

IDEAS, INVENTIONS AND INNOVATIONS

Gerald Udell
Director, CBRD
Southwest Missouri State
University

Products / Ideas / Invention Series

This publication replaces
Can You Make Money With Your Idea or Invention? and
Ideas Into Dollars

Copyright 1989, Gerald Udell. All rights reserved. No part may be reproduced, transmitted or transcribed without permission of the author. SBA retains an irrevocable, worldwide, nonexclusive royalty-free, unlimited license to use this copyrighted material.

While we consider the contents of this publication to be of general merit, its sponsorship by the U.S. Small Business Administration does not necessarily constitute an endorsement of the views and opinions of the authors or the products and services of the companies with which they are affiliated.

All of SBA's programs and services are extended to the public on a nondiscriminatory basis.

TABLE OF CONTENTS

FOREWORD 1

INTRODUCTION 1

THE INDUSTRIAL INNOVATION PROCESS 1

IDEA GENERATION STAGE 1

IDEA EVALUATION STAGE

Technical Evaluation Programs 2

Commercial Evaluation Programs 3

PROTECTING YOUR INVENTION

Trade Secrecy 3

Patents 3

RESEARCH AND DEVELOPMENT STAGE 4

PRECOMMERCIALIZATION STAGE 5

PROMOTION AND MARKETING STAGE

Innovation Centers 5

Incubator Centers 6

Management and Technical Assistance Centers 6

U.S. Small Business Administration Business Development Programs 6

SOURCES OF FINANCING

Seed Capital 6

Venture Capital Firms 7

Government Grants 7

BUSINESS PLANNING ASSISTANCE

Preparing a Business Plan 8

NASA Technical Assistance Programs and Publications 8

SUMMARY 9

APPENDIXES

A. Wal-Mart Innovation Network/WIN Innovation Center 11

B. Evaluating Invention Evaluation and Marketing Services

C. Inventor Services Disclosure Form 15

D. For Further Information 17

FOREWORD

Everybody has ideas. Most of us have had an idea for a new product only to dismiss or neglect it. Sometimes we later find that others had the same idea, but they did something with it and it is their product in the market, not ours.

Ideas are relatively easy to come by; inventions are more difficult. It takes knowledge, time, money and effort to refine an idea into a workable invention, even on paper. Turning an invention into an innovation -- a new product launched into, and accepted by, the marketplace -- takes a lot of effort, not to mention a little luck. There are formidable tasks and substantial barriers in the path of those who pursue innovation. Accomplishing these tasks and overcoming the barriers typically require much careful planning and input from others.

INTRODUCTION

Independent inventors are individuals who conceive a new product, process or service, independent of an organizational framework or agency. The typical independent inventor has neither the interest nor the resources to attempt commercialization by starting a new business. Instead, most inventors hope to license their inventions to an existing enterprise and collect royalties. Innovators are inventors and others who pursue inventions beyond development to commercialization. This publication recognizes the different needs of inventors and innovators.

THE INDUSTRIAL INNOVATION PROCESS

The importance of industrial innovation can be measured in terms of its impact on both the private and public interest. Perhaps as much as one-third to one-half of all manufacturers' profits are generated by products less than five years old. In addition, nearly half of all new jobs created in the last several decades have been the result of industrial innovation. Innovation is essential to our present standard of living; without it, we face a future of inevitable decline.

Recent studies show that, in spite of skyrocketing costs, increased risks and market complexity, independent inventors, technological entrepreneurs and small businesses still contribute somewhere between one-half to two-thirds of the major industrial innovations occurring in the United States. Other studies show that they do it much more efficiently than their corporate and institutional counterparts.

Industrial innovation may be defined as a complex series of activities, beginning with an idea and followed by a succession of interwoven steps -- research and development, financing, marketing and production. However, it does not bear fruit until a product, process or service is accepted by the marketplace.

The following sections identify resources that may be helpful as you move through the innovation process and assess the kind of assistance to expect from those resources.

IDEA GENERATION STAGE

Idea generation consists of two steps: the creation of an idea and the commercial development of that idea by an organization.

Perhaps the most useful resource available to inventors at the idea generation stage is provided by other inventors in the form of inventor organizations. These groups can provide practical suggestions to help you steer clear of many pitfalls. To locate the inventor organization in your area, contact the Office of Energy-Related Inventions (OERI) under the National Institute on Standards and Technology (Gaithersburg, MD 20899) or the Inventor Assistance Program News (Battelle Pacific Northwest Laboratory, Mail Stop K6-54, P.O. Box 999, Richland, WA 99352; 509-376-4348 [phone] or 509-376-8054 [fax]).

Resources

Other resources of interest at this stage are workshops, magazines, books and data banks.

About eight inventor conferences are held each year at different locations throughout the United States. These conferences are oriented toward independent inventors and technological entrepreneurs. For information about dates and locations, contact the OERI.

Publications of interest to inventors and innovators include the Journal of Product Innovation Management, Technovation, Successful Innovator, Invent!, The Dream Merchant, Inventor USA, Invent America and Inventions Digest.

Most data banks and technical information services are oriented toward technologically sophisticated entrepreneurs and firms. Their usefulness to the typical independent inventor is questionable. However, several sources that may be able to help are the National Appropriate Technology Assistance Service (NATAS) (P.O. Box 2525, Butte, MT 59702; 800-428-2525), Battelle Pacific Northwest Laboratory (Mail Stop K6-54, P.O. Box 999, Richland, WA 99352; 509-376-4348 [phone], 509-376-8054 [fax]), Inventor's Workshop International (3201 Corte Malpas, #304, Camarillo, CA 93010; 805-484-9786), and the National Technical Information Service (NTIS) (5258 Port Royal Rd., Springfield, VA 22161; 703-487-4600).

IDEA EVALUATION STAGE

It is normal to like our own ideas; however, it is a mistake for an inventor to become committed to his or her idea too early in the innovation process. Many inventors skip the evaluation stage because they believe they have a good idea and they know it will sell. This is a serious mistake, for it takes more than a good idea to make a commercial success. Innovation is a costly, complex and time-consuming process.

Donald J. Quige, former commissioner of the U.S. Patent and Trademark Office, advises inventors to obtain a competent evaluation before filing for a patent. This is good advice. Make sure your idea or innovation has merit and that you are willing to make the investment necessary to turn your idea into dollars. A good evaluation should help you make those decisions.

Inventors wishing to know more about innovation evaluation may find the book Exploring the Innovation Process useful. It is available from the Innovation Institute (Rt. 2, Box 184, Everton, MO 65646). If, after reading this invention evaluation manual, you believe your idea lacks sufficient merit, you can drop it and avoid a costly mistake. On the other hand, if you still believe your idea has commercial potential, you are strongly urged to seek a second opinion from a professional evaluation service. Remember, the cost of developing an idea into an invention will increase substantially as you progress through the innovation stages.

Technical Evaluation Programs

Individual professional engineers and a variety of organizations -- testing laboratories, engineering consulting and product development firms and engineering or technical schools -- can provide technical evaluation and testing services. With a little detective work, you should be able to locate a competent source of technical evaluation. Although many of these sources do good work, they can be quite expensive.

In addition, a number of innovation center programs may perform technical evaluations. Many of these are mid- to high-tech and frequently are directed toward regions or specialized types of technology.

The most experienced, and perhaps the best, technical evaluation program oriented specifically to the needs of inventors and innovators is provided by the National Institute of Standards and Technology (NIST) through its Office of Energy-Related Inventions. OERI emphasizes technical evaluations and does not charge for its services. Interested inventors may write to OERI for application forms and a full description of the evaluation process.

NIST also uses its lengthy evaluation process to screen energy-related projects for possible funding by the U.S. Department of Energy (DOE). Although the institute recommends only about 1 1/2 percent of the submissions to DOE, the department does fund many of those recommended.

OERI also has an Inventor Information Resources Center pilot project. Three public libraries -- Boston Public Library, Sunnyvale (CA) Public Library and the Price Gilbert Public Library (Atlanta, GA) act as depositories for and access points to a wide range of instructional and technical information. For more information about the pilot project, contact OERI.

Commercial Evaluation Programs

There are two basic types of commercial evaluation programs: unstructured and structured. An unstructured evaluation involves a nonsystematic review of your invention; a structured evaluation involves a review according to predetermined criteria.

Many legitimate groups use unstructured evaluation procedures. Unfortunately, they may not provide you with much feedback and it is typically difficult to check the quality of their evaluation. Many of these programs are really screening mechanisms for some organization; i.e., their purpose is to identify inventions suitable for that organization, not to help you determine the commercial feasibility of your idea or invention. In addition, many innovation center programs that perform unstructured commercial evaluations are heavily oriented toward technological advances and potential start-ups, not toward independent inventors seeking to license their inventions.

The only widely used formal commercial evaluation format specifically oriented toward the needs of independent inventors as well as entrepreneurs is the Preliminary Innovation Evaluation System (PIES) format. Considerable research effort went into the development of the PIES format. It has been used to evaluate more than 8,000 ideas and inventions of widely varying degrees of technical sophistication.

Readers who want more information about the PIES format may contact the Innovation Institute (I2) (Rt. 2, Box 184, Everton, MO 65646) or the WIN (Wal-Mart Innovation Network) Innovation Center, College of Business Administration, Southwest Missouri State University, Springfield, MO 65804; 417-836-5680). In addition to an evaluation report covering 39 criteria, either I2 or the WIN Center can provide you with a copy of the PIES-VI evaluation manual, Exploring the Innovation Process, which explains each variable in some detail. The manual is designed to help you better understand your evaluation report. (For more information on the WIN evaluation process, see Appendix A.)

PROTECTING YOUR INVENTION

If your idea or invention receives a positive evaluation, the next step is to protect it. There are two basic strategies:

- Trade secrecy.
- Patent protection.

Trade Secrecy

Before you elect to pursue trade secrecy, discuss the matter with an attorney, as there are certain procedures you must follow to establish your rights. David Pressman, in *Patent It Yourself!* (McGraw Hill 1979), defines a trade secret as any design, process, composition, device, technique or any unique thing that only you, or a limited group of people, are aware of and that is commercially valuable. Trade secrets are almost always limited to manufacturing processes, production machines or chemical formulas. The composition of Coca Cola is a good example.

Patents

Usually it is better to seek patent protection. In some cases, patent protection is not essential to successful commercialization. However, the prospects for obtaining a license for an unpatented device are very slim. Many manufacturers will not even preview unpatented ideas or inventions. After you determine that patent protection is appropriate in your case, contact a registered patent attorney or patent agent for advice. For more information, contact the U.S. Patent and Trademark Office.

Although patent law permits you to file your own patent application, this can be very time consuming and the potential for error is high. For these reasons, filing your own patent application is not recommended.

In addition to patent protection, the patent office provides several services for inventors, as follows.

- *Document Disclosure* -- The Document Disclosure Program permits the certified storage of papers for up to two years in order to provide evidence of the date of the conception of inventions. Be aware that some firms charge up to \$200 for filing a disclosure document. You can easily do it yourself by sending a signed, dated and witnessed description of the idea, accompanied by two copies of a cover letter asking acceptance of the document into the program, \$10 and a stamped, self-addressed envelope.

- *Patent Search* -- The staff of the patent office will help you perform a patent search either at the search room or at one of the 29 depository libraries in the United States. Patent depository libraries receive current issues of U.S. Patents, maintain collections of earlier issued patents, offer publications of the U.S. Patent Classification System and other patent documents and forms and provide technical assistance in accessing information contained in patents. For more information about patent depository libraries, contact the U.S. Office of Patents and Trademarks.

- *Data Bank* -- Most patents granted since 1965 are now available through a computerized data bank called Dialog. Although many libraries can access this program, they are unlikely to be able to help you interpret the information. The patent office publishes a roster of all registered practitioners who can render an opinion of patentability or prepare and prosecute applications for inventors.

- *Advertising* -- For a small fee, a patented invention can be advertised in the patent office's Gazette as being available for licensing or sale. The Gazette is widely circulated among manufacturers, research companies and business owners. A Gazette entry includes the patent number, the name of the invention and the inventor's name and address.

For a list of patent attorneys, contact the U.S. Patent and Trademark Office, or the U.S. Government Printing Office (Washington, DC 20402; ask for Patent Attorneys and Agents Registered to Practice before the U.S. Patent and Trademark Office). Other useful publications from the patent office are Basic Facts About Patents and General Information Concerning Patents. For a listing of all patent office booklets, contact the office's publications department.

RESEARCH AND DEVELOPMENT STAGE

Frequently, inventors and innovators need technical and managerial resources to complete the research and development stage. Unfortunately, most resources available at this stage are fee based or geared toward the needs of entrepreneurs and existing enterprises. Unless you are willing to either pay for the necessary research and development or part with a substantial share of ownership and royalties, do not expect others to take your idea and develop and commercialize it on your behalf.

The research and development stage is frequently a no-man's land for the inventor or innovator, especially with technologies that advance the state of the art or that are new to the marketplace. Often the creator lacks the resources necessary to test and/or develop his or her innovation. The problem is that traditional sources of capital -- venture capitalists, small business investment companies, investment bankers, etc. want valid proof of the invention before they invest. It is a hard fact of life, but many potential innovations have stalled and expired in this wasteland for lack of capital.

Historically, the inventor or innovator has been left alone to solve this dilemma. Despite public announcements to the contrary, few groups or sources of capital are ready to sponsor projects in their early stages. The traditional source of capital has been sweat equity and personal savings, plus limited investments by family and friends. However, there are a few innovation centers and some state-sponsored, innovation-oriented economic development initiatives that may be able to help. Some of these centers are members of the National Association of Management and Technical Assistance Centers.

Another source of information is the Department of Economic Development in your state. Such departments tend to be oriented toward the needs of new and existing entrepreneurs. When contacting these sources, inventors should be very specific in terms of their needs.

The National Technical Information Service of the U.S. Department of Commerce is the central source for the public sale of government-sponsored research, development and engineering reports prepared by federal agencies or contractors. NTIS has on-line search, bibliography and hard copy production capabilities. An especially useful NTIS publication for high technology firms is Government Inventions Available for Licensing.

PRECOMMERCIALIZATION STAGE

At the precommercialization stage, inventors and innovators part company. Inventors hope to license their inventions to someone else. Innovators (commonly referred to as entrepreneurs or inventrapreneurs) attempt to commercialize their technology.

There are three basic players in the innovation process: inventors, entrepreneurs and managers. Each must possess a very different set of skills that, at times, conflict. Many a new venture has failed because the inventor could not shift gears and become an entrepreneur or because an entrepreneur could not adapt to a managerial role. Far too often inventors feel that because it was their idea, they are ordained to carry it forward. The same is true of many entrepreneurs. This is unfortunate -- one of the keys to success is knowing one's limitations. Keeping this in mind, you should ask yourself if you possess the necessary skills and resources to advance to the latter stages of the innovation process.

For the majority of inventors, the wisest strategy is to try to license their invention to an existing enterprise. Annually, billions of dollars are spent on technology transfer worldwide. Unfortunately, the resources available to independent inventors at this stage are limited; the majority of professional technology transfer agents are employed by or represent ongoing

enterprises.

Many corporations, due either to legal complications or for other reasons, do not review ideas from outside inventors. However, if you have a well-developed idea and are looking for a large company to evaluate, manufacture and/or sell it, you can consult reference publications such as Thomas' Register of Manufacturers, Dun & Bradstreet directories or MacRae's Blue Book for the names, addresses, phone numbers and product orientation of listed companies.

Another useful publication, by the American Bar Association's Section of Patent, Trademark and Copyright Law, is entitled Submitting an Idea. It describes common procedures for submitting an idea to a company. You can obtain a copy for a nominal fee from the circulation department of the American Bar Association.

PROMOTION AND MARKETING STAGE

Before you look at possible sources of assistance, a word of caution is in order: Be very careful about using the services of so-called invention promotion/marketing/development/ submission firms. Frequently, these firms charge high prices but produce low results. When the Federal Trade Commission (FTC) investigated two such firms, it found that only about a dozen of some 35,000 inventor clients had made a profit of \$1 or more as a result of the firms' services. (For more information on this topic, see Appendix B.)

Innovation Centers

In 1973, the National Science Foundation funded three experimental innovation centers to test various incentives for stimulating technological innovation. Today, there are innovation centers throughout the United States. Some are public sector programs, such as the University of North Dakota Innovation Center. Others are in the private sector, such as the Innovation Institute in Everton, MO. Innovation centers vary considerably in terms of effectiveness, nature and cost. In some cases their services are free, while others may be commission-, equity- or fee-based.

The level and quality of services provided by innovation centers also vary. Some assume a monitoring role and provide you with guidance, whereas others may become more directly involved. Some innovation (and incubator) centers are new ventures themselves. Their principals may have little or no industry experience. Remember, anyone can hang out a shingle reading Innovation Center. It pays to check the credentials of the people involved. Do not assume that, because a center is university based, it has the resources of the university behind and available to it. As a 1986 article in Venture magazine put it, Many universities aren't sure they want to be in the business of business. Overall, however, innovation centers are likely to be your best bet, as they are knowledgeable about the innovation process and the needs of inventors and inventpreneurs.

The WIN center is the first to be established with the cooperation and participation of a major U.S. corporation. It also is the first center to stress licensing of independent inventions (as opposed to new venture start-ups) and to use networking as a major strategy for commercializing

new products, processes and services. It works with other innovation centers, economic development centers and small business development centers throughout the United States to help inventors and innovators reach the marketplace.

Incubator Centers

Incubator centers differ from innovation centers in that they provide clients with physical facilities and support services, such as receptionists, copiers, telephone answering services, etc., while they work on their inventions. Some also provide management, technical and financial services. Most require clients to operate within the center's facilities, while others allow outside access. In addition, incubator centers are likely to expect you to have some financing and a business plan. Although most centers are not geared to meet the specific needs of inventors, a few have access to resources relevant to these needs. For more information on incubator centers, contact the National Business Incubation Association (NBIA) (20 East Circle Drive, Athens, OH 45701; 740-593-4331).

Management and Technical Assistance Centers

Management and technical assistance (MTA) centers are university-based programs that provide either generalized or specific types of management and technical assistance. Many of these centers focus on high technology or direct their efforts toward existing enterprises. However, in general, MTA centers tend to have more experience in dealing with innovation-related matters than most general management assistance groups.

U.S. Small Business Administration Business Development Programs

The U.S. Small Business Administration (SBA) has several programs that may be useful at this stage of the invention process

- *SCORE -- The Service Corps of Retired Executives* provides free counseling by retired or active volunteer business people to help small firms solve technical and management problems.
- *SBI -- The Small Business Institute* program uses the skills of university faculty and students to provide management counseling for small businesses.
- *SBDCs -- Small Business Development Centers* are university-based organizations whose purpose is to develop the economy of the region by providing a wide range of management assistance to small businesses and individuals in the area. A few SBDCs offer specialized services in the areas of innovation management and technical assistance. For the location of the SBDC in your area, contact your district SBA office.

The SBA also offers a variety of business development publications, many of which are geared

toward product development and marketing useful to inventors and small businesses seeking financial assistance. For more information on SBA's products and services, see Appendix D.

SOURCES OF FINANCING

Seed Capital

Traditional lenders, such as banks and savings and loan institutions, frequently resist becoming financially involved in pre-venture or precommercial financing. This is particularly true during the seed capital stage -- the point at which the entrepreneur is seeking funds to finish a prototype, begin testing or prepare a business plan. The best sources of funding at this time are independent investors. There are no formal lists of these investors and it may take some research to locate them.

While a few states have seed capital funds and grant programs similar to NIST's Energy-Related Inventions Program, most inventrapreneurs are on their own at this point. Innovation centers are a good source of help, followed by state economic development officials and some management and technical assistance centers. Well-prepared presentations with at least preliminary business plans are virtual prerequisites, even if the investors are informal.

Venture Capital Firms

Formal venture capital firms typically come on the scene after a management team is in place and you are ready to enter the marketplace. These organizations usually want their equity investment (as opposed to a straight loan) to be easily convertible to cash at some future date. Typically, they will take a much more active role in managing the new or expanded business than traditional lenders. Some will want control and virtually all will expect to sit on your board of directors. Also, expect them to ask for your business plan and for the resumes of your management team. You will need a well-thought-out plan that describes

- The general nature of your new product.
- The structure of your business.
- The market for your product.
- Your product's competitive superiority.
- Your production, sales and distribution plans, including revenue, costs and profit projections.

Two recent books, *A Guide to Venture Capital Sources* and *Planning and Financing Your New Business: A Guide to Venture Capital*, feature extensive listings of venture capital companies, their addresses, phone numbers, product orientation and so forth. Further, the Small Business Investment Corporation (SBIC), licensed by the SBA, may provide management assistance along

with venture capital.

Government Grants

The federal government has a very complex system of grant programs. Many agencies offer some kind of grant funding. Unfortunately, with only a few exceptions, these programs have little relevance for independent inventors. There are some, however, that may be of interest to technological entrepreneurs.

Small Business Innovation Research (SBIR)

The Small Business Innovation Research (SBIR) program is designed to stimulate technological innovation in the United States by providing qualified small businesses with opportunities to propose innovative concepts that meet the research and development needs of the federal government. The SBIR program offers an excellent opportunity for the research-oriented, existing enterprise, but it has little relevance for the average inventor of consumer goods. Do not expect the SBIR program to fund your idea unless (1) your invention fits a specific government need, and (2) you have in place an organization capable of carrying the project through to completion. It is very rare for individuals to obtain SBIR funding.

SBIR is unique in that it relies on a coordinated effort by various federal agencies. Eleven federal agencies presently participate:

- Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services and Transportation
- Environmental Protection Agency
- National Aeronautics and Space Administration
- National Science Foundation
- National Regulatory Commission

The program has three phases:

- *Phase I* -- Evaluate the scientific/technical merit and feasibility of an idea. The government makes competitive awards of up to \$50,000 for a period that usually does not exceed six months.
- *Phase II* -- Pursue the technological development of the idea studied in Phase I. The government offers up to \$500,000 for a development period that normally cannot exceed two years. Only Phase I awardees are considered for Phase II awards.
- *Phase III* -- Commercialize the product developed in Phase II. The

commercialization phase requires the use of private or non-SBIR funding.

For more detailed information, contact the SBA's Office of Innovation, Research and Technology (409 Third Street, SW, Washington, DC 20416).

U.S. Department of Commerce Agencies

The National Institute of Science and Technology offers grants for technical research and development in engineering and the applied sciences. NIST does not solicit specific proposals or ideas; inventors/innovators are invited to submit their ideas for consideration. Proposals must contain a detailed description of an effort that will enhance NIST's research and development mission. It cannot be an effort related to advertising or standard commercial product development. For further information, ask for Guidelines for Preparation of Unsolicited Proposals from NIST, Office of Management Division, Technical Proposals Coordinator (Gaithersburg, MD 20899).

The National Oceanic and Atmospheric Administration has a National Sea Grant Program that funds marine research. Also, the U.S. Department of Commerce's Minority Business Development Administration (MBDA) (formerly the Office of Minority Business Enterprise) sponsors several special project programs. For further information, contact the MBDA.

For those wishing to raise capital through other means -- for example, sale of securities -- the Securities and Exchange Commission's (SEC) Office of Small Business Policy offers several publications that discuss the federal securities laws with which small firms must comply when raising capital through public security sales. Single copies can be obtained from the policy office (for multiple copies, contact the SEC's publications office).

BUSINESS PLANNING ASSISTANCE

Preparing a Business Plan

Rather than writing your own business plan, you have the option of having someone else do it for you. This can be expensive -- costs exceeding \$30,000 are not unusual if you use a professional consulting firm -- and the resulting document is frequently another's plan for your venture, not your plan. As a result, the plan may have little operational value to you. In addition, to use such a plan to generate capital raises a question of ethics, as potential investors may use the plan in their effort to judge your ability as an entrepreneur. Thus, using another to develop your plan is not recommended.

Two publications that can help you gain a better understanding of how to prepare a business plan are offered by the Center for Innovation and Business Development at the University of North Dakota (Box 8104, University Station, Grand Forks, ND 58202; 701-777-3132): *Business Plan for Start-Ups* and its companion piece, *Marketing Plan for Start-Ups*.

There are a variety of sources for business planning assistance. In addition to consulting firms,

some business schools may be able to meet your needs. If your needs are fairly straightforward, some of the SBDCs and perhaps some business school-based SBIs may be able to help you. Innovation and management/technical assistance centers may be of help, too.

Business planning for a growth-oriented product and related venture capital requires expertise seldom available. Unfortunately, there are no easily applied guidelines for selecting a competent source of assistance at this stage. Ask for examples of previous work. Don't forget to look at the bottom line: How much capital did they raise?

NASA Technical Assistance Programs and Publications

National Aeronautics and Space Administration (NASA) programs produce a wealth of aerospace technology. The Office of Space and Terrestrial Applications coordinates a nationwide network of specialists who provide a link between aerospace technology and high-technology businesses. For a nominal fee, these NASA specialists offer scientific, technical, research and management services, through regional Industrial Applications Centers and State Technology Application Centers.

NASA also has several publications of interest to technological inventors, research and development managers and high-technology firms. Tech Briefs, provided free of charge, is a quarterly survey of newly developed processes, advances in basic and applied research and laboratory techniques and new sources of technical data and computer programs. NASA's technical support package provides more detailed information on the subjects surveyed in the Briefs. The agency also publishes various handbooks and data compilations. For subscriptions to or information on NASA publications, write to the director of the Technology Transfer Division at the NASA Scientific and Technical Information Facility (P.O. Box 3757, Baltimore/Washington International Airport, MD 21240).

In addition to publications, NASA provides computer programs covering a wide range of aerospace applications. These programs are available through its Computer Software Management and Information Center. New programs are announced in the Computer Program Abstracts, obtained through the Superintendent of Documents (Government Printing Office, Washington, DC 20401).

SUMMARY

This publication covers the stages of the industrial innovation process, which begins with idea generation (invention) and continues through commercialization. It points out the barriers inventors and innovators may confront and offers suggestions for resources that will help overcome these barriers.

Inventors outnumber innovators or entrepreneurs by a very large margin, but the overwhelming majority of public and private sector innovation programs are oriented toward the latter, particularly the high-tech entrepreneur. Unfortunately, few of these programs are equipped to meet the very different needs of the inventor not involved in high technology.

APPENDIX A: WAL-MART INNOVATION NETWORK/WIN INNOVATION CENTER

The Wal-Mart Innovation Network (WIN) was launched in March 1991 by the Innovation Institute, the College of Business Administration at Southwest Missouri State University and Wal-Mart Stores, Inc. It is an experiment to test new ways to link the creative talents of independent inventors and others with the financial, technical and managerial resources of existing enterprisers. The objective of WIN is to stimulate American innovation, thereby creating new manufacturing jobs in the United States.

The program consists of three basic stages, each designed to help inventors and innovators turn ideas into successful new products.

Phase I: Evaluation and Assessment

In order to participate, inventors first need a commercial evaluation of their idea or invention by a WIN Innovation Center evaluation agent.

The program begins with an evaluation because experience shows that only a very small percentage of all new product ideas have sufficient potential to warrant further development. By identifying inventions and new product ideas of merit, resources can be directed to where they will do the most good. In addition, inventors and innovators are saved costly mistakes by early identification of high risk factors. WIN evaluators use the PIES-VI format, the most recent version of an evaluation system that has been used to evaluate more than 15,000 inventions and new product ideas.

If an invention or new product idea passes the center's screening process, it is forwarded to the WIN Innovation Panel for an assessment of marketability. Panel members are buyers and marketers who have volunteered their talents and expertise to provide inventors with a second and more insightful analysis of the marketability of any invention or new product idea. One of the toughest problems facing inventors is getting someone to listen. A positive assessment of marketability can provide experienced third-party credibility for new product ideas and inventions. In other words, a panel endorsement increases the chances that others will be willing to listen.

Phase II: Innovation Development and Precommercialization

Upon receiving positive evaluations and panel assessments, inventors must begin to develop their inventions, start new ventures or find someone to take over development and marketing of the idea. To assist with this process, WIN has established a network of universities, inventor groups, small business development centers, government agencies, professionals and private companies. In Missouri, the state SBDC Network and the WIN Innovation Center will attempt to locate appropriate assistance to help inventors with areas such as prototype development, business planning, capital raising, production layout and licensing. Many of these services are free; however, when significant assistance is provided in the area of licensing, and the program is

successful in locating a potential licensee and concluding a licensing agreement, a commission may be charged.

Phase III: Commercialization

Once an approved idea or invention is in production and is ready for the marketplace, WIN will contact appropriate buyers. If the buyer elects to stock the product, and if it is made in the United States, it may qualify for special promotions programs.

A Final Note

Several aspects of the program must be emphasized. First, there are no charges for Wal-Mart participation in this program. Any fees are paid directly to the service provider involved. Second, a positive WIN assessment of marketability does not obligate Wal-Mart in any way. WIN panel members are free to endorse inventions without consideration of company stocking needs or policies. All good new products will be assisted. Third, the program is limited to consumer-related ideas and inventions. However, it is important to note that inventors with other types of inventions can still obtain a preliminary evaluation from an evaluation partner.

Inventors may obtain evaluation registration and a disclosure form by contacting the WIN Innovation Center, College of Business Administration, Southwest Missouri State University, Springfield, MO 65804. Likewise, inventor organizations, innovation centers and others wishing to lend a hand by becoming innovation partners should contact the center.

APPENDIX B: EVALUATING INVENTION EVALUATION AND MARKETING SERVICES

So you've got an idea or invention . . . what do you do next?

First, obtain an evaluation from a credible invention evaluation service before you apply for a patent. Not all evaluation services are created equal. Some are inexperienced or ineffective and some may be dishonest.

- *To protect yourself against inexperience and incompetence, check the service's professional and evaluation experience.* Some services, including some universities and nonprofit groups, use undergraduate students or other untrained or inexperienced people as evaluators. They may use a tested evaluation system. That is good but what counts is the current staff's experience -- not just that of the system or past staff members.
- *To help protect yourself against ineffectiveness or dishonesty, get a full disclosure.* Some evaluation services are bogus or overly optimistic in their evaluations. Some will tell you they evaluate, but that may be a ploy to get you to sign up for more services. Everybody receives the same We are excited about your idea letter. Remember, fancy literature or good organizational affiliations are not

adequate proof. Do not do business with anyone who will not disclose their qualifications and track record. Above all, be sure they tell you in writing what percentage of ideas they reject. If it is not at least 75 percent, they are probably being too generous -- experience has shown that only 1 or 2 percent of all inventions ever make it into the marketplace. Many commercial or technical flaws can be spotted by trained, experienced evaluators.

- *Research about technical evaluations.* Contact the Office of Energy-Related Inventions (OERI), National Bureau of Standards, Gaithersburg, MD 20899. Do not bother them with nontechnical ideas.
- *Seek information about commercial evaluations.* Contact an innovation center or your nearest inventors' group.

Don't skip this stage. It is natural for you to like your own idea or invention -- all of us do; just remember that the harsh realities of life say the odds are against you. Investigate before you invest! Seek an unbiased professional opinion before you go further.

- Second, get competent and honest help in protecting, developing and marketing your idea or invention.
- If your idea gets a positive evaluation, you may then want to contact a patent attorney or registered patent agent. This may be expensive, but it is safe. Check the Yellow Pages or consult a local inventors' group.
- If you plan to start a new venture, get help. As the writers of Proverbs observed three thousand years ago, In the multitude of counselors there is safety. Things have not changed. Experience indicates that inventors and entrepreneurs who seek the help of others get farther than those who do not.
- If you want to license or sell your idea or invention, get help, but be careful. Generally, it is best to deal with someone who will work with you on a commission basis, so that they make money if they help you make money. Some firms ask substantial fees, but evidence of superior performance may be lacking. Before you do business with anyone (this includes universities and nonprofit groups as well as for-profit firms), get the following information in writing:
 - Do they prescreen ideas and inventions? If not, it is a good bet that they are ineffective in getting things done. Always ask what percentage they accept and reject.
 - What experience does the current staff have in evaluation, new product development and new venture start-ups?
 - What training is given to inexperienced evaluators?

- What other services are available and at what cost? Be certain there are no hidden or add-on charges. Do not be impressed by offers of reduced prices -- often initial prices are inflated. Ask to see examples of the firm's work for each service in which you are interested. If you do not feel comfortable in evaluating its work, get advice from a credible third party, such as your local SBDC, a professor of marketing or a patent attorney.
- What has been the impact of the firm's services in terms of inventions licensed, ventures started, capital raised and products marketed? Don't be misled by pretty pictures, high-sounding phrases or grandiose claims. Get facts: How many paid clients? How many licenses concluded? What percentage of clients made a profit? This last number will not approach 100 percent, but it should be a lot higher than the .0003 (.03 percent) the FTC found. Remember, this percentage gives you an idea of the odds you face.

In addition, you should attempt to determine whether the firm has had legal problems in the past and what its evaluation policies and success rates are. Get this information in writing, and again, get it from both public and private groups. Use the Invention Services Disclosure Form in Appendix C. (You have permission to make as many copies as you need for your own personal use in soliciting information from inventor service organizations.) If anyone tells you that they cannot provide this information because of client confidentiality, do not believe them. This disclosure will not violate even the highest standard of client confidentiality. Remember, you are at risk when you do business with any firm, organization or university that will not provide you with a satisfactory disclosure. Do not permit yourself to be sidetracked by polished promotional literature or well-placed organizational affiliations. Some invention marketing firms are very good at looking good. Similarly, some university and nonprofit groups are long on good intentions, but are short on experience with invention and innovation.

Finally, get involved in an inventors' group. Learn from the experience of others and let them learn from yours. Add your voice to theirs. Help all inventors get the recognition and the public policy action they deserve.

APPENDIX C: INVENTOR SERVICES DISCLOSURE FORM

To _____ Date _____

From _____

Street _____ City _____ State _____ ZIP _____

I am interested in your services. I would like a complete description of your services and fee schedule. In addition, please provide the following information concerning your services so that I can better assess your capabilities. Please have this form signed by a responsible official of your firm or agency. Thank you.

1. Has your firm/agency or any principal or owner thereof ever been convicted of a felony or signed a consent decree with any federal, state or local agency?

Yes_____ No_____

If yes, please provide details on separate paper.

2. Does your firm/agency charge evaluation or invention development fees in excess of \$250?

Yes_____ No_____

3. Do you evaluate inventions submitted to you?

Yes_____ No_____

If yes,

- a) What is your evaluation fee? \$_____

- b) What percentage of all inventions submitted have you

Recommended for further development?

_____ percent

Solicited for further assistance or services?

_____ percent

- c) Please attach a statement detailing the training and experience of your evaluators.

4. How many persons have paid invention development fees of \$250 or more to you?_____

5. What percentage of these persons has earned a profit of \$1 or more as a result of your services?

_____ percent

6. Has any principal or 10 percent or greater owner of your firm ever had any ownership or principal involvement in another invention development, marketing or promotion company?

Yes_____ No_____

If yes, please provide copies of each such disclosure.

I certify that this information is true and correct to the best of my knowledge.

Name	Signature	Date
------	-----------	------

APPENDIX D: FOR FURTHER INFORMATION

U.S. Small Business Administration

The SBA offers an extensive selection of information on most business management topics, from how to start a business to exporting your products.

This information is listed in The Small Business Directory. For a free copy write to: SBA Publications, P.O. Box 1000, Fort Worth, TX 76119.

SBA has offices throughout the country. Consult the U.S. Government section in your telephone directory for the office nearest you. SBA offers a number of programs and services, including training and educational programs, counseling services, financial programs and contract assistance. Ask about

- **Service Corps of Retired Executives (SCORE)**, a national organization sponsored by SBA of more than 13,000 volunteer business executives who provide free counseling, workshops and seminars to prospective and existing small business people.
- **Small Business Development Centers (SBDCs)**, sponsored by the SBA in partnership with state and local governments, the educational community and the private sector. They provide assistance, counseling and training to prospective and existing business people.
- **Small Business Institutes (SBIs)**, organized through SBA on more than 500 college campuses nationwide. The institutes provide counseling by students and faculty to small business clients.

For more information about SBA business development programs and services call the SBA Small Business Answer Desk at 1-800-U-ASK-SBA (827-5722). In Washington, D.C., call (202) 205-7777.

Other U.S. Government Resources

Many publications on business management and other related topics are available from the Government Printing Office (GPO). GPO bookstores are located in 24 major cities and are listed in the Yellow Pages under bookstores. You can request a subject bibliography by writing to Government Printing Office, Superintendent of Documents, Washington, DC 20402-9328.

Many federal agencies offer publications of interest to small businesses. There is a nominal fee for some, but most are free. Below is a selected list of government agencies that provide publications and other services targeted to small businesses. To get their publications, contact the regional offices listed in the telephone directory or write to the addresses below:

Consumer Information Center (CIC)

P.O. Box 100
Pueblo, CO 81002

The CIC offers a consumer information catalog of federal publications.

Consumer Product Safety Commission (CPSC)

Publications Request
Washington, DC 20207

The CPSC offers guidelines for product safety requirements.

National Aeronautics and Space Administration (NASA) Technology Transfer Division

P.O. Box 3757
Baltimore/Washington International Airport MD 21240
(NASA Headquarters Library: (202) 453-8545)

National Institute of Standards and Technology (NIST) Office of Energy-Related Inventions (OERI)

Gaithersburg, MD 20899

National Technical Information Service (NTIS)

5258 Port Royal Road
Springfield, VA 22161
(703) 487-4600

Patent and Trademark Office (PTO)

Washington, DC 20231
(Public Service Center: (703) 557-INFO)

U.S. Department of Commerce (DOC)

Office of Business Liaison --
Minority Business Development Agency (MBDA)
14th Street and Constitution Avenue, NW

Room 5898C

Washington, DC 20230

DOC's Business Assistance Center provides listings of business opportunities available in the federal government. This service also will refer businesses to different programs and services in the DOC and other federal agencies.

U.S. Department of Energy (DOE)
Office of Inventions and Small Scale Technology --
Energy Related Inventions Program
1000 Independence Avenue, SW
Washington, DC 20585

Nongovernment Organizations

Affiliated Inventors Foundation, Inc.
2132 E. Bijou Street
Colorado Springs, CO 80909
(719) 635-1234

Inventor-Assistance Program News
Battelle Pacific Northwest Laboratory
Mail Stop K6-54
P.O. Box 999
Richland, WA 99352
(509) 376-4348 [phone] (509) 376-8054 [fax]

The Inventor's Council
53 W. Jackson Boulevard
Chicago, IL 60604
(312) 939-3329

Inventor's Workshop International
3201 Corte Malpas, #304
Camarillo, CA 93010
(805) 484-9786

National Center for Appropriate Technology (NTAC)
National Appropriate Technology Assistance Service (NATAS)
P.O. Box 2525
Butte, MT 59702
800-428-2525

National Business Incubation Association (NBIA)
20 East Circle Drive, Suite 190

Athens, OH 45701
(740) 593-4331

For information on the psychology of creativity, contact:

The American Psychological Association
1200 17th Street, NW
Washington, DC 20036
(202) 955-7600

The Creative Education Foundation, Inc.
1050 Union Road
Buffalo, NY 14222
(716) 675-3181

Inventors and innovators desiring a commercial evaluation may contact the following evaluation centers:

Center for Innovation and Business Development
University of North Dakota
Box 8104 University Station
Grand Forks, ND 58202
(701) 777-3132

Innovation Institute
Rt. 2, Box 184
Everton, MO 65646
(417) 836-6302

Wal-Mart Innovation Network
WIN Innovation Center
College of Business Administration
Southwest Missouri State University
Springfield, MO 65804
(417) 836-5680

Kansas Association of Inventors
2015 Lakin
Great Bend, KS 67530
(316) 792-1375

Wisconsin Innovation Services Center (WISC)
University of Wisconsin Whitewater
402 McCutchan Hall

Whitewater, WI 53190
(414) 472-1365

For More Information

A librarian can help you locate the specific information you need in reference books. Most libraries have a variety of directories, indexes and encyclopedias that cover many business topics. They also have other resources, such as

- **Trade association information** -- Ask the librarian to show you a directory of trade associations. Associations provide a valuable network of resources to their members through publications and services such as newsletters, conferences and seminars.
- **Books** -- Many guidebooks, textbooks and manuals on small business are published annually. To find the names of books not in your local library check Books In Print, a directory of books currently available from publishers.
- **Magazine and newspaper articles** -- Business and professional magazines provide information that is more current than that found in books and textbooks. There are a number of indexes to help you find specific articles in periodicals.

In addition to books and magazines, many libraries offer free workshops, lend skill-building tapes and have catalogues and brochures describing continuing education opportunities.