



**West Virginia High Technology Consortium Foundation  
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**Navy Manufacturing Information Innovation Program –  
Final Report**

**Grant Number: N00014-01-1-0927  
Foundation Proposal # WVHTCF-03-0003**

**February 10, 2006**

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# REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4309, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

<b>1. AGENCY USE ONLY (Leave blank)</b>			<b>2. February 10, 2006</b>		<b>3. REPORT TYPE AND DATES COVERED</b> Final Report	
<b>4. TITLE AND SUBTITLE</b>  Navy Manufacturing Information Innovation Program			<b>5. FUNDING NUMBERS</b>  N00014-01-1-0927			
<b>6. AUTHOR(S)</b>  Robert Barrett, Program Manager						
<b>7. PERFORMING ORGANIZATION NAMES(ES) AND ADDRESS(ES)</b>  West Virginia High Technology Consortium Foundation 1000 Technology Drive, Suite 1000 Fairmont, WV 26554			<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>			
<b>9. SPONSORING / MONITORING AGENCY NAMES(ES) AND ADDRESS(ES)</b>  Office of Naval Research, Chicago Regional Office Federal Building, Room 208 536 South Clark Street Chicago, IL 60605-2509			<b>10. SPONSORING / MONITORING AGENCY REPORT NUMBER</b>			
<b>11. SUPPLEMENTARY NOTES</b>						
<b>12. DISTRIBUTION / AVAILABILITY STATEMENT</b>  Approved for Public Release; distribution is Unlimited			<b>13. ABSTRACT (Maximum 200 words)</b>  This document represents the final report for the Navy Manufacturing Information Innovation Program under the direction of the West Virginia High Technology Consortium Foundation. The objective of this program was to develop optimal applications for the Internet to assist in solving Naval technology transition challenges.			
<b>14. SUBJECT TERMS</b>					<b>15. NUMBER OF PAGES</b>	
					<b>16. PRICE CODE</b>	
<b>17. SECURITY CLASSIFICATION OF REPORT</b>  Unclassified	<b>18. SECURITY CLASSIFICATION OF THIS PAGE</b>  Unclassified	<b>19. SECURITY CLASSIFICATION OF ABSTRACT</b>  Unclassified	<b>20. LIMITATION OF ABSTRACT</b>			

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## Executive Summary

The West Virginia High Technology Consortium (WVHTC) Foundation completed the Internet-based Navy Manufacturing Information Innovation Program for the Office of Naval Research (ONR). The effort was initiated to aid the Navy and the Department of Defense (DoD) in designing and developing a tool to utilize 21<sup>st</sup> Century technology to shape both the industrial base research and development efforts to fit current and future needs, and to effectively transfer advanced technology between the commercial sector and DoD.

The initial phase of this effort involved meeting with representatives from the Industrial and Corporate Programs Department (Code 36) at ONR to fully understand their technology transfer/transition needs. The initial goal was to create a tool that would provide a single location for Navy Laboratory and Facility information, and a searchable database of licensable Navy patents. The Phase I system was delivered in October, 2003. During the development more needs were identified through interviews with ONR Code 36 personnel, Office of Research & Technology Application Managers (ORTAs), and industry representatives. These new features included an Opportunities module that provides a searchable database for Navy technology research and development needs, a Success Stories module that provides a single location for Navy related success stories, and a Calendar module that provides a single location for Navy related events. The Phase II, Navy TechMatch system launched in August, 2004 at the Naval/Industry R&D Partnership Conference. Because of the positive response of the system, Navy TechMatch was expanded to include Army and AirForce. DoD TechMatch launched in December, 2004 at the Defense Manufacturing Conference.

The WVHTC Foundation met the Navy's challenge to build a tool that would facilitate technology transfer/transition by researching, designing and building an internet enabled technology database that "pushes" individually tailored information to the right person at the right time.

\* Screen Shots can be viewed in Appendix A.

\* When the term Navy/Naval is marked with an asterisk it should be noted that it includes all services.

## Acknowledgments

The WVHTC Foundation would like to thank the (ONR) for providing the client functionality of the system. A special thanks to Cathy Noddgard, Dottie Vincent, and Nancy Groves.

- We would also like to thank our subcontractors:
- Zyn Systems – Special thanks to Rick Shindell, President & CEO, for assisting in development of SBIR module.
- Amedro Associates – Dr. Alexandra Amedro provided data integration assistance.
- Systems Research Group – For their help creating a keyword list, and providing feedback on the look and feel of the system.

The positive outcome of this project could not have happened without the dedication and hard work of the entire Foundation Team. Of particular note is the group of talented software engineers who made this project not only possible, but well-conceived and well-executed:

- Project leader: Jason Cunningham, Software Engineering Manager
- Database design leader: Mark Wendell, Principal Computer Scientist
- Front end design leader: Jay Conaway, Senior Software Engineer
- Back end design leader: Scott Hofer, Senior Software Engineer
- Site design: Chris Vance, Graphics Designer
- Rich Finley: Software Engineer
- Todd Ornduff: Software Engineer
- Jacob Omaits: Software Engineer

Finally, Brenda Davisson did yeoman work in getting this report into final form: performing a quality technical edit, including grammar, syntax, spelling and format.

To each of these program participants, we express our appreciation.

## 1 Introduction

### 1.1 Background

The West Virginia High Technology Consortium (WVHTC) Foundation is a 501(c)(3) non-profit research, education, and development organization located in north central West Virginia. Our mission is to enhance economic development by enabling the growth of technology-based business in West Virginia. We are accomplishing this mission in three distinct yet interrelated ways. First, the Foundation is developing a 600 acre technology park that will grow to over one million square feet of class-A office and laboratory space. Second, we are creating a regional working environment that will attract, train, and retain technology professionals who can support research and the technology growth in the region. Third, the Foundation provides technology leadership through vibrant research and commercialization programs.

An important development initiative guided by the WVHTC Foundation since 1995 that supports these objectives is the regional “Virtual Company Link” (VCLink; <http://www.vclink.net>). This e-Commerce system is a business-to-business (B2B) portal designed to facilitate interactions at the regional level. This portal has proven to be a valuable asset to the Navy. It provides a mechanism for individuals working in both acquisition and R&D to find high quality contractors who are able to respond to their technology needs. Additionally, it provides information to regional businesses regarding research and development opportunities, along with resources required to allow them to work effectively with the government. The effectiveness of this portal is evidenced by the site statistics summarized below:

The VCLink portal has over **600 companies** and continues to grow. The site has an average of **200,000 hits** and **12,000 unique visitors** per month. The increase in members and usability are key elements in **user satisfaction**. Since its inception, an estimated **600 business opportunities** have been posted to the site. The tools available can **save time** in all phases of the acquisition process. For suppliers and system users, the VCLink provides a **valuable means** of connecting those who have technology with those who need technology.

These statistics illustrate that the VCLink portal is an excellent model for the development of B2B sites that must be designed to stimulate communication and information exchange in a “low-overhead” environment – meaning that the intrinsic value of the information exchanged and knowledge obtained provides the impetus for use and population with information. This is the model for Navy TechMatch, a proposed effort that expanded on work carried out by the WVHTC Foundation via a research grant awarded under BAA-00-018 to demonstrate optimal applications of the Internet to solve Navy technology challenges.

### 1.2 Proposal elements

Based on the user needs identified above and system attributes implied by key personnel at ONR during extensive interviews, the WVHTC Foundation proposed to design and build a technology transfer web portal that included key elements identified in the research process. The proposal

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included a number of tasks and deliverables, which were incorporated into the contract. Identified here, all are complete except for this Final Report.

<b>Task / Deliverable Description</b>	<b>Status</b>
<b>A001. One Time Reports.</b>  Design Requirements Document Documentation and Testing Requirements Document Test Plans Test Reports NTTP Business Plan	15 days after SRR* 15 days after SRR 30 days prior to testing 15 days after testing completion 90 days after Life-Cycle Cost Analysis
<b>A002. Monthly and Quarterly Reports.</b>	Monthly Reports due on the 15 <sup>th</sup> of each month to ONR. Quarterlies provided within 30 days of the end of the quarter.
<b>A003. Meeting Summaries, Off-site, and other relevant events.</b>	As required

\* Software Requirements Review

## 2 Navy/DoD TechMatch

### 2.1 *The Challenge*

Naval leadership is constantly being challenged to manage resources wisely and to sensibly invest in innovative technologies and processes in order to respond more effectively to mission and operational requirements. Increasingly, the Internet is being used to streamline interaction between businesses and the government; the emergence of paperless processes (from proposal submission to final report deliver) via the Internet is one example of how the Internet is being used to enhance business operations. The Internet caused landslide changes in the way commercial businesses function in the past decade. The time and geographical constraint that once hindered business interaction is no longer an issue, and even the smallest business operator can function universally, stretching into other states and countries impossible to pierce just decades ago.

Using the information collected during the interview process WVHTC Foundation was tasked with creating a web-based portal which aids the flow of Technology Transfer from government to businesses. The main issues diagnosed included:

- *Effectively moving technologies into the commercial marketplace, including accessing patent information*
- *Improving technology inquiry assistance methods*
- *Streamlining person-to-person interconnections*
- *Disseminating general information of interest to the private sector and ONR*
- *Controlling access to this information based on user type*

### 2.2 *Addressing the Challenge: Technical Approach*

The WVHTC Foundation conducted an extensive research and development effort for ONR, which concluded in development of an Internet-based tool that facilitates the transfer and transition of technology swiftly between the Navy and businesses. Our Technical Approach was divided into three phases. The Program Schedule can be seen in Appendix B.

Phase I consisted of deriving needs from interviews of Naval Technology Transfer managers at the May 2003 Federal Laboratory Consortium (FLC) meeting. After extensive analysis of these needs, technical work began. Phase I consisted of providing lab, facility, and patent information. The main goal was to provide a single location for the information to be stored. This simplified

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data trails, and made usage much simpler. The initial data population of labs and facilities was completed in July 2003 and the system was presented to ONR for review on October 7, 2003.

At the November 2003 TTIPT meeting, Technology Transfer Managers from the labs gave suggestions for additional features, data corrections, and enhancements. Corrections and enhancements were made to the Phase I system and Navy TechMatch went 'live' in January 2004.

Phase II was already being designed when the system went 'live,' because of the information ascertained at the May 2003 FLC meeting. Systems Research Group was brought on as a subcontractor to assist in the design requirements for the Needs module. They also assisted in creating the keyword taxonomy that is the basis for how matches are made within Navy TechMatch.

Testing of Phase II components began in June 2004, with ONR review on July 12, 2004. Minor changes were requested. Those were made, and approved by ONR on July 19, 2004.

The Phase II Navy TechMatch system was launched on July 29, 2004. It added newly created Needs/Opportunities, Calendar, and Success Stories modules into the Phase I system.

Phase III saw the transition of Navy TechMatch to DoD TechMatch. At DUSD (AS&C) OTT request, Army and Air Force were incorporated in the system. This required integration of their patents and adding service-specific information, such as their laboratory websites, facilities, etc. Adding the patent information required changing the process of receiving naval patents to a process that would integrate all three services. Along with patents, Army and Air Force lab and facility information had to be gathered and input to the TechMatch system. DoD TechMatch launched on November 15, 2004, at the Defense Manufacturing Conference (DMC) in Las Vegas, Nevada, as requested by DUSD (AS&C) OTT, Ms. Cynthia Gonsalves.

Secondly, Ms. Gonsalves requested a thorough market and competitive analysis of intellectual property management and technology transfer support software. This required an evaluation of the Intellectual Property Management System (IPMIS) designed and built by ONR and its contractor RS Information Systems.

This analysis became a new task which consisted of developing an enhanced IPMIS system. In January, 2005 IPMIS rebuild interview questions were generated to assist in the information gathering process. These questions were tailored to ORTAs, Patent Counsels, and Invention Evaluation Board members (Appendix E).

Finally, Phase III witnessed development of additional features suggested by Navy TechMatch users. In June 2005, the Hot Technology module was completed and implemented in DoD TechMatch. Grants.gov opportunities and STTR announcements were incorporated in to the Opportunities module.

## **2.3 User Needs: Driving System Design**

At the highest level, the need can be summarized as: design, build, test and implement a web-based portal that facilitates DoD technology transfer and transition. This includes licensable patent information, lab/testing facilities, and needs/opportunities. The system is available to anyone interested in R&D opportunities, and provides them a powerful tool that increases their productivity using keyword matching technology which tailors the information to them.

### **2.3.1 Required Capabilities: High Level Design**

The following capabilities are required to meet end-user and government needs:

## **Overview**

The High-Level Design Document for the Internet Portal (provided during development) captured needed functions and capabilities. Design requirements were based on feedback received from ORTA industry interviews. Appendix E contains the results of those interviews and the prioritization. Some design requirements were derived from a rigorous competitive analysis of sites that offer similar services. The competitive analysis can be found in Appendix E.

### **2.3.1.1 Patent Module**

#### **2.3.1.1.1 Design Objective**

The design objective for the Patent module was to provide government, industrial, and academic users with rapid access to licensable Navy\* Patents, along with the ability to easily access the ORTA responsible for licensing the technology. In addition, it allows the ORTA or lab representative to populate the site with “advertising” information. This information was scattered amongst Navy\* web sites, is incomplete, and in many cases inaccessible. Navy TechMatch has consolidated this information in one location; all ORTAs know where to find it; and over 3,500 Registered Users spend over 2,000 hours on the site each month. In addition, this same capability was replicated, for Army and Air Force. DoD TechMatch (<http://www.dodtechmatch.com>) incorporates wholly self-contained systems for Army (<http://www.armytechmatch.com>) and Air Force (<http://www.airforcetechmatch.com>), as well as the original Navy site (<http://www.navytechmatch.com>).

#### **2.3.1.1.2 Success Metrics**

Success is being measured by the following:

- A statistical increase in the number of Patent License Agreements (PLAs) issued by the Navy\*
- The ability to quickly and effectively search for licensable Navy\* Technologies
- Acceptance and endorsement by the ORTAs (had a positive response)

### 2.3.1.1.3 Functional Capabilities

Based on interviews with the Navy Patent Counsel, ONR Code 36 Staff, Industry, and the competitive analysis performed, the following functionality was provided. In general, the requirements are listed in decreasing order of importance.

#### *Design Requirements*

1. An information check to ensure patents being listed on Navy TechMatch are valid.
2. The ability to add relevant information to the patents. ORTAs and lab personnel must be able to populate with marketing information, papers, and links to web sites that are related or relevant. In addition, ORTAs should be able to indicate to potential licensees whether or not the patent has been licensed and for which fields of use. At their discretion, ORTAs should be able to post technologies for which patents have been filed but not issued.
3. ORTAs should be able to advertise Success Stories they have had with industry in order to entice others to participate. The Success Stories will serve as another form of outreach. The look and feel between all lab inputs should be consistent.
4. A link to the USPTO.
5. Patent information needs to be searchable by key words and by phrases. ORTAs should be able to add a list of key words that are searchable beyond those contained in the patent since sometimes companies may be searching for a market application to which the patent can be applied.
6. Automatic pushing of information to potential buyers and portfolio companies should be provided. From a “permission marketing” standpoint, this is an important requirement.
7. ORTAs should be informed as the patent information comes into the system from ONR. It is desired that they be informed when patents are filed for as well. Currently we have no access to this information, so it more appropriately fits in an IP Management Tools program (Phase IV). The Navy Patent Office maintains filing information in the IPMIS database. A linkage to this site from the ORTAs admin section might suffice.
8. ORTAs should be alerted when a patent renewal fee is coming up. Renewal fees are due 3.5, 7.5, and 11.5 years after issue  
[\(http://www.uspto.gov/web/offices/ac/qs/ope/fee20030101.htm\)](http://www.uspto.gov/web/offices/ac/qs/ope/fee20030101.htm)
10. Links should be provided that add value to the site. Examples;
  - a. “How to” Guide to Navy\* Patents
  - b. Standard (Model) License Agreement
  - c. Licensing Procedures
  - d. Federal Regulations governing PLAs
  - e. Applications for Licensing
  - f. Note: These should be provided in a non-editable format (e.g. PDF). Caveats should be included that say specific wording for lab-specific CRADAs will be provided by the ORTAs

***Follow-on***

1. The system should push information to registered users based on their key word entries. They should be able to select which modules they want information pushes from (e.g. patents, events, opportunities).
2. The system design must be robust enough to accommodate growth to all major government R&D laboratories. Users should be able to specify specific branches of the service, or government organizations to search, or be able to “search all” information contained in our databases.
3. Provide integrated/seamless flow of information among ORTAs, lab legal counsel, ONR, and DTIC/NTIS. *Note: An IP Management Tool is lacking that helps labs track paper throughout their system.*
4. Web-based Technology Transfer training program for ORTAs (government only), as defined and approved by the government.
5. Link Patent and CRADA process; those licensing patents may want to enter into CRADAs to effect the Tech Transfer or Transition.
6. Notification of Patent citations. People that cite patents may be interested in enhancing their Intellectual Property portfolio.

\*An ORTA Operations Manual has been developed to explain these processes (Appendix D)

**2.3.1.1.4 Process**

1. We receive a list of patent numbers and laboratory identification numbers from the ONR Intellectual Property Management Information System (IPMIS).
2. The list is processed using a bulk load format.
  - a. New patents are verified through USPTO and,
  - b. Identified by Lab ID numbers
3. When each patent is verified it is uploaded into the Navy TechMatch system.

\*View Appendix F, for Process Flow Diagram

**2.3.1.1.5 Marketing**

There are several other internet applications that deal with the licensing of technology. The capability provided has a clear avenue to commercialization since many organizations are interested in generating revenue by licensing their patents (IBM has been hugely successful in this area). This is due to the fact that there are fairly few individuals within industry who are responsible for licensing technologies.

*As such, in the long-term design layout, this module was positioned below the opportunities and calendar modules which have the highest general interest by industry. Targeted marketing of the patent module was oriented to trade magazines, trade shows, and publications which are being read by the “licensing” community (e.g., Venture Capital Firms, License Executive Service (LES)).*

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Based on the competitive analysis performed, mirror sites for commercial companies/ individuals and universities interested in licensing technologies present viable spin-off opportunities.

WVHTC Foundation has prior experience in spinning-off in-house developed systems. POC Link, formerly known as VC Link has become a individual entity. Marketing research, including pricing points, were conducted, which led to a price of \$6,000 per system. POC Link offers a contact management software solution that is entirely web based.

\*View Appendix G for information on POC Link.

### **2.3.1.2 Lab & Facilities Module**

#### **2.3.1.2.1. Design Objective**

The design objective for this module was to house a detailed facilities descriptor database that catalogues Navy\* Lab research and development (R&D) and test and evaluation (T&E) facilities. This module enables public users to search and display information relating to Navy\* Lab facilities. The module enables users to contact appropriate Lab Personnel in order to gather detailed information regarding their expertise, partnership opportunities (e.g., CRADAs), and the use or rental of the resources. As with all other modules, equivalent functionality and content for Army and Air Force was added in December, 2004.

#### **2.3.1.2.2 Success Metrics**

Success is being measured by the following:

- An increase in the use of Navy\* Lab facilities by industry and other government organizations.
- An increase in the number of inquiries regarding CRADAs and other types of partnering vehicles.
- An enhancement in the ability to disseminate Navy\* Lab information to Industry.

#### **2.3.1.2.3 Functional Capabilities**

User needs interview identified required functions, which were included in the system design.

#### ***Design Requirements***

1. Simple to use web-based interface to provide a single-point of entry to search Navy\* Lab and T&E facilities. The Naval\* Facilities module is publicly accessible, and provides a linkage/broker mechanism to ensure simple access to the appropriate Navy\* Lab contact.
2. The site has administrative tools required to allow ORTAs to review, post, and delete facilities information.
3. Filters/Sorts to customize the display of results were required. The site presents the information in a simple, easy to use fashion.
4. A link to the lab web site from Navy TechMatch is provided.

### ***Follow-on***

The concept of including capabilities and current research efforts in this module were initially discussed. Due to issues associated with keeping the information “fresh”, and sensitivity to broadly disseminating current research efforts, ONR decided to focus on facilities and letting the labs link to current research efforts off of those pages as they desire.

Many companies perform “directed” searching to provide a selected group of individuals (e.g., employees) the ability to investigate a more targeted web “area”. In this case, directed searching could be used to return information on Navy\* Labs only. To solve this problem we developed a central location for users to search through relevant information.

#### **2.3.1.2.4 Process**

1. Navy TechMatch includes a facilities section for each laboratory based on publicly available information.
2. Admin tools are provided to the labs that will allow them to review, post, delete, add information (e.g., related programs and customers), and include links.
3. For the Labs section, DoD sites were crawled using a crawler developed by the WVHTC Foundation. Returns from the Lab web sites are displayed in a fashion similar to major search engines today.

#### **2.3.1.2.5 Marketing**

This module fosters industry/government lab working relationships through CRADAs and other technology transfer mechanisms. The number of industry users accessing the information for cooperative working agreements has been small, while those accessing for market intelligence have been more significant.

For Industry and Universities, this would be a good augmentation of their TechMatch site; most company websites already have the ability to search their site for publicly available information, but with this system industry and universities could add information that is only searchable by employees (e.g., proposals, white papers, employee profiles/bio-sketches).

### **2.3.1.4.0 Calendar Module**

#### **2.3.1.4.1 Design Objective**

The design objective for this module was to provide a tool to disseminate events of wide-spread interest to government and industry users. The calendar module enables the system administrator to insert, update, and push events determined to be “of interest” to the Naval\* community.

#### **2.3.1.4.2 Success Metrics**

Success is measured by the following:

- An increase in the ability of disseminating event information to appropriate personnel (104 events pushed out to 3,500 Registered Users).

#### **2.3.1.4.3 Functional Capabilities**

The following functional capabilities, as determined from interviews with ONR Staff were provided.

#### ***Design Requirements***

1. Simple to use web-based interface to display all events.
2. Links to appropriate industry organizations that maintain trade show listings for administrators and/or the user community.
3. Ability for administrator to enter searchable key words or “cut and paste” the trade show overview. This will be used for the information push to site users who have entered specified key words.
4. Single-view for all users.
5. Publicly accessible.
6. Filters/Sorts to customize the display of event listings.
7. Search capability to locate specific event listings.
8. Match/Push feature.

#### ***Potential Future Inclusions/Enhancement***

1. Content maintenance services to populate appropriate event information.
2. Posting Trade Show and Conference Proceedings (as available).

#### **2.3.1.4.4 Process**

1. The system administrator reviews publicly accessible trade show information on a monthly basis and selects those determined appropriate for government, industry, and academic personnel.
2. Events and searchable key word lists are entered into the calendar module.
3. Information is pushed to industry based on their key word entries.

#### **2.3.1.4.5 Marketing**

Industry is interested in this module from the standpoint of making connections with government individuals who might be interested in their technologies. The “hot buttons” within industry are:

- Getting market intelligence (new opportunities and historic view of awards made).
- Getting connected with people who are spending money in their technology area(s).

### **2.3.1.5.0 Opportunities Module**

#### **2.3.1.5.1 Design Objective**

The design objective for this module was to create a comprehensive, searchable database and display interface for Navy\* technology R&D needs as presented in solicitations (SBIR/STTR, FedBizOpps, and Grants.gov). The module combines several methods of data collection.

#### **2.3.1.5.2 Success Metrics**

Success is being measured by the following:

- An increase in the availability of pertinent Naval\* information.
- An increase in the number of mature technology solutions targeted at current and future needs.
- An increase in the ability to disseminate Naval\* information to Industry.
- Ability of Naval\* personnel to quickly locate an appropriate technology.

#### **2.3.1.5.3 Functional Capabilities**

The following functional capabilities were identified, as determined from interviews with ONR Staff, industry interviews, and the competitive analysis.

1. Simple to use web-based interface to consolidate Navy\* R&D opportunities information.
2. Publicly accessible search Tool for users to locate information. New postings will automatically be pushed to registered users based on their key word input criteria.
  - a. Information sources include FedBizOps, SBIR/STTR, and Grants.Gov.
3. Interfaces/Tools to manipulate database by administrative users.
4. Filters/Sorts to customize the display of results.

#### ***Follow-on***

1. Content maintenance services to populate data.
2. Procedures to determine validity and appropriateness of data.
3. Automated population of database (augmented by human-in-the-loop).
4. Automated retrieval and ongoing maintenance of data.
5. Automated dissemination of new information and listings to registered users based on preferences set up by the user.

#### **2.3.1.5.4 Process**

1. Opportunity information is scraped from the appropriate sources automatically and keywords are manually added, which is the basis of the matching capability of Navy TechMatch.

### 2.3.1.5.5 Marketing

Several companies offer this service on a pay-as-you-use basis. The COS Opportunity Locater and Bid Radar are two such sites. How did we position ourselves with respect to these services? They provide information on federal, state, and local opportunities, for a fee. Navy TechMatch is a “free” service to industry; government benefits from the fact that more people are exposed to doing business with the Navy\*. Government provides funding to maintain the site, keep content up-to-date, and increase functionality when/as desired.

### 2.3.1.6.0 Technology Needs Module

#### 2.3.1.6.1 Design Objective

The design objective for this module was to create a comprehensive, searchable database and display interface for Naval\* technology needs. The module combines several methods of data collection including user posted information and data scraped from other web sites. Preliminary research identified opportunities for data inclusion as summarized below:

- Tech Solutions - Tech Solutions was a \$20M/year ONR program that matched sailors’ needs with technology solutions. Needs were posted to the Naval\* laboratory system, who respond to Tech Solutions with their capabilities. Money was then allocated to the lab to solve the sailors’ problems. This is a good model for rapid acquisition within the Navy\*. Unfortunately, Tech Solutions was non-funded a number of years ago. The model however, lives on in Navy TechMatch.
- SURFTECH - Designed to enhance technology collaboration between ONR, Science Advisors, Fleet Personnel. They provided Needs, which are posted.
- PM/PEO Input - Program Managers and Program Executive Offices are responsible for acquisition. This is not a database, per se, but could be populated with information relating to technology needs.
- Science Advisors - Science advisors have a list of technology needs that could be incorporated into this section. They gave a poster-board session at the 2003 Naval-Industry Partnership Conference in which their needs were stated (Power-point style printouts).
- SBIR Topic submissions that “didn’t make the cut” would be a rich source of information. Currently, processes that each submitting organization uses are not standardized, so it may be difficult to glean data.
- ACTD Tech Needs - Advanced Concepts Technology Demonstration managers have technology needs for numerous sectors. They could input these needs into this section and Registered Users would be able to respond, and optimally solve the need.

\*To date PMs/PEOs have not used the functionality.

#### **2.3.1.6.2 Success Metrics**

Success is being measured by the following:

- Respective groups buy-in to the portal, and their willingness to keep it populated with “fresh” information.
- Utilization by PMs and PEOs to enter Technology Needs information
- Interest by others (emerging sources of data) to utilize the site.

#### **2.3.1.6.3 Functional Capabilities**

The following functional capabilities were required, as determined from interviews with ONR 36 Staff, industry interviews, and the competitive analysis:

1. Simple to use web-based interface to consolidate Navy\* technology needs information.
2. Publicly accessible search Tool for users to locate information. New postings will automatically be pushed to registered users based on their key word input criteria.
3. Interfaces/Tools to manipulate database by administrative users.
4. Filters/Sorts to customize the display of results.

#### ***Follow-on***

1. Interface services to ensure that data population is current.
2. Automated retrieval and ongoing maintenance of data.
3. Workflow procedures to get electronic copies of the non-Internet accessible data.
4. Automated dissemination of new information and listings to registered users based on preferences set up by the user.

#### **2.3.1.6.4 Marketing**

This will be key information for industry to have as they represent future technology needs; it will allow industry to perform pre-BAA release marketing – a position that is always being sought with regard to winning a technology development effort. This information will be a secondary driver to the site (after opportunities).

\* The functionality exists, and is used to post SBIR/STTR, FedBizOpps, and grants.gov “needs”

### **2.3.2 Required Capabilities: Functional Design Approach**

Initial research identified six major functions that a fully-developed system should perform:

- A. Patent Information
- B. Needs/Opportunities
- C. Lab/Testing Facilities
- D. Calendar
- E. Success Stories
- F. Hot Technologies

### 2.3.3 Software Approach and Implementation

Using the information from the detailed interviews about the Naval/DoD technology transfer and transition process, the WVHTC Foundation created a more detailed software development plan. Its major steps were:

- A. Concept Definition
  - 1. Derived basic development concepts from interviews and analysis.
- B. Requirements Definition
  - 1. Created High Level Software Requirements, including a high level description of desired functions. Our Software Engineering Group then reviewed the functional requirements to determine feasibility of developing a software solution.
  - 2. Created and reviewed a Detailed Design Requirements document. This portion of the process resulted in the basic structure and design for the software development.
  - 3. Created and reviewed a Software Development Project Plan. At this point, after ONR approval, system development began.
- C. Detailed Design Documentation
  - 1. Created an entity Relationship Diagram describing the database layout and relationships among the various objects.
  - 2. Performed an analysis of system objects and their relationships, leading to a modular design, directly coupled to future flexibility.
- D. Implementation (Hardware and Software)
  - 1. Hardware Platform: Windows, using ASP.Net front end and Oracle back end.
  - 2. System build. In accordance with the plan and design.
  - 3. Test Cases. At the component level.
  - 4. Unit Tests. Of individual modules.
  - 5. System Tests.
    - i. Alpha Tests. First round testing of entire system. If errors or inconsistencies were found, the development team corrected those. Re-testing occurred. This iterative process continued until all known errors and inconsistencies were corrected.
    - ii. Beta Review. Following Alpha Testing, the Software Quality Manager reviewed the entire system for completeness. Selected ONR personnel were allowed access to the system and provided feedback on functionality, look, and any errors they had found. The feedback was discussed and code was written to implement the changes.

## 3 Results

In general, most Results are documented in previous sections of this report. Including outcomes along with the system design requirements eliminates the need to page back to find out whether each design requirement was met. This format also reduces the page count of this Report. This section therefore is a top level view of the system; i.e., did Navy TechMatch meet its design objectives. In a word, “yes.”

### 3.1 Design

The design process resulted in an easy to use, powerful, web-based portal that assists DoD technology transfer and transition. The initial design was developed and enhancements have been added which has made DoD TechMatch a leader in its field. Feedback from users contributed to the initial project, and was instrumental throughout the development. Testing of the system, by real time users, confirmed the satisfaction with the design.

### 3.2 Testing

We used extensive testing functions. The process began with Alpha testing by our software engineers. Then outside, inside, and ONR users Beta tested the system. Throughout the process, software engineers were debugging the system when needed.

Zyn Systems, President & CEO Rick Shindell brought to our attention that there was an increase in the usage of the FireFox Browser, and there were still issues with the display of TechMatch. The system was modified to handle FireFox/Mozilla to better accommodate the growing number of FireFox/Mozilla browser users.

Throughout the development process and currently, a Change Request System (CRS) was used to notify the software engineers of problems on TechMatch. The system requires Username and Password access, and allows users to create requests to fix a problem. The requests go directly to the software engineers. When the problem has been fixed an e-mail is sent to the requestor.

### 3.3 Future

DoD TechMatch under Partnership Intermediary Agreement (PIA) – FA 8650-05-3-5821, will add functionality and content as directed by the government. DUSD (ASC) OTT desires at least 10,000 Registered Users, and has set metrics for technology transfer and transition outcomes. We anticipate meeting those objectives.

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## Appendix A – Screen Shots

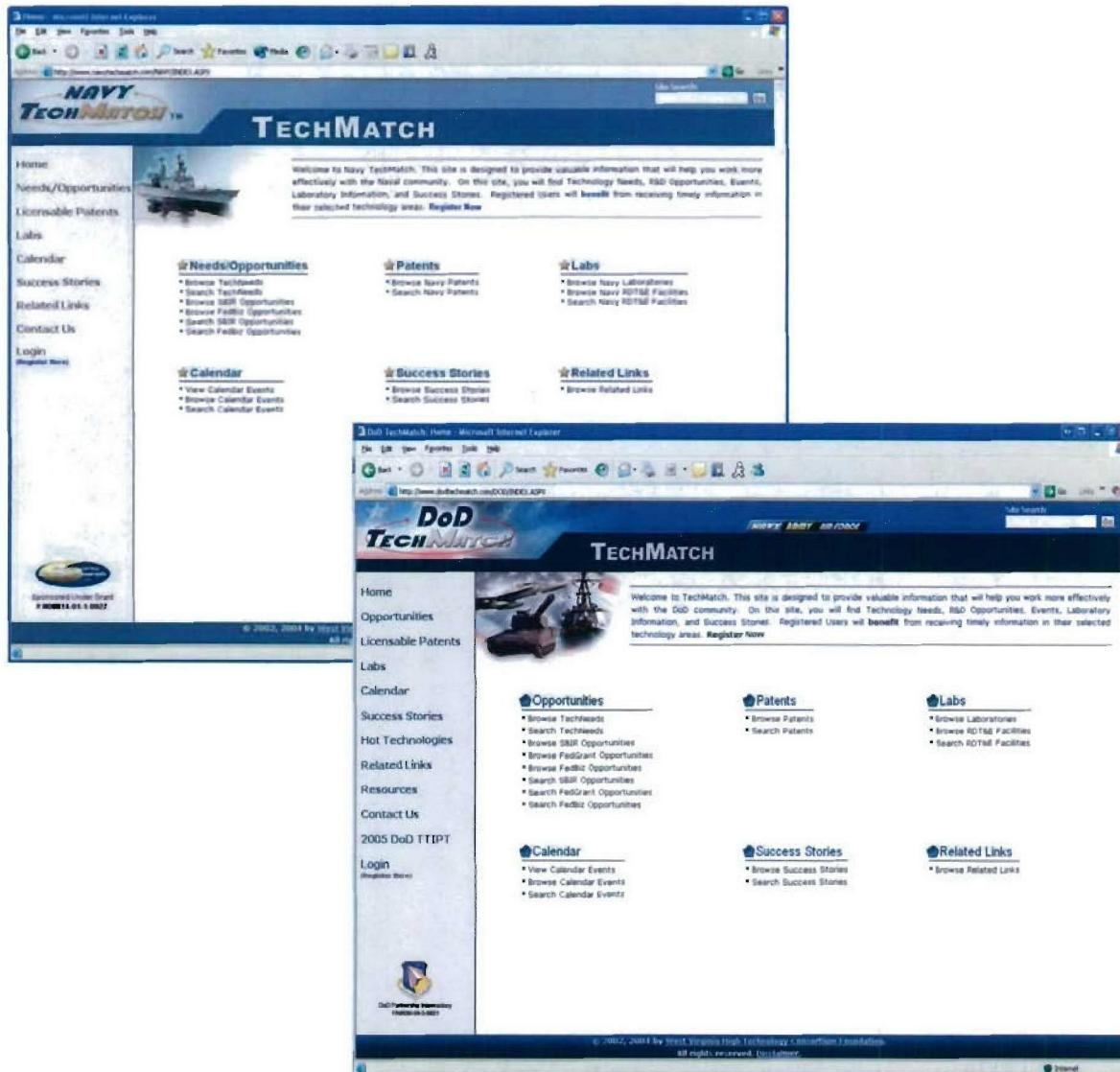


Figure 1: Home Page

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The image displays two side-by-side screenshots of web pages for 'Navy Labs' and 'DoD Labs'. Both pages have a similar layout with a left sidebar containing links like Home, Opportunities, Licensable Patents, and a 'Labs' section with sub-links for Lab Overview, Search Facilities, and Related Links. The main content area features a search bar titled 'Search Lab Websites' with fields for 'Keyword(s) or Phrase' and 'Lab', and options for 'Any Words', 'All Words', and 'Exact Match'. Below the search bar are sections for 'Lab Overview', 'Browse Facilities', 'Search Facilities', and 'Related Links'. A banner at the top of each page states: 'The Navy has 48 Naval Research and Development laboratories located across the United States. These facilities - many of which are available for commercial use - provide testing grounds for offensive and defensive weapon systems, evaluation and development of technologies, state-of-the-art modeling, as well as simulation and training technologies. To learn more about accessing these facilities simply contact the Technology Transfer Manager associated with the lab or facility in which you are interested.'

Figure 2: Labs Page

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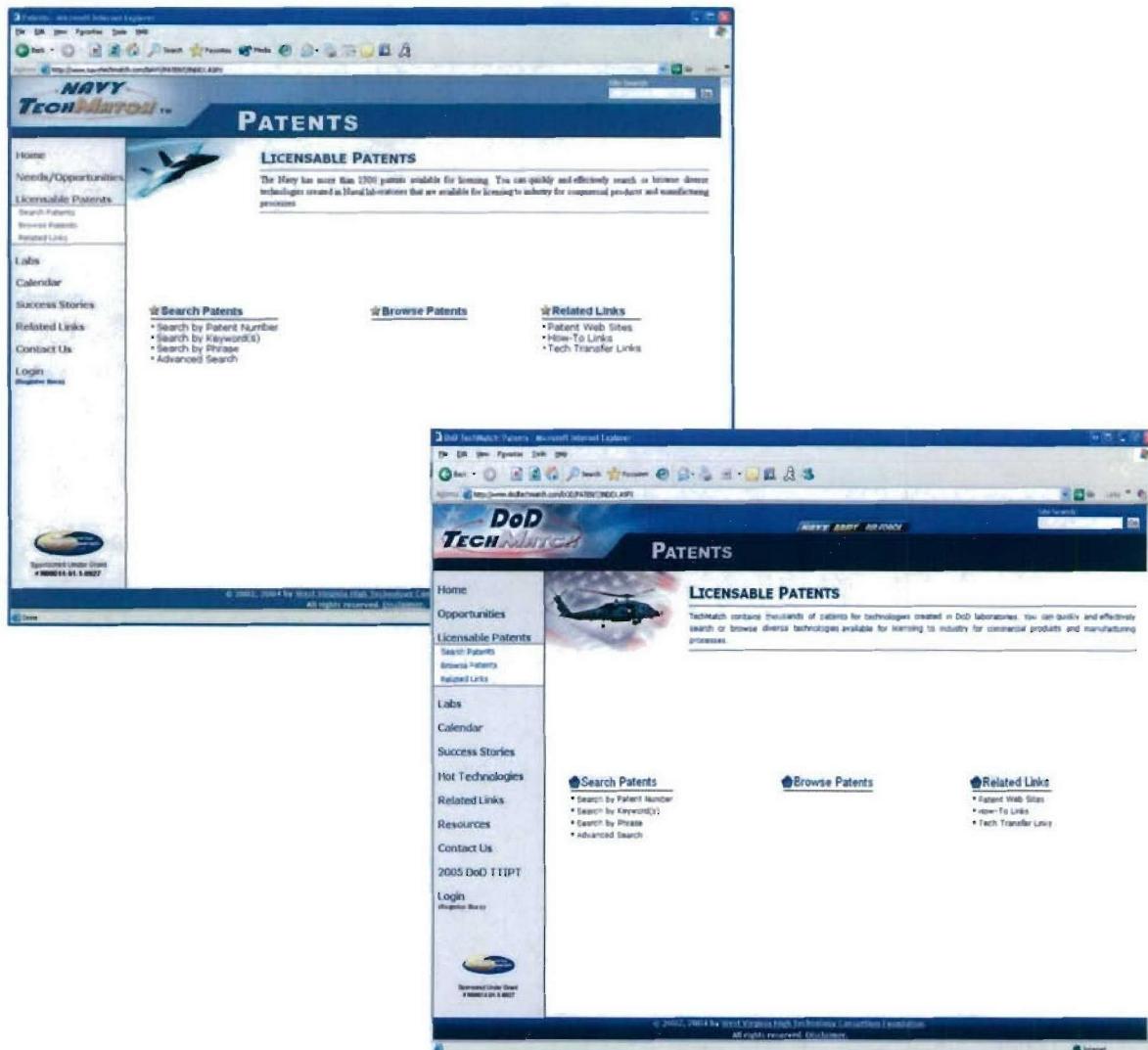


Figure 3: Patents Page

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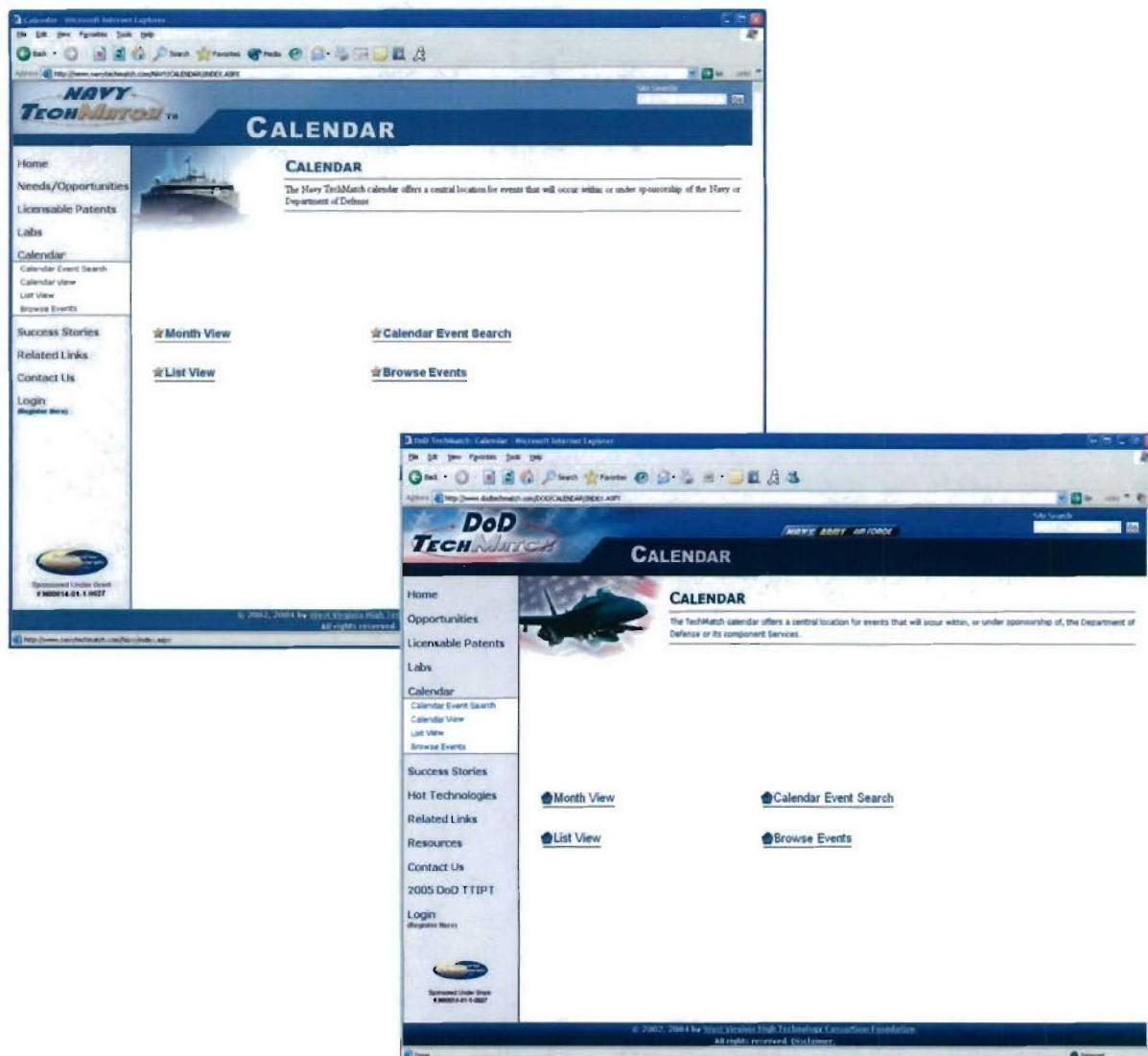


Figure 4: Calendar Page

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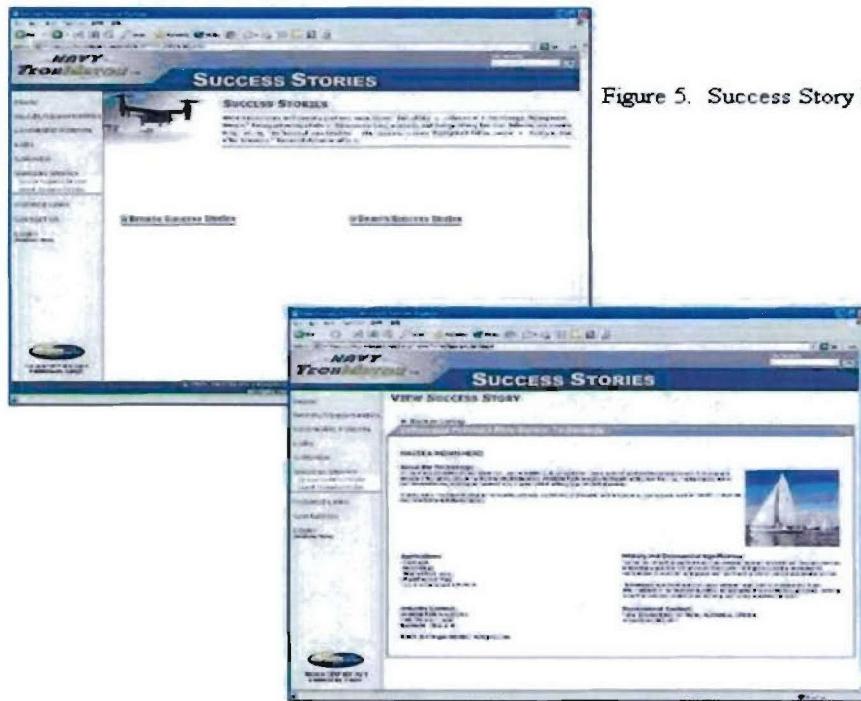


Figure 5. Success Story Main Page

Figure 6. Sample Success Story



Figure 7: Success Story Main Page

Figure 8: Sample Success Story

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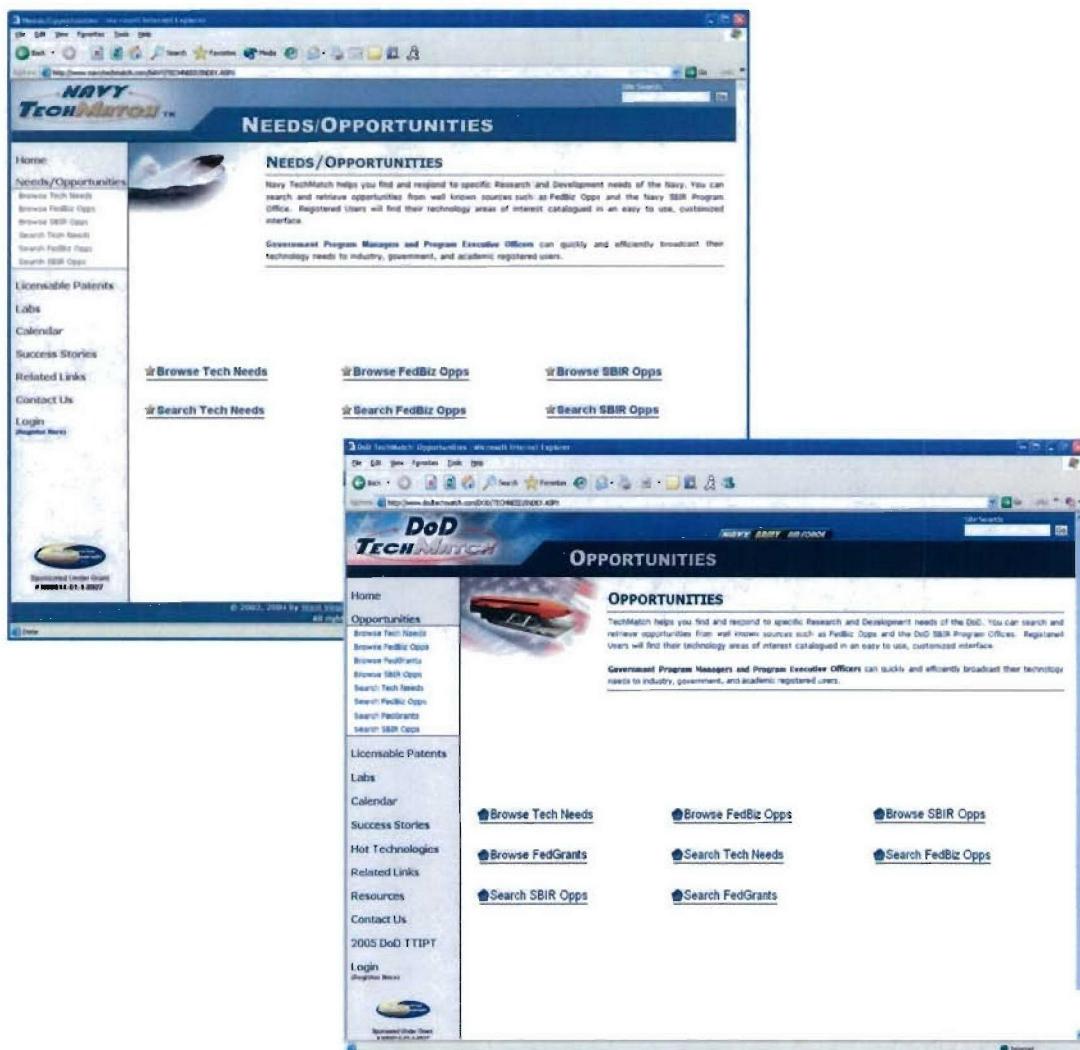
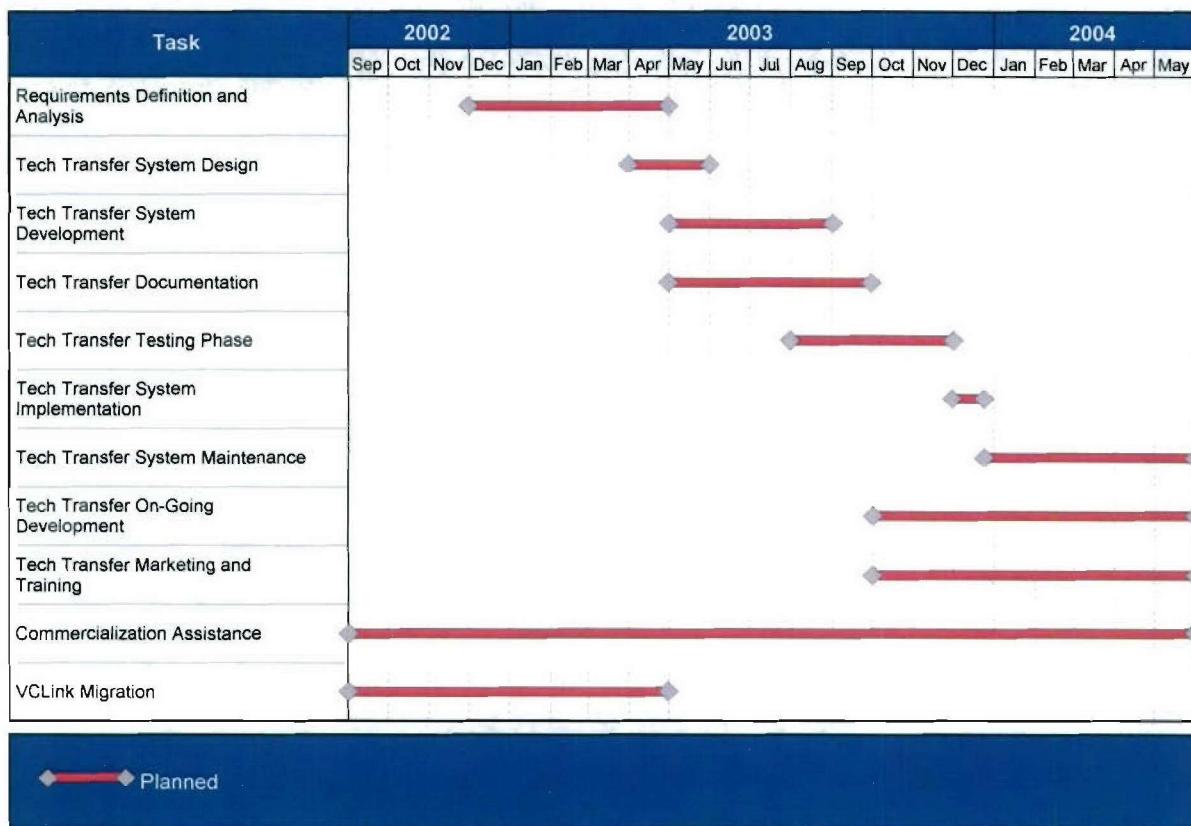


Figure 9: Needs/Opportunities Page

## Appendix B – Program Schedule



## Appendix C – Publications

### C.1 – *Journal of Innovation*

## Connecting Naval needs with industry opportunities

*WVHTC Foundation develops innovative web-based technology transfer system for U.S. Navy*

BY | Joshua Morrison and Robert Barrett  
WVHTC Foundation

West Virginia's economic landscape is changing. From timber to coal, West Virginia's economy has traditionally been based on our state's natural resources. Adding to this solid foundation, small high tech and manufacturing companies are changing the state's image. One hurdle these companies must overcome is finding business opportunities to facilitate their growth and the growth of West Virginia's economy.

Many avenues exist to find these opportunities, but the West Virginia High Technology Consortium (WVHTC) Foundation Research and Development Group has developed a tool to provide West Virginians — and the world — a single location to find a wide range of technologies, opportunities, and research and development needs from the Naval Community.

*Navy TechMatch* ([www.navyTechMatch.com](http://www.navyTechMatch.com)) is a web-based system designed to facilitate interactions between government, industry and academic communities. Sponsored by the Office of Naval Research, the Navy TechMatch design was based on extensive interviews with Department of the Navy (DoN) Office of Research and Technology Applications (ORTA) managers and industry representatives.

The system provides a single site where individuals and organizations can quickly access and search licensable Navy patents as well as facilities available for commercial use through Cooperative Research and Development Agreements (CRADAs). Navy TechMatch also provides a single location for business opportunities from FedBizOpps and SBIR solicitations, as well as technology needs from the various Naval programs. Bundled together, these features offer users valuable, relevant information and a starting point to develop a partnership with the Navy.

### HOW DOES THE SYSTEM WORK?

Navy TechMatch is an intuitive, easy-to-use tool. Currently, the site contains more than 2,300 Navy patents available for licensing to industry for commercial products and manufacturing processes. The site has information about Naval research and development laboratories across

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the United States; these labs have more than 380 unique facilities that are available for commercial use.

“The elegance of design along with comprehensive data makes the Navy TechMatch system a must for anyone interested in Navy technology opportunities,” said Rick Shindell, President of Zyn Systems located in Sequim, Wash. “The interface allows me the choice of searching by words, keyword sets or browsing by drilling down through a logical hierarchy of data.”

All Naval information can be viewed, sorted and searched by anyone for relevant information. The real benefit of Navy TechMatch is becoming a registered user. At no cost, registered users can receive email notifications of potential business opportunities that match their capabilities or areas of interest. Registered users select keywords of interest and sources of information (i.e., FebBizOpps, SBIR, etc.). The Navy TechMatch system matches new opportunities, technology needs, conferences and trade show events against registered users’ keywords and tailors a list of matching technologies that is sent via email to the registered user. This feature reduces the time and effort to find potential business opportunities within the Naval community.

FebBizOpps listings and SBIR solicitations provide contact information about the source of the opportunity or solicitation. The Technology Needs (Tech Needs) module provides registered users an avenue to propose a solution to the need directly through the Navy TechMatch system. This feature allows the Navy to quickly find solutions to its needs, and also allows industry and organizations to provide their services and technologies to the Federal sector.

### **WHO CAN BECOME A REGISTERED USER, AND HOW?**

Registering with Navy TechMatch is a free service open to anyone. Links on the homepage take users to a registration form where they choose their own username and password, and provide a valid email address and additional information. Next, users choose keywords from a three-tiered list related to their areas of interest or capabilities. Users then choose sources of information in which they would like to receive matching needs and opportunities. Finally, the user is sent an authorization code via email, which they enter into the Navy TechMatch system to finalize the registration process.

To assist users in the registration process, there is a “Contact Us” link available to ask any questions or to provide feedback about Navy TechMatch. The WVHTC Foundation’s R&D Group receives the emails and provides the necessary assistance to quickly find a solution to the issue or provide feedback to the user.

### **WHAT IS IN THE FUTURE?**

The past year has been a very eventful one in the life of Navy TechMatch. In a period of roughly 15 months, Navy TechMatch has grown from concept to a fully-functional, award winning web-based system providing users a single source of information on Naval labs, over 380 facilities, 2,300 licensable patents, technology needs within the Navy and related programs, as well as Navy opportunities from FedBizOpps and SBIR solicitations. Users can read about successful partnerships, learn about events they may wish to attend and register to receive free notifications of potential business avenues they may wish to pursue.

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"For the first time, it is possible to go to one site for Naval opportunities, patents, conferences and needs," said Ted Lynch, President of Strategic Marketing Innovations. "And the greatest promise is this product is going DoD-wide, saving time and effort, resulting in a better understanding of DoD capabilities available for commercial use."

Combining Army and Air Force information, DoD TechMatch will have all the benefits of Navy TechMatch but contain all the information from the Army TechMatch and Air Force TechMatch systems, which are currently under development and will be launched in late 2004.

The number of users — government, industry and academia — continues to grow, as will the amount and value of information contained in the system. Metcalf's Law states that the power of a network is proportional to the square of the number of nodes in the network. The DoD TechMatch system has all the pieces to become a powerful and important tool for DoD technology transfer and technology transition efforts.

Industry, academic and DoD partners will benefit from the TechMatch concept. Tailored information will be pulled and pushed rapidly where needed and wanted. Business opportunities will surface and be acted upon, partnerships will be formed and flourish, and our armed forces will get technological capabilities they need.

The goal of Navy TechMatch and the future DoD TechMatch systems is to become a focal point for technology transfer and transition efforts in the Navy and DoD. If initial Federal and industry response about the system is any indication of the future, TechMatch will have an extremely positive impact in the world of technology transfer and transition.

## C.2 – Defense AT&L

### TECHNOLOGY TRANSITION

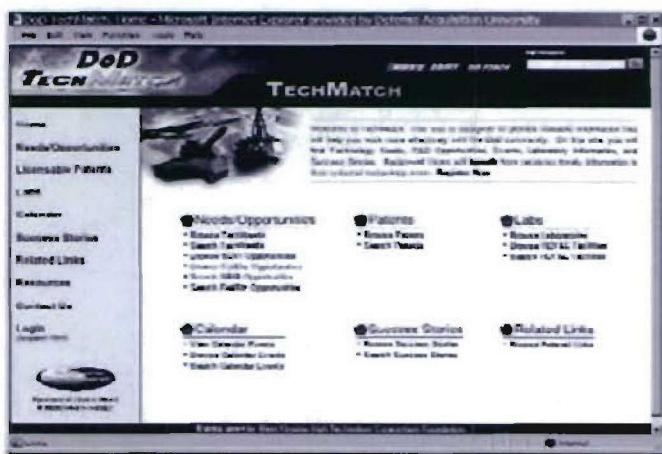
## DoD TechMatch

### A New Tool for Creating Technology Transition Partnerships

*Cynthia Gonsalves ■ Robert Barrett ■ Joshua Morrison*

An essential part of the DoD technology transition mission is to promote partnering opportunities between the private sector and defense laboratories. At the very heart of this mission lies the ability to gather ever-increasing amounts of data from widespread sources and then manipulate the raw data intelligently to create information. Even so, information overload is not only a possibility, it is almost a certainty given the pace of technological growth today.

Interviews with Navy Office of Research and Technology Application managers (ORTAs) have identified challenges in information gathering, manipulation, and dissemination. These challenges created fertile ground for a Web-based system that would help in their Service-unique and DoD technology transfer responsibilities. Specifically, Navy ORTAs identified a desire for a Service-wide system that would help them manage and market their licensable technologies. They wanted a system that would help them move their technologies into the commercial marketplace, generating revenues for their laboratories and the Navy. At the same time, Navy organizations involved in technology transition requested a system that would help them ingest commercial technologies for naval use. Navy TechMatch was designed to help both missions—technology transfer and technology transition. Sponsored by the Office of Naval Research, Navy TechMatch was launched at the Naval-Industry R&D (research and development) Partnership Conference in August 2004. The system was designed and built by the Research and Development Group of the West Virginia High Tech Con-



**DoD TechMatch Home Page**

soritium (WVHTC) Foundation, a non-profit organization. In September 2004, the Navy TechMatch system won the prestigious Regional Industry Award, presented by the mid-Atlantic Region of the Federal Laboratory Consortium.

#### DoD TechMatch Launched

Always trying to leverage good work supported by the Services, the deputy under secretary of defense (advanced systems and concepts) Office of Technology Transition saw the Navy TechMatch system and requested that it be expanded to the DoD level. That was done between August and December 2004. DoD TechMatch was launched at the annual Defense Manufacturing Conference in December, and the site is now available at <[www.dodtechmatch.com](http://www.dodtechmatch.com)>.

Gonsalves is the DoD technology transfer transition program manager, Office of the Deputy Under Secretary of Defense (Advanced Systems and Concepts) Office of Technology Transition. Barrett was the chief of staff for the Navy Commercial Technology Transition Office, Office of Naval Research, from 2003 to 2004. He joined the West Virginia High Tech Consortium Foundation in September 2004 as a PM working on the TechMatch project. Morrison joined the Foundation in October 2003 as a program analyst; he is the DoD TechMatch business operations manager.

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Six focus areas were identified in the March 2004 Report to Congress on the activities of the DoD Office of Technology Transition. DoD TechMatch contributes directly to four of the six focus areas, and indirectly to the other two (technical assistance provided to local and small businesses and IR&D to find partners for research and development efforts).

### Patents / Royalties / CRADAs

DoD TechMatch contains excerpts from all Army, Navy, and Air Force licensable patents, as well as links to the U.S. Patent and Trademark Office. These excerpts are designed to represent partnering opportunities for the commercial sector. Obviously, licensed patents generate royalties. Perhaps less obvious is the fact that patents can be used as the basis for cooperative research and development agreements (CRADAs). Getting this information to industry quickly and in an easy-to-use form is essential to moving technology out of the DoD laboratory system effectively. How DoD TechMatch does this is covered in detail later.

### Conferences and Tradeshows

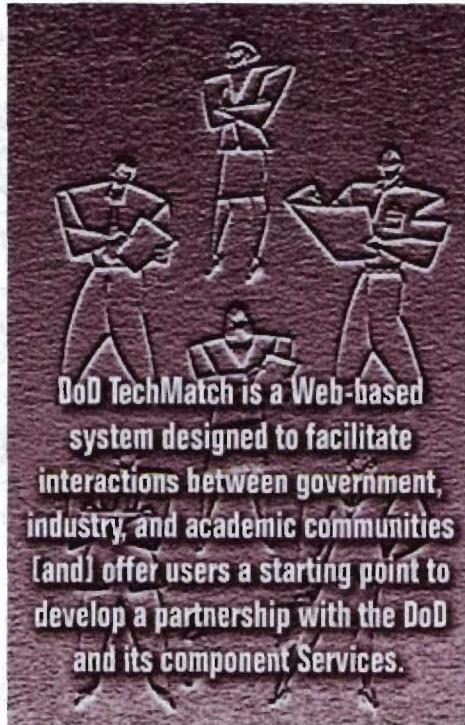
Navy TechMatch and now DoD TechMatch have supported Navy and OSD technology transition efforts at conferences and tradeshows. Feedback from conference attendees has been overwhelmingly positive, highlighting how the system is helping ORTAs perform their job, booth traffic is always very high, and DoD technology transition is made more visible to attendees. For example, during registration at the Technology Transfer Integrated Planning Team Workshop this year, one new user asked about a particular waste treatment technology. A search on licensable patents took eight seconds. The ORTA happened to be in the main conference room, and discussions about licensing the technology were initiated at the next break. Three weeks later, the license paperwork was nearly complete and customers were waiting for the product.

### Technical Assistance Provided to Local and Small Businesses

While "technical assistance" *per se* is not provided by the system, a great deal of "assistance information" is provided. For example, one company scientist had no idea how to find Small Business Innovative Research opportunities. The WVHTC Foundation staff not only helped him register with DoD TechMatch, but also helped him select the right keywords to search the most recent SBIR solicitation, where he found a number of business opportunities tailored to his company's expertise and areas of interest.

### IR&D to Find Partners for Research and Development Efforts

This is another area where DoD TechMatch helps indirectly. For example, customers with access to their own independent research and development (IR&D) may be



**DoD TechMatch is a Web-based system designed to facilitate interactions between government, industry, and academic communities [and] offer users a starting point to develop a partnership with the DoD and its component Services.**

looking for a partner to further their own research or help commercialize it. They can search DoD TechMatch for information regarding related patents/licensable opportunities, and perhaps enter into a CRADA with a DoD lab as a partner. They might also compete for an SBIR award found on the site. Finally, they might find an opportunity on the FedBizOpps (federal business opportunities) Web site at <[www.fedbizopps.gov](http://www.fedbizopps.gov)>

### TechLink and Other Partnership Intermediaries under 15 USC 3715

TechLink and DoD TechMatch have established a working relationship. Their Web sites link directly to one another. Both groups are committed to accelerating DoD technology transfer and transition.

### Transferring Technology in Support of Homeland Security Needs

DoD technology can have a variety of applications, including those important to homeland security needs. Helping make known the availability of these technologies and moving them rapidly from the labs into production enhances homeland security.

### How the System Works

DoD TechMatch is a Web-based system designed to facilitate interactions between government, industry, and

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academic communities. The system provides a single site where individuals and organizations can quickly access and search licensable patents as well as facilities available for commercial use through CRADAs and other partnering arrangements. DoD TechMatch also provides a single location for business opportunities from FedBizOpps and SBIR solicitations, as well as technology needs from various DoD programs. DoD TechMatch offers an innovative way for DoD PMs to notify private industry of technology needs and receive potential solutions to meet those needs. Bundled together, these features offer users valuable, relevant information and a starting point to develop a partnership with the DoD and its component Services.

Of special note is that the system operates in the unclassified realm and is open to the public. Even at this level, a great deal of useful information can flow. Registration is easy, and both online and person-to-person support are available.

DoD TechMatch is an intuitive, user-friendly tool. At the time of writing, the system contains more than 2,800 Army, Navy, and Air Force patents available for licensing to industry for commercial products and manufacturing processes. Loading of more than 2,300 Navy patents is complete; Army and Air Force information is being gathered and will be complete by summer 2005. The system has information about all three Services' research and development laboratories across the United States with more than 740 unique facilities available for commercial use.

"The elegance of design along with comprehensive data make the Navy TechMatch system a must for anyone interested in Navy technology opportunities," says Rick Shindell, president of Zyn Systems, Sequim, Wash. "The interface allows me the choice of searching by words or keyword sets, or browsing by drilling down through a logical hierarchy of data." While this comment was made specifically about Navy TechMatch, the design, human interface, and system operation of DoD TechMatch are identical.

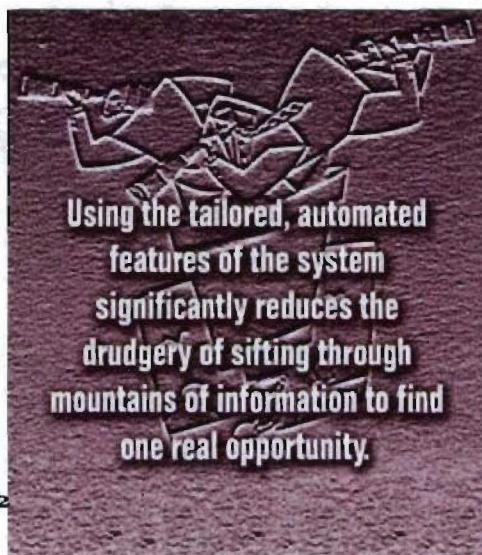
Anyone can view, sort, and search all system content for relevant information; however, registered users derive the greatest benefit from DoD TechMatch, since features that make it truly valuable are available to registered users only. Using the tailored, automated features of the system significantly reduces the drudgery of sifting through mountains of information to find one real opportunity. At no cost, registered users can receive e-mail notifications of potential business opportunities that match their capabilities or areas of interest as indicated by the keywords and sources of information (i.e., FedBizOpps, SBIR, etc.) selected at registration; the system matches new opportunities, technology needs, conferences, and trade show events against the keywords and tailors a list of matching technologies and information, which is sent by e-mail

to the user. This personalized feature—called "My Tech-Match"—reduces the time and effort involved in finding potential business opportunities within the DoD. Approximately half of all the listings on FedBizOpps document sole-source awards, which are not really opportunities for other businesses to work with DoD; rather, they are documentation of already-made decisions. And an electronics manufacturer, for example, isn't interested in opportunities to build heavy equipment, and his or her original keyword choices will reflect that. The system doesn't clutter up registered users' e-mail with this kind of undesired information. Instead, only "real" opportunities matching their areas of interest are forwarded (every business day at 2 p.m. Eastern Time). FedBizOpps listings and SBIR solicitations provide contact information about the source of the opportunity or solicitation.

The Technology Needs (Tech Needs) module identifies areas where DoD is looking for rapid solutions to technology problems, usually for the acquisition community. Navy SURFTECH has posted some needs, as has the Navy Commercial Technology Transition Office within the Office of Naval Research. Once a need is posted, registered users can propose a solution directly through the DoD TechMatch system, allowing DoD to quickly find potential solutions that meet its needs and helping industry and organizations provide their services and technologies to the federal sector. We are seeking other DoD needs to add more value to the site.

### Becoming a Registered User: Who and How?

Registering with DoD TechMatch is a free service, open to anyone with a valid e-mail address. At registration, users provide basic information and select, from a three-tiered list, keywords related to their areas of interest or capabilities. Users then choose sources of information



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**Registering with DoD TechMatch is a free service, open to anyone with a valid e-mail address.**

from which they would like to receive matching needs and opportunities. Finally, users are e-mailed an authorization code and a link to the DoD TechMatch Web site. Upon receipt of a confirming e-mail with authorization code, they follow the provided link back to the Web site and enter the code to finalize the registration process.

### The Recent Past

The past year has been very eventful in the life of DoD TechMatch. In a period of roughly 18 months, Navy TechMatch grew from concept to a fully functional, award-winning Web-based system providing users a single source of information on Navy labs, over 380 facilities, 2,300 licensable patents, technology needs within the Navy, related programs, and Navy opportunities from FedBizOpps and SBIR solicitations. Users read about successful partnerships, learn about events they wish to attend, and register to receive free notifications of potential business avenues they wish to pursue. Another large stride forward was taken when Army and Air Force information was added to create DoD TechMatch. Content continues to grow and the number of registered users to increase. Key statistics show that users are logging on and staying on. At the time of writing, the system has over 1,400 registered users who log on multiple times a week—sometimes multiple times each day—spending over four minutes on the average. Some regularly spend 20 minutes or more.

Direct feedback about content, system friendliness, and business impact continues to validate the concept behind the site. "For the first time, it is possible to go to one site for naval opportunities, patents, conferences, and needs," says Ted Lynch, president of Strategic Marketing Innovations. "And the greatest promise is that this product is

going DoD-wide, saving time and effort, resulting in a better understanding of DoD capabilities available for commercial use."

But what if the registered user is interested in only one Service—all business is transacted with (for example) the Army? Would a DoD-wide approach saturate the user with undesired information, thereby being a burden rather than a boon? We agree that would be the case, so the system design allows a registered user to select sources of information. In addition, the registered user can go directly to any of the embedded Service component sites exclusive of the larger site; an Army user could go directly to <[www.armytechmatch.com](http://www.armytechmatch.com)>, an Air Force user to <[www.airforcetechmatch.com](http://www.airforcetechmatch.com)>, and a Navy user to <[www.navytechmatch.com](http://www.navytechmatch.com)>. All three are also available from <[www.dodtechmatch.com](http://www.dodtechmatch.com)> by selecting the appropriate Service tab.

### Moving Right Along

We anticipate rapid forward movement in the near future. The number of users from government, industry, and academia will continue to grow, as will the amount and value of information contained in the system. Metcalf's Law states that the power of a network is proportional to the square of the number of nodes in the network; the number of DoD TechMatch nodes is growing rapidly. In a truly systematic interaction, customer value grows as the number of registered users and amount of information content grow—a classic representation of a "virtuous circle" [whereby a favorable situation or result causes another that subsequently supports the first].

Industry, academic, and DoD partners will benefit from the TechMatch concept. Tailored information will be pulled and pushed rapidly where needed. Business opportunities will surface and be acted upon, partnerships will form and flourish, and our armed forces will get technological capabilities they need.

The DoD TechMatch system has all the pieces to become a powerful and important tool for both DoD and its registered users. The TechMatch goal is to become a focal point for technology transfer and transition efforts in the DoD and its components. If initial DoD and industry response about the system is any indication of the future, DoD TechMatch will have an extremely positive impact in the world of technology transfer and transition, saving users time, identifying technological business opportunities, and meeting DoD needs.

The authors welcome comments and questions and can be reached at [cynthia.gonsalves@osd.mil](mailto:cynthia.gonsalves@osd.mil), [rbarrett@wvhif.org](mailto:rbarrett@wvhif.org), and [jdmorrison@wvhif.org](mailto:jdmorrison@wvhif.org)

## Appendix D – ORTA Training Guide



# **DoD TechMatch Lab Admin Guide**

Version 4.0  
January 2005

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## CHAPTER 1: SYSTEM OVERVIEW

*DoD TechMatch* ([www.DoDTechMatch.com](http://www.DoDTechMatch.com)) is an Internet Portal designed to facilitate interactions between industry, academia, and the government. *DoD TechMatch* is a tool that has been developed based on extensive interviews with Navy Technology Transfer Managers (ORTA) and Industry representatives. The development objectives for this site were to:

1. Provide a single site where individuals and organizations can quickly access and search all licensable DoD patents as well as facilities available for commercial use (e.g., via CRADAs).
2. Allow ORTAs and inventors to populate the site with information relating to a licensable technology. Examples of value-added information that can augment the information contained in a patent includes technical papers, links to information contained on the Internet, marketing information, and pictures of the invention itself.
3. Provide an avenue to communicate directly with an ORTA regarding a technology or facility of interest.
4. Allow ORTAs to add, remove, and modify facilities information.
5. Provide a conduit to advertise “high-value” technologies. These are defined as those technologies (patents) for which a significant commercial potential is believed to exist.

The *DoD TechMatch* system is a tool designed to serve the ORTA, therefore, it is important that you carefully evaluate the site’s content and functionality to ensure it meets your needs.

As an ORTA, you have administrative control over a significant portion of the site. This Admin Guide is designed to teach you how to use the site in order to ensure your lab’s technologies and facilities are presented in a clear and effective way. In this guide, you will learn how to:

- Incorporate value-added information into your lab’s licensable patents
- Add, delete, and modify your lab and facility information
- Add Lab Success Stories
- Add Lab Administrators within your laboratory

## CHAPTER 2: LOGGING ON AND LOGGING OFF AS A LAB ADMIN

Prior to logging on as a Lab Administrator, we recommend that you familiarize yourself with the publicly accessible features of *DoD TechMatch*. Being familiar with the general layout and interfaces contained within the site will allow you to better appreciate the effects of your inputs and modifications. Go to <http://www.dodtechmatch.com>, but do not log in. This will allow you to experiment with the site.

### 2.1 – Logging On

1. Go to <http://www.dodtechmatch.com>
2. Click **Login** on the left menu bar. Each ORTA is assigned a username and password that provides administrative entry into the system.

**NOTE: Username and password information can be obtained by contacting Joshua Morrison at 304-368-4537 or [jdmorrison@wvhtf.org](mailto:jdmorrison@wvhtf.org).**

**NOTE: It is recommended that you change your password from the default password. You are able to change your Username and Password at any time.**

- Under the **Lab Admin** section click **My Users**. Find your username and click **Edit**.
  - Under the **Basic Information** click the link **Change Password**.
  - Enter the old password, followed by the new password.
  - Click **Change**.
3. Once logged in, the system will take you to the **My TechMatch** screen. This screen is the “dashboard view” from which you will be able to add, modify, or delete information specific to your laboratory.

### 2.2 – Logging Off

To log off, choose **Logoff** on the toolbar located on the left side of the **My TechMatch** screen. **The system automatically logs off if you have been inactive for a period of 20 minutes. This is a built in security feature so no unauthorized persons can access the system when you are away from your desk.**

## CHAPTER 3: UPDATING AND MANAGING ADMIN USERS

You can create and delete an admin user, which allows that user to add, modify, and delete information specific to an invention or to a facility they may have cognizance over.

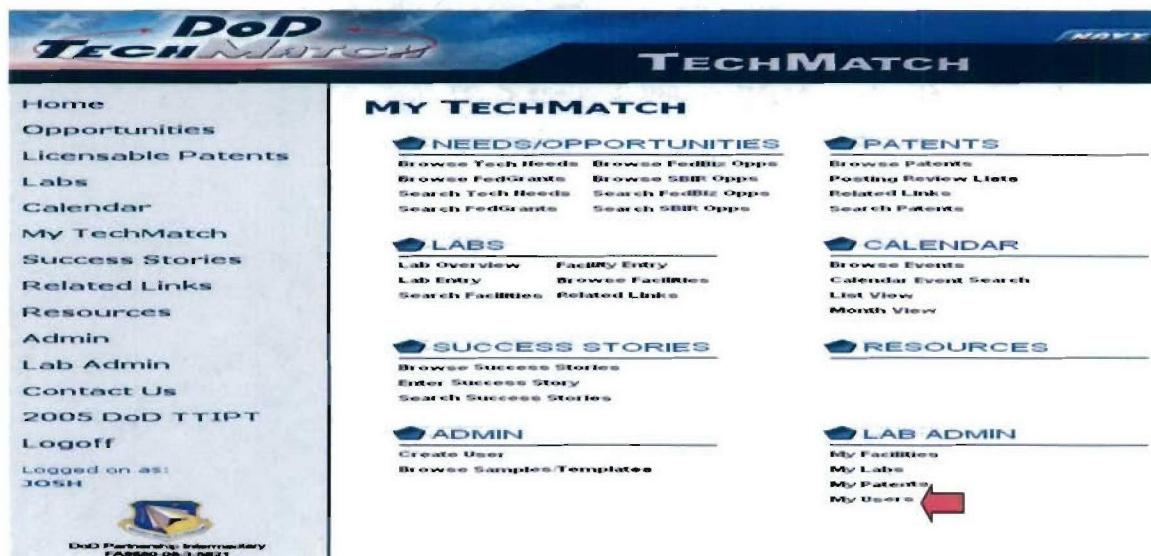
### 3.1 – Creating a User

You can add a User as follows:

1. Select **My Users**.
2. Click the **Add a User** link.
3. Assign a **Username** and **Password** for the new user, and complete the fields provided. You'll need to let your new user know what his or her Username and Password are in order to let them interact with the system.
4. Assign a **Role** to the new user.

You can assign the new user with a **Laboratory Administrator** role, a **Patent Holder** role, or both. Once a user is assigned a role, they will automatically show up as a user in the associated module. A Laboratory Administrator will be able to add, modify, or delete information from the laboratory module and facility module; a Patent Holder will be able to add, modify, or delete information from the patent module.

**NOTE: Once the new user is created, they should log in to *DoD TechMatch* and change their password. (See Section 2.1)**



## CHAPTER 4: MANAGING PATENT INFORMATION

The *DoD TechMatch* system receives patent updates from the Intellectual Property Management Information System (IPMIS) on a weekly basis. The IPMIS database is a comprehensive listing of licensable DoD patents. When you are logged in as a Lab Administrator (as described in Section 2.0 above), you will be provided an editable view of patent information.

**NOTE: To view all patents currently assigned to your lab, follow these steps:**

1. On the **My TechMatch** screen, click on **My Patents**.
2. When you select **View** for a specific invention, you will note that there are specific areas within the patent where you can add, modify, or remove information. These controls are summarized below.

### 4.1 – Featured Patents

**Featured Patents** is the latest addition to the **Patent Module**. In the **Patent** view you can click **Make Featured** and the patent will now be randomly displayed as a Featured Patent in the **Browse Patents** section. Three Featured Patents are displayed each time a user browses patents. You can only assign three patents at a time to be featured. If you try to add a fourth Featured Patent, you are given a list of the current featured patents and you must replace one.

1. Click the **View** link next to the appropriate patent.
2. Under Patent Information is a field titled **Featured Patent** with a status of YES or NO.
  - a. If the status is **NO**, the link to the right is **Make Featured**
    - By clicking the link, the status changes to **YES** and the patent is now a **Featured Patents** for your lab.
  - b. If the status is **YES**, the link to the right is **Remove Featured**
    - By clicking the link, the status changes to **NO** and the patent is no longer a **Featured Patent**.
3. Click **Back to Listing** to return to the list of patents.

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The screenshot shows the DoD TechMatch website interface. At the top, there's a banner with the DoD TechMatch logo and the words 'NAVY ARMY AIR FORCE'. Below the banner, the word 'PATENTS' is prominently displayed. On the left side, there's a vertical navigation menu with several sections: Home, Opportunities, Licensable Patents, Labs, Calendar, My TechMatch, Success Stories, Hot Technologies, Related Links, Resources, Admin, Lab Admin, Contact Us, and 2005 DoD TTIPT. The main content area is titled 'PATENT VIEW' and shows a detailed view of Patent H999. The patent information listed includes:

Patent Information: USPTO Site Listing	
Patent Number:	H999
Featured Patent:	NO <input checked="" type="checkbox"/> Make Featured <input type="checkbox"/>
Case ID:	0
Patent Title:	Transparency distortion measurement process
Status:	ACTIVE
Status Date:	8/5/2005 10:57:08 AM
Issue Date:	12/31/1991
Filed Date:	9/13/1990
Serial #:	582463
Assignee Name:	The United States of America as represented by the Secretary of the Air (Washington, DC)
Inventor(s):	Merkel, Harold S., Task, Harry L.
Associated Inventor(s):	JOSHUA MORRISON

At the bottom of the patent view page, there's a link 'Lab Information: View Lab Profile'.

#### 4.2 – Associate Inventor/Remove Association

You can associate an inventor with a patent, which provides that person the ability to modify information on his or her patent, or you can remove an inventor association with a patent. Associating or removing an inventor is done once you've entered them as an Admin User.

Associating an Inventor allows them to become actively involved in marketing their Intellectual Property. Involving the inventor in the marketing process was a key design feature requested by the majority of the ORTAs interviewed.

**Note: In order to associate an inventor to a patent, you must first create a username and password for the inventor. Refer to section 3.0 to create a user.**

1. Click the **View** link next to the appropriate patent.
  - a. To Associate an inventor:
    1. Click **Associate Inventor**.
    2. Select the appropriate inventor from the dropdown list.
    3. Click **Add** to add the association or **Cancel** to go back to the patent view.
  - b. To Remove an association:
    1. Click **Remove Association**.

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2. Select the appropriate inventor from the dropdown list.
3. Click **Remove** to remove the association or **Cancel** to go back to the patent view.

The screenshot shows the DoD TechMatch website with a blue header featuring the DoD TechMatch logo and the words 'NAVY ARMY AIR FORCE'. The main content area is titled 'PATENTS' and 'PATENT VIEW'. On the left, there's a sidebar with links like Home, Opportunities, Licensable Patents, Labs, Calendar, My TechMatch, Success Stories, Hot Technologies, Related Links, Resources, Admin, Lab Admin, Contact Us, and 2005 DoD TTIP. The central 'PATENT VIEW' section has a 'Back to Listing' link at the top. Below it, there are buttons for 'Associate Inventor', 'Remove An Association', and 'Edit Keywords/Push'. A 'Patent Information' section displays details for Patent H999, including its number, status (ACTIVE), and assignee (The United States of America as represented by the Secretary of the Air (Washington, DC)). It also lists inventors (Merkel, Harold S., Task, Harry L.) and associated inventors (JOSHUA MORRISON). At the bottom, there's a 'Lab Information' section with a 'View Lab Profile' link.

#### 4.3 – Add Comments

Here you'll be able to add comments to the patent. For example, if you know of a particularly attractive commercial application for your technology, you'll be able to add that information here. When a public user searches the patent database, they'll also be searching your comment section!

1. Select **Add Comments**.
2. Add Comments into the text box.
3. Click **Save**.

#### 4.4 – Add Image

You can add links to images of the invention. A picture of the invention can provide industry with a good view of the invention's maturity, thereby helping them assess the invention's market readiness.

1. Select **Image** from the Link Type.
2. Enter the **URL**.
3. Enter a comment or description of the image.
4. Click **Save**.

#### 4.5 – Add Links

You can add associated links to an invention. If there is supporting information for the invention on the web (e.g., technical papers, Power Point presentations), you can direct a user to those sites.

1. Select **Web URL** from the drop down Link Type menu.
2. Enter the **URL**.
3. Enter a comment or description of the Link.
4. Click **Save**.

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License Information:

---

Licensee:  
License Date:  
Field of Use:

Inventor Information:

---

Comments:  
Images: (Click Thumbnail for Full View)  
JOSHUA MORRISON  
  
Edit

Links:

Additional Information:

---

Comments: Add Comments  
Edit  
I am adding comments to the patent.

Images: (Click Thumbnail for Full View) Add Image  
  
Edit

Links: Add Links



*Explained in Sections: 4.3, 4.4, 4.5*

#### 4.6 – Push A Patent

1. Click **View** next to the appropriate patent.
2. Click **Push This Patent** link.
3. Click **Add/Remove Keyword** link.
4. Choose the appropriate keyword(s) from the popup box.
5. Click **Schedule Push**. The patent will be pushed at a designated time with all matches.

## CHAPTER 5: MANAGING LABORATORY INFORMATION

As a Lab Admin, you have the ability to make changes to your lab overview information, add new facilities or modify the existing ones.

### 5.1 – Modifying and Adding Lab Information

1. Click **My TechMatch** Tab
2. Under **Lab Admin**:
  - a. Click **My Labs** to edit Lab overview information.
  - b. Click **My Facilities** to edit Facility information.
    - i. Click **View** to see the current layout and description of your Lab.
    - ii. Click **Edit** to edit your Lab name, URL, and description.
    - iii. Click **Edit Links, Documents, and Images** to edit links, images, logos, and documents.
  - c. Click **My Facilities** to edit Facility information.
    - i. Click **Add a Facility** link to add new facilities.
    - ii. Click **View** to see the current facility layout and description.
    - iii. Click **Edit** to edit facility name, description, URL, and category.
    - iv. Click **Delete** to delete the facility.
  - d. Click **My Users** to view a list of all Users associated with your lab.
    - i. Click **Add a User** to create a new Lab user.
    - ii. Click **View** to see the User information.
    - iii. Click **Edit** to change User information.

## CHAPTER 6: SUCCESS STORIES

Success Stories are a way for Industry to find out that working with DoD Labs produces effective results. *DoD TechMatch* now offers an avenue for getting those success stories from CRADA's and Patent License agreements out to industry; that could lead to more successes.

As a Lab Admin you have the ability to enter success stories into *DoD TechMatch*.

1. Under **Success Stories**, click **Enter Success Story**.
2. Fill out the required fields, and any other applicable fields.
3. Accept the terms of agreement, and click **Save**.

As a service and at no cost you can provide us your success story information and we can populate *DoD TechMatch* for you.

Send any success story information to:  
Joshua Morrison  
Business Operations  
304-368-4537  
[jdmorrison@wvhtf.org](mailto:jdmorrison@wvhtf.org)

## CHAPTER 7: CONTACT US

Our goal is to continuously improve *DoD TechMatch* to meet your technology transfer and transition needs. If there are features you'd like to see added or modified, please let us know. You can provide your request through the **Contact Us** command on the left toolbar, or you can call us directly to discuss your ideas. Our POC is:

Joshua Morrison  
Business Operations  
WVHTC Foundation  
1000 Technology Drive, Suite 1000  
Fairmont, WV 26554  
304-368-4537  
[jdmorrison@wvhtf.org](mailto:jdmorrison@wvhtf.org)

## Appendix E – Interviews

### **E.1 – ORTA Interview Questions**

#### OPEN-ENDED QUESTIONS FOR iIPMIS DEVELOPMENT

##### **Customer type: ORTA at a Lab**

(Management-type questions, not technical aspects which have been covered already)

1. What types of Management reports do you have to generate?
  - a. To Whom?
    - i. At what frequency?
  - b. Can you provide samples of each?
2. Where do you get the information required in each report type?
  - a. In what form (electronic, hardcopy, ...)?
  - b. Via what path(s) (e.g., email, fax, phone, another report, ...)?
    - i. If from a system, what is its name?
      1. What software does the system use (if any)?
3. Can you run us thru a typical example of each Report type?
4. Are you required to calculate summary statistics of any kind?
  - a. If so, what type?
    - i. Are these entered in any (other) system, or only included in a report?
      1. If entered into another system, which one?
      2. In what format?
      3. Via what pathway(s)?
5. Do you interact with others in your IP Reporting & Management system?
  - a. If so, with whom?
    - i. Describe the type(s), purpose(s) and outcome(s) of those interactions
6. We are assuming a totally UNCLASSIFIED system.
  - a. Do you ever have to create CLASSIFIED reports?
    - i. If so, how do you handle those?
7. Do you see any deficiencies in the present IP Management & Reporting system?
8. What additional features, if any, would you like to see in an IP Reporting & Management System?
9. Freeform discussion – whatever topic(s) you'd like to talk about.

## **E.2 – IEB Interview Questions**

### OPEN-ENDED QUESTIONS FOR iIPMIS DEVELOPMENT

#### **Customer type: IEB**

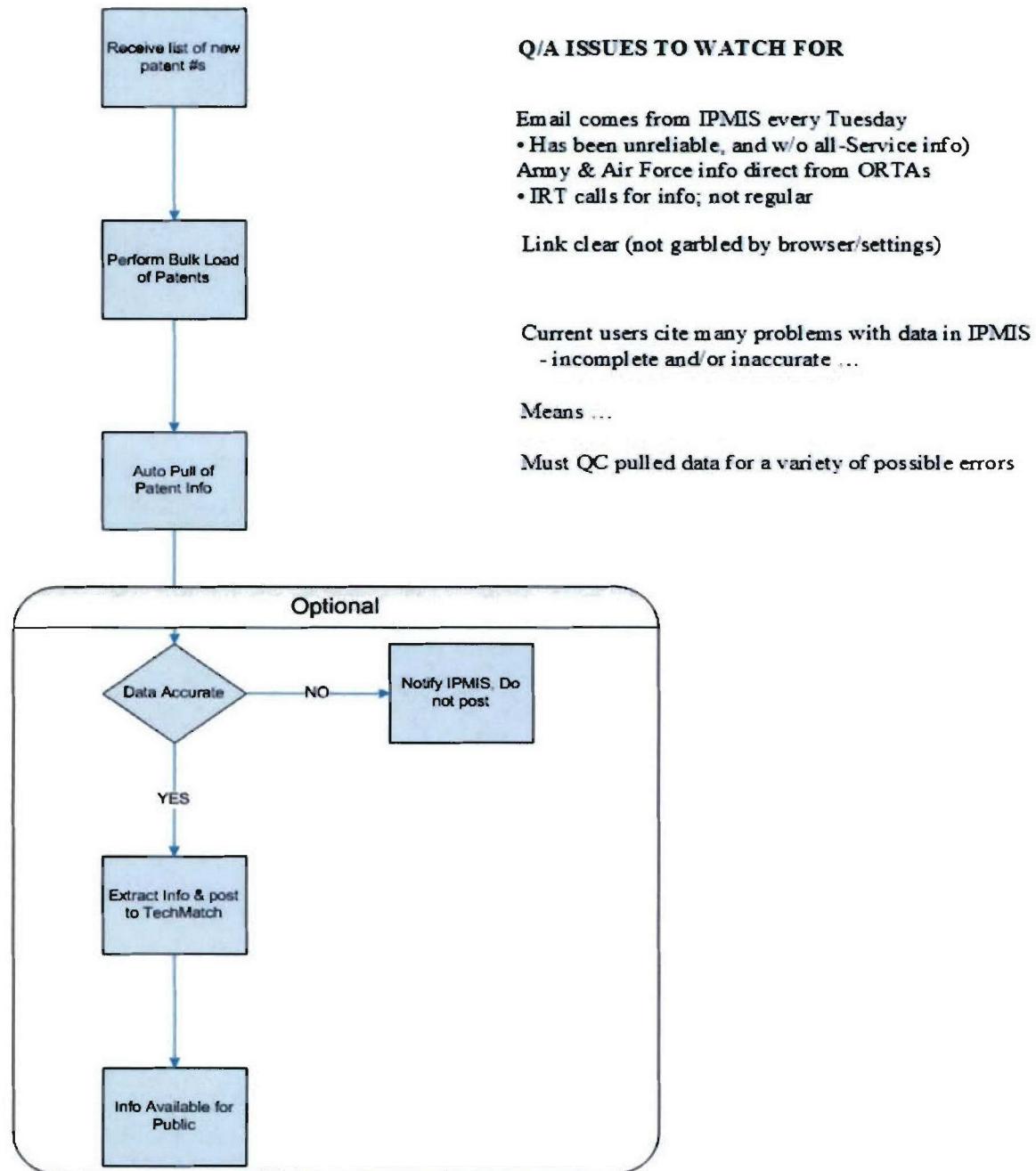
10. Are your meetings regularly scheduled (e.g., once a \_\_\_\_\_)?
  - a. If yes, what is the frequency?
  - b. If no, how do you decide when to meet?
11. What is the composition of the IEB?
  - a. Who leads the IEB and how are they selected / appointed?
  - b. Is there a permanent secretary?
    - i. Name, contact info ...
12. How do you become aware of an invention disclosure?
  - a. Where do you get the information from?
  - b. In what form do you receive it?
    - i. Electronic
    - ii. Hardcopy ...
  - c. Do you have a (mandated) timeline for action(s) associated with it?
13. Once the invention / potential patent application is submitted to the IEB, what do you do with it (i.e., what is the IEB Review process)?
  - a. Is the process documented anywhere?
    - i. If so, can we get a copy of the process flow diagram or document that details the flow?
14. When evaluating whether to pursue a patent, what questions does the IEB ask? Also, are there required answers to those questions (e.g., if answer = Yes, the process continues; if answer = No, the process stops)? [Please specify in your responses].
  - a. Technically?
  - b. Legally?
  - c. Commercially?
15. If you have questions about any of the above (4.a – 4.c), where do you go to get answers (e.g., potential commercial viability)?
  - a. Who performs the [info search]?
  - b. Is there a mandated timeline associated with the info search (e.g., before next meeting)?
16. When a decision is made not to pursue a patent, for whatever reason, who is notified and what do they do next?
  - a. What records are kept of this transaction / direction / decision?
    - i. In what format?

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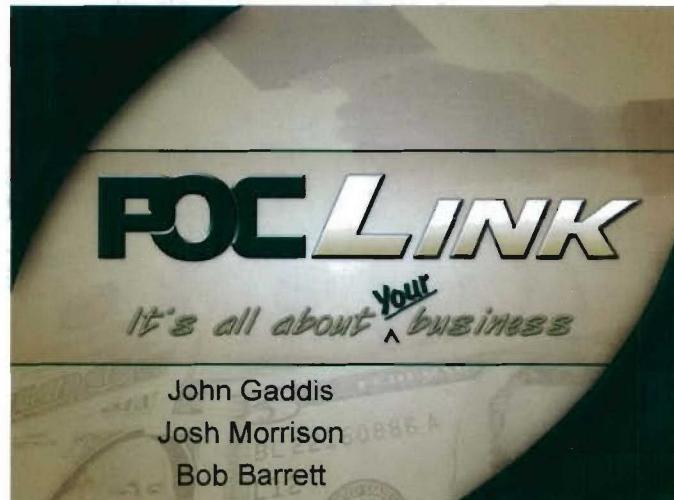
17. When a decision is made to pursue a patent, who is notified and what do they do next?
  - a. What records are kept of this transaction / direction / decision?
    - i. In what format?
18. Do you handle CLASSIFIED inventions / patent applications differently than an UNCLASSIFIED one? [Note: “differently” relates to process ... the processes may be identical, although the CLASSIFIED submission is kept separate from any UNCLASSIFIED ones].
  - a. If the process is different, how is it different?
    - i. Is that different process defined anywhere & can we get a copy of the process flowchart and / or any documentation on the process?
19. Does the IEB use an electronic routing and /or voting system?
  - a. If so, do you use a particular software package?
20. Do you see any deficiencies in the present system?
21. What additional features, if any, would you like have as part of your IEB process?
  - a. Documentation
  - b. Evaluation
  - c. Voting
  - d. Other
22. Freeform discussion – whatever topic(s) you’d like to talk about.

## Appendix F – Process Flow Diagram (Patent Module)

### Patent Module Update Process – Weekly



## Appendix G – POC Link



### PROBLEM

- Associations and companies need:
  - A quick and easy way to communicate among members
  - To quickly find talent and business opportunities



### SOLUTION

- POCLink provides a customizable web solution to:
  - Find people
  - Identify opportunities
  - Exchange informationin a global environment all day, every day



## BUSINESS MODEL

- POCLink provides a customizable web solution to:
    - Find people
    - Identify opportunities
    - Exchange information
- in a global environment all day, every day



## WHAT MAKES US DIFFERENT?

- Better admin interface between the front end and back end systems
- Quick and easy updates, create web pages on the fly
- Help generate revenue through advertising



## MARKETING AND SALES

- ~1000 Technical associations and 200 Regional Associations from WV, MD, PA, OH, VA
- Leverage existing products, networks, and relationships
- Break-even Point
  - Numbers here
  - Self Sustaining at 100 systems
    - 60 in 18 months
    - 100 in 24-30 months



## COMPETITION

- 34 major software packages
- Evaluated 7



## OUR TEAM

- Program Manager –
- Software Engineer –
- Business Ops –
- Board of Advisors
  - Volunteer industry members connected to the associations within the region



## WHERE WE ARE NOW

- \$4M invested in development
- \$150K of Angel investment available
- Current Systems
  - VCLink – West Virginia (operational)
  - TRECC – Illinois (delivered)
  - VIP for ENC – North Carolina (operational)
  - EMBL – Washington, D.C. (delivered)
  - WV Chamber of Commerce (commitment)
- Potential near-term systems
  - WV Incubator Managers Forum
  - WV Minority Business Development Center
  - Tech 2020 – Knoxville, TN

## Appendix H – Virtual Company Phase V Report



**WEST VIRGINIA HIGH TECHNOLOGY  
CONSORTIUM FOUNDATION**

**VIRTUAL COMPANY PROGRAM  
PHASE V**

**Grant No. N00014-98-1-0173**

**JANUARY 1998 – DECEMBER 2001**

**PRESENTED TO:**

**THE DEPARTMENT OF THE NAVY  
OFFICE OF NAVAL RESEARCH**

## **VIRTUAL COMPANY PROGRAM**



**West Virginia High Technology Consortium Foundation**

### **Final Report for Virtual Company Phase V Activities**

**March 27, 2002**

**TASKS COMPLETED IN 1998:**

1. Conducted a Program Management Review on January 9th, 1998 with David Rossi, Dr. Paul Rispin, Ted Lynch, Norm Christensen, Roger Duckworth, and Jim Estep to review Virtual Company Program status. Ken Lyndsey, Chief Technical Officer, RCBI was an invited guest. Projects discussed at this meeting included:
  - Development of the Virtual Company Best Practices System
  - Test and Evaluation of the Virtual Company Manufacturing Environments
  - Incorporation of Product Line Engineering Activities into the Virtual Company Model
  - Virtual Company Technology Transfer Activities:
  - Virtual Company Model Dissemination
  - Update of the Networked Communications/Operations Infrastructure
  - National Virtual Company Conference and Exhibition
  - Educational Initiatives:
  - Computerized Tutorial Development
  - Federal Acquisition and Assistance Certificate Program
2. Accepted a Virtual Company Guidebook, Release 1.0, delivered by Lockheed on January 21, 1998.
3. The Virtual Company Link (VCL), became operational on January 15, 1998.
4. Met with Tygart, MPL and Prologic which have partnered to form a Virtual Company to expand the capabilities of the VCL. Legal assistance was provided at this meeting by Eddie Parker, lawyer from Jackson and Kelly.
5. Visited the Regional Contract Assistance Center (RCAC) in Charleston, WV, to coordinate efforts on capabilities database and business opportunity identifications. Met with Community Learning and Information Network (CLIN) to solicit information on their education and Video Conferencing capabilities. The Foundation may sponsor some distance learning courses using CLIN.
6. Met with Mark Adrian and Ken Lyndsey at RCBI, to establish an agreement to work together to identify opportunities and create a company capabilities Database.
7. Traveled to Lexington, to meet with Lexmark's Director of Purchasing and others who are interested in the VC program as a source for new suppliers and a place for local companies to advertise their business capabilities.

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8. Coordinated Alliant Tech Systems briefing with Aurora Flight Sciences. The ultimate goal is to bring Outrider Business to the WV community.
9. Contacted Dr. Bud Forrester to be the speaker for the VC Link Symposium on March 12, 1998. He is the Vice President for Land Combat Systems, Electronic Sensors and Systems Division for Northrop Grumman Corporation. He retired from the Army as a Lieutenant General and holds a Ph.D. in Nuclear Physics.
10. Finalized education and training needs survey for affiliate/manufacturing companies. The purpose of this survey was to determine the community training needs.
11. Briefed ProLogic on Unmanned Aerial Vehicles in preparation for upcoming Product Line Engineering efforts with the Program Executive Office for Cruise Missiles and Unmanned Aerial Vehicles.
12. Attended Army Aviation Day at Ft. Myer, Virginia. Discussed VC Manufacturing with Sikorski Helicopters in order to gain manufacturing opportunities for the VC Link.
13. Briefed PEO (CU) on potential PLE efforts. The PEO desires the WVHTC Foundation to pursue PLE on the Tactical Control System, the Advanced Tomahawk Weapons Control System, and the common architecture for both systems. The PEO was informed that we had ONR funding for only one effort. The PEO is committed to locating additional funds to do the entire PEO(CU) effort.
14. Conducted a Virtual Company Program Management Review on February 19<sup>th</sup>, with Ted Lynch, Norm Christensen, Roger Duckworth, and Alexandra Amedro. Projects discussed at this meeting included:
  - Financial review of Virtual Company Phase IV and V
  - Test and Evaluation of the Virtual Company Model in Manufacturing Environments
  - Incorporation of Product Line Engineering Activities into the Virtual Company Model
  - Virtual Company Technology Transfer Activities:
  - Virtual Company Link
  - Symposium, March 12, 1998
  - National Virtual Company Conference and Exhibition targeted for October, 1998
  - Educational Initiatives:
  - Computerized Tutorial Development
  - Federal Acquisition and Assistance Certificate Program

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- Training Survey
15. Met with the Regional Contract Assistance Center (RCAC) President and the Procurement Technical Assistance Center (PTAC) Director in Vienna, WV, to coordinate efforts on building a single company profile database. It is anticipated this database will automatically provide necessary information used by RCAC and PTAC in submission to their VANs. The VANs execute electronic matching for business opportunities. The Foundation has agreed to be responsible for the company profile/capability database upon acceptance of the results of a technical analysis of the existing databases utilized by RCAC and PTAC.
16. Contacted several sources who might be interested in posting training opportunities in the Virtual Company Link. Among these sources were: Fairmont State College, Small Business Development Center, Business Information Center, Procurement Technical Assistance Center and the Service Corps of Retired Executives.
17. Mailed 400 invitations to WV manufacturing companies and WVHTC Foundation affiliate members for the inauguration of the Virtual Company Link on March 12, 1998.
18. Received twenty-eight answers to our training interests survey located in the VCLink homepage, from affiliate/manufacturing companies. The purpose of this survey was to determine the community training needs. Training areas outlined in the survey were:
- Business Software
  - Business Development
  - Virtual Company Program
  - Federal Acquisition and Assistance
  - Management
  - Miscellaneous
19. Met with Steve Parker at the Naval Surface Warfare Center (NSWC), Dahlgren, to propose ten tasks as part of the Program Executive Officer (PEO) Cruise Missile (CU), Product Line Engineering effort. The tasks were approved and guidance was provided on initiating Tasks 1 through 4 on the Tactical Control System (TCS).
20. Met with Mr. David Rossi and Ted Lynch in Washington, DC. Projects discussed at this meeting included:
- Product Line Engineering additional funding
  - Extension of VC-IV funding
  - Realignment of VC-V funding

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21. Attended meeting to discuss future Defense Information Infrastructure (DII) and Common Operating Environment (COE) for Product Line Engineering opportunities and consider WVHTC Foundation strategy.
22. Inaugurated the Virtual Company Link on March 12, 1998.
23. Finalized Regional Contract Assistance Center (RCAC) and PTAC Opportunity Identification linkages
24. Developed content and layout for the VCLink brochure, 300 copies were made
25. Organized links for “Hot linking” from VCLink --- more than 100 links now available
26. Reviewed and modified the Virtual Company Life Cycle to be included in the VCLink
27. Reviewed, modified and submitted Contract and Proposal templates for inclusion on the VCLink
28. Generalized the Foundation’s Personnel procedures manual to be included in the VCLink
29. Created process to control all information being added to the VCLink (requires appropriate review and approval)
30. Met with Strike Warfare Software managers to discuss implementation of Product Line Engineering for Tactical Control Systems and ATWCS.
31. Lockheed submitted proposal for the VC CONOPS and Guidebook update and the population of the VCLink as well as support on marketing and training workshops.
32. Met with Program Executive Officer at PaxRiver to discuss Product Line Engineering funding. PEO was supportive of PLE effort and strategy to obtain STTR award.
33. Analyzed Training Interests Survey posted in the VCLink homepage. Forty-one answers were received. Among the most wanted classes were:
  - Proposal Preparation
  - Business Development
  - Virtual Company Concepts
  - Electronic Commerce

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34. Met with Agility Forum executives and Maritech Agile Shipbuilding Toolkit (MAAST) program staff at Lehigh University in Bethlehem, Pennsylvania.
35. Met with executive at the Ben Franklin Technology Center to review their involvement in agile manufacturing within Pennsylvania. .
36. Attended Product Line Issues Action Team Conference in Arlington, Va.
37. Updated the Virtual Company Model and printed a large scale model display to be utilized in the upcoming Teaming to Win conference and other events.
38. Reprinted 300 extra Virtual Company brochures
39. Contacted 20 manufacturing and information technology companies to be part of a Steering committee re design issues with the VCLink databases. The following companies attended this luncheon/Strategic Planning Session on April 29, 1998. D. N. American, Augusta Computer Services, EMT Associates, Electronic Warfare Associates, MPL, Prologic, Tygart Technology, Intermetrics, Inc., CNC Industries, Nimbl Associates, Aurora Flight Sciences of WV, Inc., and TMC Technologies.
40. Generalized the WVHTC Foundation's facilities, property, and award management manuals and procedures to be included in the VCLink homepage.
41. Met with the Small Business Association to co-sponsor a "Business Development" workshop, one of the most wanted classes from the Training Interests Survey results.
42. Met with the Idaho National Engineering and Environmental Laboratory (INEEL) personnel and reached preliminary agreement on using the VCLink homepage as a Beta site for their CAD/CAM internet capability.
43. Conducted a Program Management Review on April 9th, with Ted Lynch, Norm Christensen, John Gaddis, and Alexandra Amedro to review Virtual Company Program status. Projects discussed at this meeting included:
  - Financials of VC-IV and VC-V
  - Test and Evaluation of the Virtual Company Model in Manufacturing Environments
  - Incorporation of Product Line Engineering Activities into the Virtual Company Model
  - Virtual Company Technology Transfer Activities:
  - New "look-feel" VCLink homepage
  - Virtual Company Model Dissemination

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- Educational Initiatives:
  - Computerized Tutorial Development (demo)
  - Federal Acquisition and Assistance Certificate Program
44. Met with WVU-MEP (Manufacturing Extension Program), RCAC, ECRC and PTAC to discuss collaboration on future training and to focus on a specific offering of an Enterprise Solutions Workshop to be held in November, 1998.
45. Held a Program Management Review with Ted Lynch, Norm Christensen, John Gaddis and Alexandra Amedro on May 14.
46. Finalized The Federal Acquisition and Assistance Interactive Tutorial on May 9, 1998. This tutorial is a blend of law, procedures, processes, and practical applications. It covers the components of the Federal Acquisition System:
- Goals of the Federal Acquisition Process
  - Organizational Roles and Responsibilities
  - Basic Statutes and Regulations
  - Acquisition Roles and Responsibilities Within an Agency (The Players)
  - Introduction to the Acquisition Phase
  - Presolicitation Phase
  - Solicitation and Award Phase
  - Post-Award Administration Phase
  - Modifications, Terminations, and Claims
  - Standards of Conduct
47. Exhibited the VCLink homepage at the Teaming to Win conference on May 21-22, 1998. This web-based, interactive information system enables and enhances teaming of member companies. It provides tools, methods, techniques, and consulting support for VCs. The WVHTC Foundation VC program won the Organization Teaming Award at the Teaming to Win Conference. The Foundation's Virtual Company program has been the one most committed to the research, development, and advocacy of teaming concepts. Via the Virtual Company, the Foundation has been able to promote prime/subcontractor teaming throughout West Virginia. More than \$3 million has been injected into the local small business base to support such teaming endeavors. The VC program has awarded grants to assist small business in building the infrastructure that will enable faster, efficient teaming.
48. Visited Great Lakes Composite Consortium, Inc., Columbia, SC., on May 19, 1998. GLCC manages the Center of Excellence for Composites Manufacturing Technology for the Navy. The VC was invited to join GLCC as a partner (no cost) and participate in an upcoming conference. GLCC is interested in working with the VC in populating the company profile database with companies in the composite business.

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49. Released Draft Solicitation Number WHVTC-F-VC98-1140 titled Virtual Manufacturing Initiatives on May 26, 1998. This solicitation looked for a total of eight machine shop owners or manufacturers to be responsible for evaluating the effectiveness of the VC manufacturing model and for the implementation of VC quality systems.
50. Held Program Management Review with David Rossi, Dr. Paul Rispin, Captain Mike Witte, Mark Dady, Steve Parker, Robert Fondren, Penny Pierce, Ted Lynch, Norm Christensen, John Gaddis and Roger Duckworth on June 5 at Patuxent River Naval Air Station. Topics discussed at this meeting included: Virtual Company Best Practices System, Test and Evaluation of the Virtual Company Model in Manufacturing Environments, and Virtual Company Technology Transfer Activities.
51. Scheduled Business Development Seminar for August 4, 1998. The WVHTC Foundation Virtual Company Program and the Fairmont State College Regional Small Business Development Center were co-sponsors of this Business Development Seminar in response to a survey mailed to the community regarding its training needs.
52. Held pre-proposal conference on June 3, 1998 at the National Guard Armory in Gassaway, WV. Three manufacturing companies attended this conference: J&S Machine Co.; CAM & Associates; and NIMBL. The final RFP was released on June 12, 1998 and proposals were due on July 13, 1998.
53. Scheduled VCLink Road Show for the month of July, 1998, the VCLink team scheduled travel for VCLink workshops throughout WV. These workshops started on July 6 and continued throughout the month of July.

<b>6</b> Monongalia Co. TOC, University H.S.	<b>10</b> Jefferson Co. SBDC, Shepherd College	<b>20</b> Randolph Co. SBDC, Elkins College
<b>8</b> Marion Co. CLIN, "Woody" Williams Natn. Gd. Armory, Fairmont	<b>14</b> Cabell Co. CLIN, Huntington	<b>21</b> Harrison Co. Robert C. Byrd Air Center
<b>9</b> Preston Co. TOC, Preston H.S.	<b>16</b> Kanawha Co. CLIN, Charleston	<b>22</b> Wood Co. SBDC, WVU Parkersburg
<b>9</b> Taylor Co. Taylor Co. Vocational Center (afternoon session only)	<b>17</b> Logan Co. SBDC, So. WV Community and Technical College with direct link broadcasts to Wyoming, Boone, & Mingo Co.	<b>24</b> Ohio Co. SBDC, WV North.Com. Coll.

54. Prepared the following documents for inclusion in the VCLink:
  - **Guidance for Preparation of a Statement of Work.**
  - **Subcontract Policies and Procedures and the Small Purchase Procedures.**

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55. Created Best Practices document from the TMP, LLC experiences in forming and operating a Virtual Company. Interviews took place with the three companies that formed the LLC named TMP. Among some of the lessons learned were
- **Determine impact of businesses participating in LLCs** – the implications of participating in a LLC needs to be understood in terms of impact of 8a status, small business status, etc.
  - **Define clear definition of roles and responsibilities** – the principle of selecting member companies for a virtual company based on core competencies is sound. One way to avoid conflict in the operation of a VC is to clearly define the roles and responsibilities of each team member. It is then critical for each participating company to fulfill its role and respect the roles of others.
  - **Need to have a facilitator for the VC formation** – there is a need for a third party, a person outside the companies forming the VC . This person needs to have knowledge in virtual company concepts and experience leading team work to be able to guide and create communication channels among the VC members.
  - **The LLC must operate as an entity separate from the member companies** – The personnel of the LLC must form the communication and operational bonds associated with a company in order to provide the best service to the customer. The formation of the LLC (or other method of virtual company formation) must be more than a legality; the processes and intent of the Virtual Company are more important to the ultimate success of the project. Teamwork and communication across company boundaries are critical.
  - **The Team Selection Phase of the life-cycle is critical to the successful formation of a VC-** Members should look for companies with similar business and technical practices and philosophies, including similar policies and procedures. Similar approaches to projects and issues will facilitate the growth of trust and confidence among member companies.
56. Held briefings on the VCLink for reporters George Hohman (Daily Mail) and Jim Ross (Huntington Herald Dispatch) and the WV Development Office (Charleston Sub-center). Papers run a feature article on the VCLink.
57. Received two proposals regarding the VC Manufacturing Solicitation. Two 25K awards were given; one to Nimbl Associates and one to CAM Associates.
58. Held Program Management Review with Ted Lynch, Norm Christensen, John Gaddis, Cathy Rotunda, and Alexandra Amedro on July 21, 1998. Topics discussed at this meeting included: Virtual Company Best Practices System, Test and Evaluation of the Virtual Company Model in Manufacturing Environments, Virtual Company Technology Transfer Activities, and Educational initiatives.

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59. Held meeting with PTAC (Procurement Technical Assistance Center) and RCAC (Regional Contracting Assistance Center) to further establish a collaborative working relationship. This relationship helped promote the economic well being of the region – centered on West Virginia. Two strategies were developed to introduce businesses to the government and commercial arenas:
- **Federal Government Process:** Softshare Federal Government opportunities were screened at PTAC based upon a mutually developed filter designed to focus on opportunities targeted to Virtual Companies. The WVHTC Foundation received these opportunities and posted them in the VCLink homepage. RCAC and PTAC then announced those opportunities to the appropriate companies. Interested companies used the VCLink resources for assistance in preparing a proposal. RCAC and PTAC provided personal services to assist companies in the preparation of responses to RFPs and/or RFQs.
  - **Commercial Process:** Commercial opportunities were located through multiple means. A template was designed and included in the VCLink that commercial companies used to enter their opportunities directly into the VCLink Opportunities Databases. RCAC and PTAC then announced those opportunities to the appropriate companies. Interested companies used the VCLink resources for assistance in preparing a proposal.
60. Created a VCLink Configuration Change Control Board (CCCB) to discuss policies, technical and administrative topics before any major change and/or alteration is made to the VCLink Information Management System. A problem/change request/report system was implemented to track any request. This system was “world wide web” based. Requests were entered into this system by the requester. The request was reviewed and given 1) priority status, 2) tracking number, and 3) request tracking data. Major changes required an estimate of implementation time, cost, and impact to overall schedule. These required the Program Manager’s signature.
61. Met with George Caddy from Concurrent Technologies regarding the design of an “Enterprise Solutions Workshop” to be held in January, 1999. This workshop was co-sponsored by PTAC/RCAC/CTC and the WVHTCF. A survey was developed to find out the business community interests in order to customize this workshop to their needs. Among some of the tracks that we followed were: Managerial/Financial Accounting, Quality Development/Planning/Maintenance, Marketing & Sales, Human Resources, Production Scheduling/Work Flow Control & Inventory and Product Development.
62. Initiated marketing plan with West Virginia University (WVU) to obtain high level of participation by community companies in joining the VCLink. WVU developed a marketing questionnaire and it was mailed directly to several hundred businesses.
63. Made preliminary arrangements to participate in a Small Business Trade Show in Charleston, WV. This Expo provided an excellent opportunity to expose advantages of joining the VCLink to small businesses in WV.

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64. Held a Product Line Engineering meeting at PaxRiver in support of TTWCS effort. PMA extended invitation to accompany them to SPAWAR in September for DII COE meeting to discuss software development.
65. Initiated domain analysis on TTWCS by the Product Line Engineering team.
66. Reviewed and revised Virtual Company Spend Plan for 1999.
67. Placed Resume Database in operation in August 8, 1998. Users can access the database through the internet and input their resume. Each person is in charge of updating and modifying his/her own resume. Users need to update their resume every 90 days, otherwise they will be deleted from the system.
68. Attended the West Virginia Manufacturing Extension Program "***Manufacturing in the Future***" conference in Charleston. Very low attendance. It is very difficult to get manufacturers to come to events. The Virtual Company program took the lead with related providers to coordinate activities to maximize attendance.
69. Held a PMR to review the VCLink homepage. The WVHTC Foundation VC program staff and the contractor team attended this review. Several action items came out of this meeting to improve the performance of the VCLink homepage. Among some of these items were:
  - Get our in-house lawyer to review the VCLink homepage regarding liability issues due to the amount of templates and information stored in the site.
  - Add an introductory paragraph to the Profile and Resume Database pages. This paragraph explains how to use these databases and the importance of keeping the information updated.
  - Delete several graphics such as the VCLink and VC Model graphic that do not add anything to the website but instead confuses the reader.
70. Completed an analysis of the VCLink World-Wide Web Interface by Jerrold D. Prothero, Ph.D. This analysis summarizes some principles and specific knowledge, which may be useful in the development of Human Computer Interfaces from the user's point of view. The typical VCLink WWW user is assumed to have very limited computer experience, and to represent a company of 20 people or less which lacks substantial in-house computer expertise. Their primary interest in the VCLink is to:
  - Learn to conduct business more profitably
  - Gain access to additional business opportunities
  - Receive materials from the VCLink program
  - Search for online information
  - Submit online information
  - Communicate with the VCLink program, or with other users

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- Join the VCLink program
71. Prepared and sent final patent report for VC4.
72. Held an in-house Program Management Review with the Virtual Company Staff to analyze current VC contracts regarding cost, schedule and performance issues.
73. Held a meeting with the TMP, LLC Program Manager to refocus work effort on the VCLink. A meeting was also held with the Presidents of each of the companies that form the TMP team to insure understanding of the effort required and to insure that a single Program Manager was appointed to run the program. These are the tasks that the TMP team worked on for the rest of the project:
- Document and Test (site cleanup)
  - Opportunity Search views
  - Opportunity (Affiliate email attachment)
  - Working (ensure content/completion):
    - Company Profile DB
    - Email Capability
    - *Oracle Installation*
    - Link to Opportunity
    - Resume DB
    - Bulletin Board
    - Opportunity drop
    - Chat Room/Discussion
    - Web Link
    - Feedback Mechanism
    - Program Management
    - Event Registration/scheduling
    - Secure Proposal development
    - Workflow support
74. Held a Program Managers Review at the WVHTC Foundation on September 10, 1998. Attendees to the PMR were Ted Lynch, Roger Duckworth and John Gaddis. Topics discussed at the PMR were:
- VC Spending Status
  - VC Manufacturing Initiatives
  - Technology transfer Activities
  - Education Initiatives
  - VCLink Status
75. Submitted monthly report to Dr. Rispin and Ted Lynch for the month of August.
76. Initiated domain analysis on TTWCS by the Product Line Engineering team

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77. Held a Business Development workshop on “**Breaking Through the Barriers to Growth**” presented by Aldonna R. Ambler, CMC, CSP, on September 1, 1998. Forty people attended the workshop. The presenter demonstrated the classic barriers to growth and presented alternative routes to get beyond the wall that keeps a company from reaching its full profit potential. Strategies such as “get a boost from a strong friend” or “go around the wall” were translated into options such as forming strategic alliances or seeking new channels of distribution. This workshop featured a luncheon presentation by Roger Duckworth on the VCLink. The goal of this presentation was to recruit more companies to populate the Company Profile and Resume Databases.
78. Attended the Appalachian Small Business Expo in Charleston, WV, on September 30 and October 1, 1998. This Expo provided an excellent opportunity to expose advantages of joining the VCLink to small businesses in WV. We demonstrated the VCLink capabilities and encouraged people to register their companies on our database.
79. Appointed Roger Duckworth as new Virtual Company Program Manager who will replace Norm Christensen. Mr Duckworth was Deputy program manager for the DoD short range unmanned aerial vehicle; Deputy director of the Program Executive Office (USN) for cruise missiles and unmanned aerial vehicles; Program manager for the Outrider unmanned aerial vehicle; and. Programmer and analyst for the Army’s \$16 billion RDA program.
80. Advertised on the VCLink Bulletin Board for establishing the VCLink Strategic Advisory Council.
81. Briefed CAM & Associates, one of the manufacturing contractors that will be interacting with the VCLink on a daily basis, on the VCLink features and what it is expected from them to do for the program.
82. Wrote and mailed a modification proposal for the Virtual Company Distributed Manufacturing Demonstration, Navy Leadership in Advanced Manufacturing Process (NAVLAMP). The Foundation provided this proposal for the purpose of requesting supplemental funding in order to capitalize on accelerated successes of the NAVLAMP program to date. For this modification, the Foundation proposed to pursue its VCLink objectives via the following enhancements:
  - VCLink Private Sector Opportunity Identification
  - VCLink Implementation Acceleration
  - Product Line Engineering
  - These proposed tasks are refinements, additions, or enhancements to current NAVLAMP tasks and will conform to the current NAVLAMP schedule.
83. PLE team visited SPAWAR with TTWCS representatives to coordinate DII COE and Command and Control Activities

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84. Obtained several generic Business Plan templates to be added to the VCLink homepage. These templates along with "How to write a Business Plan" template were submitted to the WVHTC Foundation by Lockheed as one of the deliverables from their contract for the support of the VCLink.
85. Attended Tech Fest in Jackson county, Ripley, WV to see the latest in computer and Internet technologies plus free training classes and demonstrations. Roger was the keynote speaker at this event and did a demo on the VCLink. There was a lot of interest in our system and several companies signed up to be part of the profile database.
86. Attended the American Helicopter Society Convention in DC and found out that there is a lot of interest in the PLE program for future helicopter development.
87. Held a Program Managers Review at the ONR facility on October 27, 1998. Attendees to the PMR were David Rossi, Dr. Paul Rispin, Ted Lynch, Roger Duckworth and John Gaddis. Topics discussed at the PMR were:
  - Accomplishments
  - Personnel
  - Financial status
  - Schedule
  - Project 1: Virtual Company Manufacturing
  - Project 2: Product Line Engineering
  - Project 3: VCLink
  - Plans
  - Discussion
88. Submitted monthly report to Dr. Rispin and Ted Lynch for the month of September.
89. Received the following guides and templates from Lockheed Martin to include in the VCLink website:
  - Sample Intellectual Property Teaming Agreement
  - Simple contract
  - Proprietary-agreement
  - Partner agreement
  - Non-disclosure (employee) agreement
  - Non-disclosure (client) agreement
  - Contract Modification
  - Contract Extension
  - Confidentiality Agreement Template

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90. Attended Marion County Business Expo and performed VCLink demo. Several companies signed up to be part of the VCLink Profile database. 60 companies attended the event. There was a lot of interest in our system.
91. Hired Matt McHugh as a software engineer to work in the PLE initiatives. Matt is in charge of providing analysis and support for the Virtual Company Product Line project. Matt has a B.S. in Management Information Systems from the Wright State University.
92. Visited the Rochester Institute of Technology to brief the VCLink and PLE initiatives.
93. Completed final technical and cost report for the Virtual Company Phase IV.
94. Completed Manufacturing solicitation to seek out a minimum of ten companies to assemble their own Virtual Companies in response to an opportunity using the VCLink system. Solicitation was released in November.
95. Contacted all VCLink members and asked them to update their company profile information.
96. Briefed Dr. Hazel Palmer, state director of the WV Small Business Development Center, about the VCLink capabilities for small businesses.
97. Briefed all WV Small Business Directors on the VCLink in Charleston, WV on November 4, 1998. Dr. Hazel Palmer, Director of the WV SBDC invited the VC program to brief all WV SBDC directors at her quarterly management conference. We won their enthusiastic endorsement of the VCLink.
98. Held PMR with VCLink subcontractors (MPL, Tygart and Prologic) to discuss status as related to site development.
99. Submitted monthly report to Dr. Rispin and Ted Lynch for the month of October.
100. Initiated Resume Database Marketing Plan by contacting all WV colleges and universities to let them know about the VCLink Resume Database. Information packages have been mailed to these institutions to be posted in their career services departments.
101. Completed manufacturing solicitation. It was released in December 15, 1998.
102. Attended West Virginia University Career Day and distributed VCLink resume flyers to let students know about the powerful Database we have to post their resumes for free.
103. Created VCLink signs to be displayed at the December Symposium in Morgantown.
104. Created Access contacts database for VCLink marketing initiatives.

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**TASKS COMPLETED IN 1999:**

105. Submitted monthly reports to Dr. Rispin and Ted Lynch.
106. Held 6 Program Manager Reviews on the following dates:
  - February 4, 1999
  - February 19, 1999
  - April 9, 1999
  - July 9, 1999
  - October 1, 1999
  - December 16, 1999
107. Received three proposals on January 15, 1999 in response to the Manufacturing solicitation released on December 15, 1998. The purpose of this solicitation was to seek out geographically and technically diversified offerors who will demonstrate that Virtual Companies can compete for, and win, competitive business. Through this solicitation, the Foundation was seeking a minimum of ten companies to assemble their own Virtual Company in a response to an opportunity. Each of the newly organized virtual companies had to develop and submit a competitive proposal in response to an opportunity. At the conclusion of the period of performance, the Subcontractor submitted a final report describing the lessons learned throughout the process. An overall evaluation of the VCLink was also required. The Subcontractor also submitted a copy of the Virtual Company's final proposal with the final report.
108. Awarded three manufacturing contracts to Aurora Flight Sciences of WV, Inc., CNC Industries, Inc. and Information Research Corporation in response to the Manufacturing solicitation released on December 15, 1998.
109. Eight more companies were awarded contracts under the third and final round of VC manufacturers:
  - Bolyard & Son
  - CAM & Associates
  - CNC Industries
  - D & D Tool
  - Devall Brothers
  - Francis Engineering
  - LM Technologies, and
  - RH & M Machine

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110. Finalized Block 1 and Block 2 work on the development of the VCLink functionality, administration tools, and implementation of new design to provide a better service to the business community and to the navy. The following tasks were accomplished:
- Implementation of VCLink new look
  - Creation of development environment
  - Testing the site
  - Migration of current site to development area
  - Cleaning and documenting the site
  - Designing relational structures
  - Creation of Administration tools to:
    - maintain company profiles
    - search by company name for profile maintenance
    - display company profiles that are over 90 days old
    - Creation of a new area for “New & Hot”
    - Creation of a new area for “Business Resources,” etc.
111. Met with Chambers of Commerce to initiate VCLink partnership.
112. Created a Strategic Advisory Council. Participants from the manufacturing, information technology and services arena provided feedback on how to improve the VCLink website to meet their needs.
113. Finalized and submitted NAVLEAD proposal.
114. Implemented a resume “skills” section to replace the keywords. The skills provide a better way to identify/search for potential personnel.
115. Posted a new improved opportunity section in the VCLink homepage to enable commercial companies to drop opportunities with this user-friendly design.
116. Posted a new improved self-serve bulletin board to post announcements, training events, etc.
117. Updated VCLink “Join” page by adding a short survey to learn the new applicants’ reasons for joining the VCLink. Business Opportunities, Company Database, Resume Database and Tools and Templates have been the categories selected by new applicants as reasons for becoming members of the VCLink.
118. Held meeting with the Procurement Technical Assistance Center (PTAC) and the Regional Contracting Assistance Center, Inc (RCAC) to coordinate efforts to get opportunities posted in the VCLink website.
119. Held meeting with Fairmont Job Service to better link the VCLink resume database with state and local needs.

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120. Submitted letter requesting no cost extension of VC 5 through March 2000.
121. Prepared promotional letter for VC Manufacturing grant. 186 letters were mailed to WV manufacturing companies letting them know about the \$10,000 manufacturing solicitation released on March 15, 1999. The objective of the solicitation was to test and evaluate the usefulness of the VCLink in the formation of virtual companies.
122. Company profile membership grew from 114 companies in January to 360 companies by December.
123. Registered domain name for IBIP (Internet Business Information Portal).  
[Http://www.ibip.org](http://www.ibip.org)
124. Received an unsolicited proposal by Kim Larew, president of Northco, LTS to market the VCLink to manufacturing firms throughout the state.
125. Met with Dr. Hazel Palmer, director of the Small Business Development Center in Charleston, WV to revise the VCLink strategy to get manufacturing companies to join our database.
126. Traveled to Elkins, Shepherdstown, and Flatwoods counties in WV to demonstrate the VCLink capabilities and provide training on the use of the Internet and the VCLink to small businesses.
127. Scheduled workshops with the Small Business Development Centers in Charleston, Beckley, Wheeling, Elkins, Logan, Huntington, Flatwoods, and Oak Hill WV to market the VCLink capabilities to small businesses.
128. Attended Teaming To Win Conference and set-up a VCLink booth. Key contacts were made with procurement officials from DOD, HUD, WVU, and FBI.
129. Mailed out 50+ letters to Chambers throughout the state regarding a VCLink demonstration. Received positive answers.
130. Attended the Business in the New Millennium Expo in Canaan Valley, WV to demonstrate the VCLink.
131. Attended Contracting Trade Fair in Mars, PA.
132. Held VCLink demo focusing on the resume database for 10 WV colleges and universities at the WVHTC Foundation facility.
133. Attended the Software Technology Conference in Utah. Set up booth displaying the Virtual Company Product Line project as well as the VCLink program. 3000 attendees with more than 200 exhibiting vendors

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134. Registered with the NASA procurement web site to have opportunities from Goddard, Langley, and NASA Ames e-mailed to the virtual company team to be displayed in the opportunities section of the VCLink homepage
135. Traveled to Canaan Valley to demonstrate the VCLink to the State Job Service Managers at their quarterly meeting. Presented a 30 minute VCLink demo of the new site. The WV State Job Service was highly impressed with the VCLink and they have initiated additional meeting and opportunities to market the VCLink.
136. Wrote a Virtual Company article to be published in the Charleston Daily Mail Business insert the last week of May, the Innovator, an online magazine published by the WVHTC Foundation, and the WV Career Service Center quarterly newsletter
137. Hosted the International Virtual Company Conference in Charleston, WV. There were 57 registered attendees who provided very high ratings on our performance survey.
138. Exhibited VCLink at SBA Y2K awareness seminar in our facility on June 16, 1999.
139. Attended NASA Symposium at West Virginia University on June 21, 1999. Set up booth displaying the VCLink program.
140. Mailed "Teaming Letter" with the SBDC to initiate another round of VCLink workshops with the SBDC regional offices, offering a full day workshop for SBDC directors and cash paid to the SBDCs for people that attend the workshops and meet the requirements laid out in the letter.
141. Met with the Service Corps of Retired Executives (SCORE). They have agreed to answer questions from "Ask the Expert" section in the VCLink.
142. Mailed letter to the top 500 businesses/hospitals/etc in WV to do business in "West Virginia First" to get more opportunities in the VCLink.
143. Demonstrated the VCLink system to Sarah Townsend of WV State Job Service (Charleston) on June 11, 1999. She traveled to our facility and brought with her a total of six people including the assistant director of WV Bureau of Employment Program to discuss further uses of VCLink.
144. Attended the Technology Conference and Exposition in Charleston, WV on June 27-30, 1999. The WV Unified Network, Governor's Office of Technology, WVNET and Information Services and Communications sponsored this conference. It ran concurrently with the Governor's Southern Growth Conference.
145. Completed and posted IBIP help files in our website. These files teach users how to use all the sections of the homepage through step by step instructions and screen captures.

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- 146. Added new section in our website called **NEW AND HOT**. This area lists company profiles, resumes, bulletins, and opportunities added in the last seven days.
- 147. Demonstrated the VCLink to the WV Development office. They have agreed to assist with the promotion of VCLink to their client base that includes large manufacturing companies.
- 148. Developed “Chambers of Commerce” Strategy to get WV chambers to support the VCLink system. The strategy consists of an initial letter, followed by visits to the different chambers and a demonstration in December to all WV Chamber members.
- 149. Attended WV Chamber Summit at The Greenbrier on September 1-3, 1999. Excellent contacts with the Benedum Foundation, the WV Chambers of Commerce and the WV Manufacturing Association.
- 150. Attended the WV Economic Development Council conference on September 20-21, 1999.
- 151. Extended Manufacturing solicitation to December 31, 1999.
- 152. Attended “The Marion County Business Expo” to display the VCLink booth and be part of a panel discussion on Internet communications in Fairmont, WV on October 7, 1999. Good event for “local networking”.
- 153. Conducted a demo of the VCLink to 25 people at the Peoples Marketplace in Charleston , WV in October 25 and 26, 1999. Attended a Cyber cafe to demo the VCLink on a one-to-one basis.
- 154. Improved VCLink site to excellent rating regarding downloading time, popularity and design.
- 155. Attended Tech-East at Miami (Nov 1 – 4, 1999) to garner VCLink opportunities.
- 156. Attended IOF conference in Flatwoods, WV (Nov 17, 18 and 19, 1999) to increase VCLink membership.
- 157. Added several templates from the SBA and IRS CD “*Small Business Resource Guide*” to the “Tools and Templates” section of the VCLink.
- 158. Created a mail campaign to increase commercial opportunities on the VCLink site.
- 159. Attended the “West Virginia Association of Career and Employment Professionals” Fall Conference in Flatwoods to demo the VCLink.
- 160. Attended the WV Chamber of Commerce Conference to do a VCLink presentation on December 13, 1999.

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- 161. Presented VCLink at "Business after Hours" at ComputerTech in Fairmont.
- 162. Received new server for VCLink. 600 Mhz Pentium IBM server with 3 - 9.1 gigabytes of memory.
- 163. Created and mailed 500+ VCLink membership drive letters.

**PRODUCT LINE ENGINEERING ACTIVITIES:**

- 164. Reviewed Program Operating Guide (POG) for Cruise Missiles
- 165. Purchased MOREPLUS repository software and installed at NSWC, Dahlgren, VA.
- 166. Attended TCS CDR at Pax River from March 9 –11, 1999.
- 167. Received Phase I SBIR option funding.
- 168. Submitted TCS Training documentation for SBIR Phase I Option.
- 169. Finished writing the TCS Policy and Procedures Manual.
- 170. Submitted SBIR Phase II proposal as part of Prologic team.
- 171. Installed Linux on the server and moved the TCS Repository over to the secure server at the Naval Surface Warfare Center Dahlgren Division.
- 172. Completed TCS Repository installation with MOREPlus.
- 173. Completed TCS matrix for Virtual Company Product Line effort.
- 174. Integrated Hypernews, which is a free collaboration tool into the domain knowledge repository for the PLE project.
- 175. Attended the Land Attack Integrated Product Team meeting at Dahlgren on July 1, 1999.
- 176. Provided PLE briefing to Captain Lyman, PMA-282 on PLE progress for ATWCS/TTWCS.

**TASKS COMPLETED IN 2000:**

Manufacturing Subcontracts:

- 177. Received the final closeout documents for the CNC Industries manufacturing solicitation award.

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178. Completed a newspaper article announcing the successful proposal CNC Industries submitted to the South Carolina Research Authority. This article was sent to newspapers in Charleston, Clarksburg, Fairmont and Morgantown as well as The State Journal.
179. Accepted RH& M Machine's request for an extension to their VC Manufacturing award until July 31, 2000.
180. Received final deliverable from LM Technologies regarding their manufacturing contract. Their tasks were to (1) find a commercial or government opportunity; (2) form a virtual company to pursue the opportunity and (3) evaluate the VCLink website.
181. Closed-out the two remaining manufacturing contracts to R& H Machine and Bolyard and Sons, Inc. due to expiration of the period of performance. Twelve companies were awarded manufacturing contracts to look for an opportunity, form a virtual company, and bid on their opportunity.

**VCLink System:**

182. Company profile membership grew from 360 companies in December 1999 to 590 companies in December 2000.
183. Approximately 540 businesses, colleges and universities, state and local governments were contacted to request them to post commercial opportunities on our website.
184. Marshall University, Fairmont State College, West Liberty State College, WVNet, and the National White Collar Crime Center started to post commercial opportunities on the VCLink site.
185. Sent out mailing of 1800 letters inviting companies to join VCLink.
186. Edited and added several templates from the WVHTC Foundation internal policies to the VCLink tools and templates section.
187. Searched hundreds of WWW Sites for:
  - Business Plan Templates
  - Business Information Sites
  - Education and Training Sites
  - Local, State and Federal Government Sites
  - and West Virginia specific sites for users to link from VCLink Site -Focusing on linking to the data rather than maintaining actual forms on our server.
188. Received permission from John Owen of the National Energy Technology laboratory to copy and paste opportunities from their website to the VCLink. The website is <http://www.netl.doe.gov/business/solicit/index.html>

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189. Sent letters to all of the agencies listed in the “Major Federal, Civilian and Defense Purchasing Offices in WV” asking them to post opportunities on the VCLink. A total of 32 agencies were contacted.
190. Posted 300 business opportunities in the VCLink site. Automatic emails were sent every week to the companies whose keywords or SIC codes matched the opportunities.
191. Prepared a list of possible competitors for VCLink like site for HUBS.
192. Created a VCLink ad to be published in the WV Executive magazine in the Fall 2000 edition.
193. Resubmitted VCLink website to search engines.
194. Joined Barnes and Noble, priceline.com and staples affiliate programs and added their banners to our website.
195. Created section in our website to promote WV Jobs and to post testimonials.
196. Updated Help and FAQ sections in the VCLink site based on new changes in design and new addition done during the month of July and August.
197. Updated all the templates of the VCLink website.
198. Created generic versions of: Letter of Regret, At-Will Agreement, Employment Contract, Employment Reference Check and included them in the tools and templates section of VCLink website.
199. Created new design for tools and templates section.
200. Completed generic version of HR manual and posted it in the VCLink site.
201. Loaded and updated a generic personnel manual and more than 20 new human resources forms to the Downloads area of the VCLink website.
202. Updated VCLink Resource hyperlinks.

**Meetings and Conferences:**

203. Attended CeBIT 2000 (Hannover, Germany) Feb 21 - Mar 2, 2000 to exhibit the VCLink system. CeBIT is the world's largest trade show for business technology. Each year more than 7,000 companies from 70 countries gather in Hannover to showcase their offerings to more than 650,000 attendees.

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204. Attended Fairmont State College job fair to promote the VCLink Resume database. Trained students and career services people on how to use our Resume database and talked with other companies about joining the VCLink.
205. Attended the following tradeshows/Symposiums:
  - Teaming to Win on April 18 and 19 in Oglebay, WV.
  - Fairmont State College Career Day on April 18, 2000.
  - The 31st Annual Hand Glass Symposium on April 28, 2000 in Oglebay, WV.
206. Made arrangements to exhibit the VCLink in the "***Leadership in a New Economy***" conference sponsored by the Southern Economic Development Council, Inc in Charleston, WV. The theme "Leadership in the New Economy" focused on fresh perspectives and the challenges economic developers face as they keep pace in the new era of information technology.
207. Attended Fairmont Job Service Employer Committee (JSEC) meeting on June 28,
208. 2000 to demonstrate the VCLink system.
209. Attended meeting with Dr. Da Hsuan Feng of SAIC on July 31st to discuss next steps in VCLink and HUBS collaboration. Dr. Feng wanted the Foundation to setup meeting(s) with WV state groups that may be interested in the initiatives being worked under the HUBS program.
210. Attended the HUBS Symposium held at the University of Pennsylvania on August 1<sup>st</sup>. Its focus was on "Economic and Intellectual Impact of the Next Generation Network."
211. Hosted planning session with HUBS representatives to brainstorm about collaboration strategies on May 9, 2000. The following specific action items where the result of this meeting:
  - Identify regional business communities that could receive a "VCLink-like" site
  - Develop list of functions to add to the IBIP
  - Who are the perceived competitors
  - Geographic relationships, optimal spread to strategically place VCLink-like sites
  - Success Stories
  - Identify prime new areas for new VCLink sites
  - Awards for successful sites [later]
  - Determine scalability factors as we deploy VCLink-like sites
  - Plan a visual enhancement to the site
  - Financial projects and costs

**Administrative:**

212. Submitted monthly reports to Dr. Rispin and Ted Lynch.

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- 213. Conducted two program manager reviews in our facility on the 4th of April with Mr. Ted Lynch and on the 25th of April with Dr. Rispin and Mr. Ted Lynch.
- 214. Created a slide for Dr. Rispin and Ted Lynch about the VC program and how this program has helped the Navy expand its supplier base.

**TASKS COMPLETED IN 2001:**

- 215. Conducted ONR PMR on May 16, 2001 in our facility. Attendants included: Dr Paul Rispin (ONR); Mr. Bruce Thompson (ONR); Ted Lynch; Jim Estep, Roger Duckworth, John Gaddis, Alexandra Amedro, Jo Ellen Markley, Anna Rittenhouse, and Preston Miller. The meeting started by an overview of our Organization by Jim Estep; followed by introductions and VC program history by Roger Duckworth; VCLink presentation by John Gaddis; and future program directions by Roger Duckworth. Mr. Thompson gave positive comments and stated that funding for VC6 was going to be released within the next two weeks or sooner. Mr Thompson requested VCLink information about tangible impact of the program with success stories.
- 216. Provided Legal documentation to Mr. Thompson on VCLink ownership information, trademark and service mark on May 17, 2001.
- 217. Posted 126 new business opportunities in the VCLink site. Automatic emails are sent every week to the companies located in our database whose keywords or SIC codes match the opportunities.
- 218. Hired VCLink computer programmer and graphics intern to enhance VCLink website.
- 219. Added TechComm21 “West Virginia Commercialization Initiative “ to new domain at (<http://www.techcomm21.vclink.net>) with connectivity to VCLink.
- 220. Redesigned the following pages in our website: Home, Company profile, Opportunities, Resumes, Bulletin Board and WV Jobs. These enhancements of the website have decreased the load time of pages and increased its user friendliness
- 221. Exhibited the VCLink at Teaming to Win (May 30, 31 and June 1, 2001) with multimedia slide show display created in house. Also, hosted the Teaming to Win 2001 Career Expo (June 1, 2001).
- 222. Wrote VCLink accomplishments from the inception of the program in 1993 throughout 2000 and mailed it to Mr. Bruce Thompson.
- 223. Attended “Adding Profit with Internet and eCommerce Applications” (June 7, 2001 from 9:00 - 11:30 a.m. at the Erickson Alumni Center in Morgantown.

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- 224. Ordered two servers for VC: (Compaq Proliant DL580 rack mount servers - 700Mhz Intel Pentium III Xeon processor w/ 2GB RAM, 3 - 18G hard drive in Raid configuration).
- 225. Ordered tape back-ups (40/80G) and operating systems (Win2000).
- 226. Exhibited the VCLink at the Navy R & D conference in Washington DC, August 13 – 15, 2001.
- 227. Conducted ONR PMR on September 18, 2001 in our facility. The following people attended the PMR: Ted Lynch, Roger Duckworth, John Gaddis, Jay Conaway, Scott Hofer, Jo Ellen Markley, Anna Rittenhouse, Nora Myers and Alexandra Amedro.
- 228. Added feedback form to VCLink website so users can contact us to request lost username and passwords, provide comments for site improvement, report problems, let us know of good news, etc.
- 229. Finalized Software Requirements Specifications (SRS) for the Virtual Company (VCLink) system. The contents of this SRS highlight the useful aspects of functionality of the current prototyped VCLink system. This SRS, however, also contains the added, or improved, functionality that is necessary to allow the VCLink to become a hardened software product that goes beyond the current prototype concept.
- 230. Exhibited WVHTC Foundation organization with VCLink/WVJobs/NPLACE/Taylor-VA at Airshow (Sept 9, 2001)
- 231. Had a demo on Opportunities Web Crawler to Mr. Ted Lynch.
- 232. Added an informational section on the HUBzone and 8(a) certification programs under the company profile website area.
- 233. Participated on teleconference with representatives from NTAPP, Roger Duckworth and Ted Lynch.
- 234. Met with Tom Mahoney from WVMEP (Manufacturing Extension Partnership) to discuss completed market survey and need assessment for the inclusion of ASP functionality to our website.
- 235. Exhibited VC booth at Marion County Chamber of Commerce Business Expo at: Westchester Village in Fairmont (October 4, 2001).
- 236. Traveled to CTC, Johnstown, PA office. They are interested in doing some technology transfer. Discussed possible "After Roundtable" information events. Could be a good resource for Supply Chain integration. Took a tour of the facility
- 237. Began designing work on database for generic system.

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238. Participated in a “Tech Fair” at Hagerstown Community College on November 16 from 9:30 – 11:30. The “Tech Fair” provided a venue for high-technology companies, academia and government agencies located in or near Maryland’s 6th Congressional District to network and discuss their products and services. This event also provided an opportunity to showcase the VCLink.
239. Looking into Chief Information Officers Council and the National Association of State CIOs who are sponsoring a project to develop a proof of concept for a small business registration portal. It will allow small businesses to electronically register and obtain licenses and permits from federal, state and local governments. Checking to see if VCLink could be considered as a resource. The prototype is being developed by Vector Research Inc. of Ann Arbor, Michigan., under a \$100,000 grant from the General Services Administration's FirstGov.gov site.
240. Teleconferenced with Navy Technical Assistance Pilot Program (NTAPP) Dona Storey - Quality Technical Services (QTS), Prime Contractor located in Virginia Beach, VA ... Along with Ted Lynch in Washington, DC... NTAPP's mission is to help small businesses increase technical proficiency and improve corporate infrastructure through innovative methods of teaching and coaching. Ted will follow up with the current NTAPP program officer to see if further discussions are warranted.. Ms. Storey was please with the VCLink system and said that she would do whatever she could to see if VCLink and NTAPP could work together to get a system field for NTAPP.
241. Wrote and mailed to ONR officers the VC quarterly report.
242. Completed quad chart write-ups in response to BAA announcement. Anti-Terrorism Technology Broker System (ATTBS).
243. Attended Industries of the Future, 5<sup>th</sup> Annual Symposium in Charleston, WV, Dec.5 and 6, 2001
244. Completed a preliminary design on generic database and began working on traceability matrix for VCLink conversion.
245. Researched SQL on triggers and procedures and wrote first triggers and stored procedures in SQL server, along with working on security design.
246. Developed "Powered for the Future" Banner and link (using keyword "Powered4Future") for Upcoming NETL and WVDO workshops. This banner will use the VCLink's Company Database as engine for capabilities of interested parties. The Banner/Link will be used for identifying organizations that are interested in teaming for DOE opportunities.
247. Established as a leader of WV's commercialization initiative through the following efforts: established a commercialization process, set up testing platforms, set up funding

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for clients, organized marketing efforts, formed strategic partnerships, and created first version of TechComm21 website.