	1				
Region 9 Develop.Comm.	1					1
SBA	7	2		3		1
SBDC	4	1	1	1	1	
SBIR	1					
SBM	1		1			
SCORE	4	1	2	1		
Southern MN Initiative Fund	2	1				
St. Peter Dept. of Ec. Dev.	1			1		
SURE	2		1			
UMD-Small Business Dev.	1				1	
University of Minneosta	1		1			
Valley Industrial Corp	1			1		

Some organizations are mentioned but respondent was not familiar enough with the organization to give it a rating.

V. LITERATURE SEARCH

A review and compilation of of pertinent literature, an ongoing process, is being pursued in several directions illustrated as follows:

1. Using commercial data bases, e.g., Lexis Nexis from which comes timely newspaper/magazine reports on current invention activities nationally and internationally.
2. Perusing articles, e.g., the description of the Chicago Inventors Council (November issue of Inc.) and program pamphlets, e.g., the Wisconsin Innovation Service Center and Danish Invention Center brochures.
3. Examining previous studies, e.g., A Selective Guide to Innovation Centers in the United States, Canada, Great Britain and Ireland, by Donna Knight, Executive Director, and Heide Mairs, Staff Associate, Minnesota Wellspring, November 7, 1982; "Inventor" is a Masculine Word," Professor Fred M. Amram, University of Minnesota; and Jane Morgan, Innovation and Enterprise: A Study of NSF's Innovation Centers Program, prepared for the National Science Foundation by Westat Inc., March, 1986.
4. Searching specialized libraries where possible, e.g., the unique holdings of the U.S. Patent and Trademark Office (at the recommendation of Merchant, Gould).
5. Reading miscellaneous, relevant sources of information, e.g., the 1987 and 1988 Annual Reports of the Minnesota Inventors Congress, documents submitted to the 1988 DTED Invention/Innovation Design Study Request for Proposals.
6. Collecting and analyzing existing bibliographies on invention and innovation.

For purposes of the Interim Report the literature search will emphasize only selected information derived from the Lexis Nexis data base as follows:

- (a) The November 3, 1988, New York Times features an article on the State of Maine's Center for Innovation and Entrepreneurship where inventors learn better how to market their inventions while reporting the difficulty of finding money to build prototypes. The center works with about 30 inventors a week and provides information it could be costly to obtain elsewhere. Maine inventors are portrayed as being very practical and some are becoming very sophisticated.

- (b) The October, 1988 edition of The American Society of Mechanical Engineers: Mechanical Engineering contains a letter to the editor by William R. Maclav, William Maclav and Associates, Los Gatos, California in which he says in response to his request for prior articles on invention:

"Thank you so much for the articles from old issues of ME. which provided stimulating reading and were a great help in organizing my thinking for the book I am writing on creativity and invention.... The most interesting article was Charles Ketteing's "How Can We Develop Inventors?" His experience in management seems to have paralleled my own. For example, as manager of advanced development in the Federal Systems Division of IBM, I had engineers come to me with books to prove that something was impossible. Then, with some guidance, they went ahead and came up with an invention.... Most of my young employees have difficulty making the transition from academic thinking to creative design, and some never make it. The methods taught in schools are necessary, but they do not illustrate the thinking processes that lie behind invention. There are no books and very few articles on how to invent.

- (c) A UPI news release, February 20, 1987, describes why the State of Georgia has become one of the first states to adopt the "Invent America!" elementary school program.

"Dr. Lucille Jordan, associate superintendent of Georgia schools, said one of the program's aims is to encourage students to come up with more creative solutions to problems in the home, in school and in the community...."The number of inventions developed by Americans has decreased in the last 30-40 years" she said. The number of patents issued to foreigners who submit patents to the U.S. Patent Office have greatly increased....

Education representatives from Georgia met with more than 400 educators and administrators from all over the country Thursday in Washington, D.C. at the National Invent America Creativity Conference for Educators. J. Morgan Greene, vice chairman and founder of the U.S. Patent Model Foundation, said 'Invent America not only celebrates our country's observance of the 200th anniversary of the Constitution, but also lays important groundwork necessary to help America win back its competitive edge starting with our children.' He added that in Japan, critical and creative thinking through combined efforts of education, industry and government has been established since 1941. Donald J.

Quigg, commissioner of Patents and Trademarks, said almost half of all U.S. patents were issued to foreign nationals in 1985, which he says is an increase from only 11% in the 1960s. He said Japan currently claims the largest share of U.S. patents."

- (d) The 1987 Technical Insights Inc.: Inside R&D, January 28, 1987 provides further evidence of the emergence of varying kinds of assistance centers to couple inventors with entrepreneurs as follows:

"Illinois Institute of Technology is the site of the new Technology Commercialization Center (TCC) that provides scientific, engineering, and business assistance to small and medium-size manufacturers and inventors. Entrepreneurs will be helped with implementing ideas, not with invention process itself."

- (e) For comparative insights, which verify the need for a Minnesota invention/innovation support and marketing system, the Grand Rapids (Michigan) Business Journal, July 25, 1988 provides the following appropriate excerpts:

"Ideas aren't a problem for most inventors. The real difficulty is negotiating the maze that leads from product idea to the marketplace....Most inventors don't know how to go about getting their products into the marketplace. Geoff Hughes, vice chairperson of the Ann Arbor-based Inventors Council of Michigan and head of the club's west Michigan chapter, said many inventors have an almost natural aversion to the intricacies of the marketplace....By nature they're undisciplined thinkers who usually don't make good businessmen. Most of the inventors I have worked with tend to be very skilled technically but very, very naive from a business standpoint. They'd rather spend their time working on inventions and not have to deal with any of the marketing aspects."

A frequent mistake an inexperienced inventor will make is to develop a product for which there is no market. To avoid wasting time and money on an unmarketable invention, inventors are told to make commercial evaluations of their ideas before embarking on a costly developmental process. That way they can save themselves a lot of grief before they spend large amounts of money developing a product and going after a market that isn't there. One inventor who recently came to the center had already spent \$10,000 on getting a patent and developing a prototype of a tool designed to clip the top off of dandelions. A thorough commercial evaluation later showed that the invention had no chance of success.

Until recently there were few places an inventor could go for marketing advice. INCOM is only 4 years old, and then local chapter was formed just two years ago. The center assists the inventor by offering, for a fee, market research, commercial evaluation of a product idea, preliminary patent searches, and design, and development of prototypes at its laboratory. The center charges \$150 to determine whether the product has a shot at success. Once a product is deemed marketable, the center tries to match the inventor with a Michigan manufacturing company. The center also works in reverse by matching Michigan companies looking for new product ideas with inventors.

The Inventors Center, INCOM and various other assistance centers throughout the state have helped fill the consulting void. But inventors say there is still a scarcity of one element vital to bringing an invention successfully to market - financing. There simply is not a lot of financing available for the inventor in Michigan....To find financing for a business start-up, inventors have two main resources - commercial lenders and venture capitalists. But financial institutions are really reluctant to touch start-ups of any kind. About the only vehicle that's available for the inventor is venture capital, and there's not even a whole lot of that around.

...inventors need to be wary of companies that will steal their ideas. There seems to be a strange double standard in this society...you can leave a wallet full of money sitting on the table and nobody will touch it. But if you leave an idea sitting on that same table, it will be stolen....

...INCOM can lend support and help take the loneliness out of inventing. The local chapter meets every month at Davenport College...and draws about 20 people at each session. Monthly meetings of the statewide chapter in Ann Arbor attract between 50 and 100 inventors. INCOM has between 300 and 400 members statewide."

- (f) Another development in Illinois, reported in the Associated Press, May 3, 1988, indicates the geographical spread yet similarity of invention initiatives.

"Members of Illinois Innovators and Inventors, or I-Cubed, say they're just ordinary folks unlike the mad scientist stereotypes who often appear on the big screen. Through the groups exposure, some members say, they hope to change the image of inventors as eccentric, hyperactive, wild-eyed and wild-haired people

in unkempt clothing, bursting with ideas but absent-minded. Once I-Cubed gets proper exposure... people will realize inventors are not mad Scientists. They just have ideas they want to let the public know about. Based in offices overlooking Tower Lake at Southern Illinois University at Edwardsville, I-Cubed was created in August, 1986 to help inventors turn ideas into finished products."

In sum, the first designated category of invention/innovation literature (newspapers and magazines) reinforces the same themes and issues identified in Scandinavia and Minnesota. Of special note is the similar activity and concerns of neighboring Great Lakes States, i.e., Michigan and Illinois, as well as elsewhere in the U.S. The final report will examine, compile and document all preceding designated categories of literature, thereby demonstrating the increasing pervasive concern for what has been called the "invention and innovation recession" and for solutions to that phenomenon.

ALL RESPONDENTS

Question IA. To get a general idea of your (your company's) involvement with inventions and inventors, how much of your (your company's) time over the course of the year would you say is involved with inventors or new inventions? Would it be....

<u>Percent of Time Spent with Inventors</u>	<u>Number of Responses</u>
9% or less	13
10-25%	5
26-50%	2
51-75%	1
76-99%	2
100%	1
Don't Know/No Opinion	1
Total Responses	25

Question IB. How does that time compare with your involvement with inventors or inventions 3 years ago? Is it.... (and why)

<u>Time Commitment</u>	<u>Number of Responses</u>
More	6
More staff available to provide services. Development of an agency/program. Only such service in the town.	
Less	2
Not sure. No payoff. Jobs are mor plentiful now so motivation for inventor is not as strong.	
Same	13
Don't Know/No Opinion	4
Total Respondents	25

Question IC. Do you see your (your company's) involvement with inventors increasing, decreasing or remaining about the same over the next 3 years? Why?

<u>Time Involvement</u>	<u>Number of Responses</u>
Increasing	9
Greater need for technology commercialization. Greater interest. More programs. Greater emphasis on technology.	
Decreasing	2
Company's shift is focusing	
Stay the same	12
Based on past history. Limited market in this region. Programs are mostly for small business development, not for inventors.	
Don't Know/No Opinion	2
Total Responses	25

OPTIONAL QUESTIONS

Question 1D What Services do you (your organization) provide to inventors?

1. Advertising and Promotional Information
2. Business Plan Preparation
3. Financial Assistance
4. Financial Counseling
5. Information Referral
6. Legal Copyright Information
7. Legal Trademark Information
8. Marketing Assistance
9. Marketing Counseling
10. Patent Information
11. Technical Assistance

Question IE. How many individuals (in your organization) provide these services?

<u>Number of Staff Persons</u>	<u>Number of Responses</u>
10	1
6	1
5	1
4	1
3	3
2	1
1	8
Total Responses	16

Paid staff = 13
 Volunteers = 0
 Both 3

Don/t Know/No Response = 10

Question IF. For how long have you (or your organization) provided these services?

<u>Years Service Has Been Provided</u>	<u>Number of Responses</u>
20	1
12	1
10	1
8	2
5	2
3	2
2+	1
Total Responses	10

Question IG. What criteria do inventors have to meet in order to receive your services?

<u>Criterion</u>	<u>Number of Responses</u>
None	2
Ability to pay	4
Must have a small business	1
Must have a business plan	1
Must have a prototype	1
Must pass screening process	1
Residential requirement	1
Total Responses	11

Question IH. Over what period time, on average, do you provide your services to any one inventor?

<u>Time Spent with Inventors</u>	<u>Number of Responses</u>
1-2 years	1
4 months	1
1 week	1
2 hours	2
Unlimited	2
Don't Know	18
Total Responses	25

Question I-I. How many inventors do you (your organization) serve in the course of a typical year?

<u>Number of Inventors Served</u>	<u>Number of Responses</u>
300	1
100	1
75	1
24	1
17	1
15	1
9	1
8	2
6	1
3	4
2	1
Don't Know/No Response	10
Total Responses	25

Question IJ. How is your service to inventors funded?

<u>Method of Funding</u>	<u>Number of Responses</u>
SBA	1
By the inventor	7
Blandin Foundation	1
SBDC	1
State programs	4
City Programs	2
Don't Know/No Response	10
Total Responses	25

Question IK. What is the size of your current budget for your support programs.

This question could not be tabulated as respondents were unable to isolate funds for inventors only.

Question IIA. Do you find world climate favorable, or not favorable for inventors? Why?

<u>Climate</u>	<u>Number of Responses</u>
Favorable	19
Computer technology has increased awareness of the inventor's value. There are already a lot of programs available. The demand for more products. The increasing pace of technological changes. Better patent laws. Invention management is improving.	
Not Favorable	3
Financing not available.	
Don't Know/No Opinion	3
Total Responses	25

Question IIB. Do you see the world climate changing in the next three years? Why?

<u>Response</u>	<u>Number of Responses</u>
Yes	11
Further development of trade groups. Reduced trade barriers. Greater trade opportunities. Technology transfer.	
No	7
Most inventors are underfunded. Inventors have low visibility.	
Don't Know/No Opinion	7
Total Responses	25

Question IIC. How would you rate the current socio-economic climate of the United States for invention and innovation? Why?

<u>Climate</u>	<u>Number of Responses</u>
Favorable	12
The value of the inventor is becoming recognized. We are seeing the results of the U.S. not being competitive in the invention and innovation arena. It depends on corporations. U.S. is on the cutting edge of a quality productivity change that will encourage invention.	
Not Favorable	7
Public apathy. Don't understand the cost involved in inventions. Scarcity of risk capital. No Federal support policy. Bureaucracy blocks inventors. Lack of support groups.	
Don't Know/No Opinion	6
Total Responses	25

Question IID. How would you rate the climate for invention and innovation of the U.S. with that of other developed countries, such as the U.K., West Germany Japan, etc. Why?

<u>Climate</u>	<u>Number of Responses</u>
More Favorable	6
Freedom on individual helps. Hi-tech base. Better patent laws here.	
Less Favorable	10
Other countries have the motivation of more immediate needs. Other countries realize the value of invention and inventors. Better government support. They have a head start.	
Don't Know/No Opinion	9
Total Responses	25

Question IIE. How would you rate the climate for invention and innovation in Minnesota? Why?

<u>Climate</u>	<u>Number of Responses</u>
----------------	----------------------------

Favorable	9
-----------	---

Such groups as SUREACCESS, SBDC and others. In selected fields only. Capacity is here but needs government support. Opportunity here only through industry (corporations)

Not favorable	11
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Little real leadership or direction. Scarcity of capital. Lack of networking for ideas. Bureaucracy gets in the way. Incompetent assistance. No good programs to link the inventor to the manufacturer.

Don't Know/No Opinion	5
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Total Responses	25
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Question IIF. How would you compare the climate for invention and innovation with that of other states? Why?

<u>Climate</u>	<u>Number of Responses</u>
----------------	----------------------------

More Favorable	8
----------------	---

Progressive state, Greater awareness of the issues. Government more supportive

Less Favorable	3
----------------	---

Not aggressive enough. No financing

Don't Know/No Opinion	12
-----------------------	----

Total Responses	23
-----------------	----

The tabulation of Questions IIG & IIH is shown in the attached Exhibit.

Question II-I. If state government did develop an integrated system of support for inventors, which of these services should be provided?

<u>Service</u>	<u>Total</u>	<u>Yes</u>	<u>No</u>	<u>No Opinion/Response</u>
1. Research & development	25	13	8	4
2. Business planning/ consultation	25	18	4	3
3. Financial support/ assistance	25	20	2	3
4. Market research/ feasibility studies	25	17	5	3
5. Marketing planning/ consultation	25	16	7	2
6. Legal assistance/ consultation	25	15	7	3
7. Education/training	25	12	9	4
8. Other services	0			
Resource Coordination	1	1		

Question IIJ. Do you think the government of the State of Minnesota should provide support and assistance to individual or corporate inventors in other states or foreign countries provided those inventors agree to use Minnesota as their base for manufacturing and/or marketing their inventions? Why?

<u>Response</u>	<u>Number of Responses</u>
Yes	14
No	5
Don't Know/No Opinion	6
Total Responses	25

New jobs for Minnesotans. Create development opportunities, Stimulate economic development. Synergism works favorably.

No guarantee company/invention will stay in Minnesota.
Difficulty in monitoring,

QUESTION IIIA FROM THE INVENTORS AND INVENTOR SUPPORT GROUPS

	IMPORTANCE OF SERVICES					<i>No Respo.</i>
	EXT IMP	SMWHT IMP	Nither IMP or Unim	SMWHT UIM	NOT IMP	
	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>	
1. Research & Development	5	5	2		3	1
2. Business Planning/ Consultation	9	6	2			
3. Financial Support/ Assitance	8	5	1	1	1	
4. Market Research/ Feasibility Studies	9	5	1	1		
5. Marketing Planning/ Consultation	8	6	1	1		
6. Legal Assistance/ Counseling	9	3	3		1	
7. Education/ Training	5	5	1	2	1	2
8. Other						
Names of MN businesses		(4)				
Physical support facilities		(5)				
Prototype model development assistance		(4)				
Network of inventors						
Library		(4)				

QUESTION IIIB FROM THE INVENTORS AND INVENTOR SUPPORT GROUPS
(also IIIC & D)

AVAILABILITY OF SERVICES				
	Currently Available	Not Crntly Available	A/Not Satisf	Why Not Satisf
1. Research and Development	3	7	6	Too expensive not for indiv. inventing not needed
2. Business Planning/ Consultation	11	1	3	no expertise Too expensive Too time consuming
3. Financial Support/ Assistance	3	5	7	Too expensive Too demanding Too limited
4. Market Research Feasibility Studies	3	5	8	Wrong focus Too expensive Poor staff Not user friendly
5. Marketing Planning/ Consultation	4	5	6	Same as above
6. Legal Assistance/ Consultation	8	4	3	Too costly Too limited
7. Education/ Training	9	3	3	Focus too narrow Not enough
8. Other				
Office space				
Library				
Secondary/elementary programs				

Question IIIE. What role, if any, should state overnment take in developing an integrated system of support for inventors?

<u>Role</u>	<u>Number of responses</u>
Organize, establish goals & services	3
Locate all information in one place	1
Act as overseer	3
Provide funding	5
Provide marketing assistance	1
Act as clearninghouse	2
Identify companies that need new products	1
Total Number of Responses	16

Question IIIF. What do you think would be the advantages of such a center to you?

<u>Advantage</u>	<u>Number of Responses</u>
A central place to go for help	9
Would accelerate work of inventor	1
Would increase success of idea development	2
Place to protect inventors	1
Something would be better than nothing	1
Would encourage inventor	1
Speed commercialization of idea	1
Total Responses	16

Question IIIG. What do you think would be the disadvantage of such a center to you?

<u>Disadvantage</u>	<u>Number of Responses</u>
None	6
Cost	1
Might not be properly focused	1
Might not be close enough to out-staters	2
Might increase unhealthy competition	1
Political problems	1
Idea secrecy problems	3
Total Responses	15

QUESTION V-A. FINANCIAL GROUP

RATINGS OF INVENTORS' SKILLS | | Ext | Smwht | Smwht | Very | No | |--|---------|---------|---------|------|---------| | | Capable | Capable | Average | Weak | Weak | | | | | | | Opinion |

Skill

1. Business Planning			3	2	
2. Financial Planning			1	4	
3. Knowledge/ How to Submit Request for Financing			1	4	
4. Financial Management			4	1	
5. Technical Know How	1	4			
6. Marketing Planning			4	1	
7. Market Research			3	2	
8. Organiza- tional			2	2	1
9. Sales/ Distribution			4	1	
10. Production/ Manufacturing		2	2	1	

Question V-B. At what point in the invention process do you usually first come in contact with inventors?

<u>Contact Point</u>	<u>Number of Responses</u>
Concept stage	1
Late in development stage	4
Early production	0
Pre-production	1
Total Responses	6

Question V-C. What are the five most important factors an inventor should include in a request for funding from you (your organization) in order to gain serious consideration?

<u>Factor</u>	<u>Number of Responses</u>
Equity Capital	1
Written business plan	3
Collateral	1
Repayment Ability	2
Market potential of product	2
Market research on product	1
Marketing Plan	2
Resumes of personnel involved	1
Sales & profit projections for 3 years	1
Job creation potential of product	1
Control of product	1
Financial management ability	1
Good credit record	1
Total Responses	18
(Contains multiple responses)	

Question V-G. What role, if any, should state government take in developing an integrated system of support for inventors?

<u>Role</u>	<u>Number of Responses</u>
Don't Know/No Opinion	1
Provide framework	1
Provide funding	1
Management and service selection role	1
Provide coordination of existing services	1
Total Responses	5

QUESTION V-D FINANCIAL GROUP
(also E&F)

AVAILABILITY OF SERVICES
Currently Available Not Crntly Available A/Not Satisf Why Not Satisf

- | | | | | |
|--|---|---|---|-----------|
| 1. Research and Development | 2 | 3 | - | |
| 2. Business Planning/ Consultation | 4 | - | 1 | |
| 3. Financial Support/ Assistance | 3 | 2 | - | |
| 4. Market Research Feasibility Studies | 2 | 2 | 1 | for staff |
| 5. Marketing Planning/ Consultation | 2 | 2 | 1 | for staff |
| 6. Legal Asstistance/ Consultation | 3 | 2 | - | |
| 7. Education/ Training | 3 | 2 | - | |
| 8. Other | | | | |

QUESTION V-H FINANCIAL GROUP

	IMPORTANCE OF SERVICES				
	EXT IMP	SMWHT IMP	Nither IMP or Unim	SMWHT UIM	NOT IMP
	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>
1. Research & Development	2	2	1	-	-
2. Business Planning/ Consultation	3	1	-	-	-
3. Financial Support/ Assistance	2	2	-	1	
4. Market Research/ Feasibility Studies	4	-	-	1	
5. Marketing Planning/ Consultation	2	2	-	1	
6. Legal Assistance/ Counseling	2	1	1	1	
7. Education/ Training	2	1	1	1	
8. Other					

Question V-I. How valuable do you think such a center for invention and innovation would be for inventors?

<u>Value</u>	<u>Number of Responses</u>
Extremely valuable	4
Somewhat valuable	1
Neutral	0
Not very valuable	0
Not at all valuable	0
Total Responses	5

QUESTION VII-A. MARKETING GROUP

<u>Skill</u>	RATINGS OF INVENTORS' SKILLS				
	Ext	Smwht	Smwht Very		
	<u>Capable</u>	<u>Capable</u>	<u>Average</u>	<u>Weak</u>	<u>Weak</u>
	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>
1. Business Planning			3	2	4
2. Financial Planning			2	3	4
3. Knowledge/ How to Submit Request for Financing					
4. Financial Management		1	2	4	2
5. Technical Know How	2	5	1	1	
6. Marketing Planning				3	6
7. Market Research				2	7
8. Organizational		1	1	6	1
9. Sales/ Distribution		1	2	3	3
10. Production/ Manufacturing		3	3	1	1

QUESTION VII-B MARKETING GROUP
(also C&D)

AVAILABILITY OF SERVICES
Currently Available Not Crntly Available A/Not Satisf Why Not Satisf

1. Research and Development	3	4	2	Too costly Not available to indep. inventors
2. Business Planning/ Consultation	6	1	2	Lack of funds Poor staff
3. Financial Support/ Assistance	3	1	5	No funds Strong attitude Too difficult to get
4. Market Research Feasibility Studies	2	3	4	poor quality poor staff
5. Marketing Planning/ Consultation	3	3	3	poor staff
6. Legal Assistance/ Consultation	7	1	1	Too costly
7. Education/ Training	7	-	2	no funds
8. Other				

Question VII-E. What role, if any, should state government take in developing an integrated system of support for inventors?

<u>Role</u>	<u>Number of Responses</u>
Provide such a structure	4
Coordinate existing services	1
Fund	1
Don't Know/No Response	3
Total Responses	9

Question VII-G. How valuable do you think such a center for invention and innovation would be for inventors? Why?

<u>Value</u>	<u>Number of Responses</u>
Extremely valuable	7
Somewhat valuable	2
Netural	0
Not very valuable	0
Not at all valuable	0
Total Respondents	9

Such a center would:

Produce jobs

Provide a well defined place of entry for the inventor

Provide diversified services for diversified people

Provide a place to facilitate ideas

There can't be too much help for inventors

QUESTION VII-F. MARKETING GROUP

	IMPORTANCE OF SERVICES					
	EXT IMP	SMWHT IMP	Nither IMP or Unim	SMWHT UIM	NOT IMP	
1. Research & Development	3	2	2	1		1
2. Business Planning/ Consultation	5	4				
3. Financial Support/ Assistance	6	3				
4. Market Research/ Feasibility Studies	7	2				
5. Marketing Planning/ Consultation	6	3				
6. Legal Assistance/ Counseling	4	4	1			
7. Education/ Training	5	3	1			
8. Other						

Yes
Response