2007 Innovations Awards Program
APPLICATION

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ID # (assigned by CSG): 07-S-23VASPIDeR

Please provide the following information, adding space as necessary:

State: **Virginia**

Assign Program Category (applicant): **Health and Human Services**

1. Program Name: **SPIDeR- Systems Partnering in a Demographic Repository**
2. Administering Agency: **Virginia Department of Social Services**
3. Contact Person (Name and Title): **Alex Piven, Program Manager**
4. Address: **7 North Eighth Street**
   Richmond, Virginia 23219
5. Telephone Number: **(804) 726-7784**
6. FAX Number: **(804) 726-7485**
7. E-mail Address: **alex.piven@dss.virginia.gov**
8. Web site Address: **http://www.dss.virginia.gov/**
9. Please provide a two-sentence description of the program.

   Systems Partnering in a Demographic Repository (SPIDeR) is a unique Web-based system developed by the Virginia Department of Social Services (VDSS) to increase government efficiency and improve citizen service. SPIDeR enables data sharing between private and government partners through virtual system integration and 360 degree data sharing.

10. How long has this program been operational (month and year)? Note: the program must be between 9 months and 5 years old on April 2, 2007, to be considered.

    The program was piloted in February, 2005. Statewide use began in July, 2005.

11. Why was the program created? What problem[s] or issue[s] was it designed to address?

    The Virginia Department of Social Services (VDSS) programs are state supervised and locally administered by 123 local departments of social services (LDSS). This diverse environment supports a variety of local technologies and applications in addition to the state systems.

    To address this business problem and improve service to citizens and support for LDSS, VDSS developed a unique Web-based system, SPIDeR (Systems Partnering in a Demographic Repository).

    SPIDeR enables seamless data sharing between diverse government agencies at state, local, and federal levels, as well as private vendors. It is based on two basic concepts: virtual

system integration and 360 degree data sharing. These features enable authorized and willing partners to easily exchange information.

VDSS has multiple legacy systems based on a variety of technical platforms. Most of the applications use different customer case and client identification numbers. Customer demographic data (such as name, address, and date of birth) is often different among the various systems due to data entry errors and other reasons. This makes it difficult to identify whether the same customer has applied for benefits in the same or other social services programs.

Three primary systems support Benefit Programs, Family Services, and Child Support Enforcement. These systems reside in three disparate technologies with limited real-time interfaces. In addition, up to 10 other systems are searched or used when a new customer is added. As a result, the case worker spent an inordinate amount of time entering duplicate data and searching for information among these and other systems. Clients of the local departments of social services were not being served in an efficient or effective manner since needed information often could not be shared due to technical constraints.

Additionally, some customers can be involved in multiple cases, which may include other members of their families (such as children) or households (such as roommates). Prior to SPIDeR it was difficult for field staff to identify individuals who applied for benefits in the past, determine current demographic information or identify fraud.

12. Describe the specific activities and operations of the program in chronological order.

SPIDeR's unique ability to facilitate efficient data searches and its capacity to provide a 360 degree data exchange makes the system extremely versatile. Below are examples of operational uses of the system.

User of system "A" is preparing to enter a client record into the system. Rather than keying the data from scratch, the user invokes SPIDeR's search functionality without leaving the native system. The search is facilitated by SPIDeR's web services. Within seconds records from a dozen systems are returned back to the user. He or she can select one record, chose to modify it, and store it on system "A's" database. The data is also published to SPIDeR's database real time making the information available to all other authorized parties. This functionality minimizes unnecessary duplicate data entry and associated keying errors as well as user frustration. Since each system has control of their own records stored on the SPIDeR's database, data ownership issues are avoided.

A fraud worker is investigating a potential fraud situation. Utilizing SPIDeR's User Interface (UI) he searches all systems for the client suspected of fraud. The information the fraud investigator receives includes case data, as well as all aliases and SSNs used by the client in each of the systems. This functionality enables the investigator to detect if the client has applied for benefits in multiple localities, misstated their income, used fake SSNs or fraudulently received benefits.

A client walks through the door to apply for food stamps. Using SPIDeR's UI, a screener searches 13 systems for all benefits and services the client currently receives, as well as their resources and income. The information enables the screener to instantly verify clients SSN, name, date of birth, income, vehicle information, etc. The information is passed on to the eligibility worker who uses SPIDeR's drill down functionality to retrieve the client's composite profile. The profile contains case level information on benefits and services client and their family members receive. This information aid the worker in determination of eligibility.

13. Why is the program a new and creative approach or method?

SPIDeR provides comprehensive data sharing capabilities through *virtual* system integration. By design, SPIDeR is software and hardware neutral and is able to transcend government boundaries in its pursuit of client data within disparate systems. SPIDeR enables its 7,000 users to easily find data in 13 state, federal, and private company databases. Since the same records are manually keyed into each system, the quality of data is far from perfect. Names, dates of birth, addresses, and Social Security numbers may be different in each system for the same client. Data in the SPIDeR's demographic repository is published real-time by VDSS' own applications. SPIDeR's Master Customer ID (MCID) algorithm is used to effectively match clients from disparate systems and assign common identifiers to their records. The algorithm is able to match records even in cases where the information does not match exactly. For example, the algorithm takes into account common keying errors (i.e. transposition of month and date in the date of birth field) and is able to produce accurate results. This functionality also makes reconciliation and cleanup of client data possible.

SPIDeR is comprised of the following components:

- **LDAP (Lightweight Directory Service Protocol) – allows for a secure single point of authentication and authorization. LDAP gives local Security Officers full control over their users' access privileges. Access to various systems is granted based on local policies, Memorandums of Understanding with partner organizations, and policies of VDSS system owners. SPIDeR's LDAP accounts make workers' tasks much easier since single, individual user IDs can be used for inquiry in disparate systems.**
- **Web-based User Interface (UI) – a simple and intuitive Web user interface allows local workers to quickly find records from all partnering systems.**
- **SPIDeR Web Services – facilitate efficient data exchange. Web services provide partner users with the flexibility of using their own front end and/or batch processes to retrieve information in a seamless fashion.**
- **Master Customer ID (MCID) – ties together client records and is utilized by the drill-down function (see below). The MCID also enables more effective fraud investigations.**
- **Drill-down function – enables a SPIDeR user to retrieve his or her client's comprehensive profile which includes all programs, all services, and all resources across all cases relevant to the clients and their family members. This information also incorporates pertinent Child Support information, verification of demographic data by the Social Security Administration, vehicle information provided by the Department of Motor Vehicles, Employment data retrieved from the Employment Commission and a private third party vendor, as well as Medicaid information provided by the Department of Medical Assistance.**
- **Application Database – contains common client demographic information and a common client identification algorithm that ties records together. SPIDeR's database contains over 5 million client records from VDSS publishing systems. Each system has total control over its own data which prevents data ownership problems.**
- **Listener programs at partner sites – enable fast and secure retrieval of information. Listener programs provide a secure real-time interface to legacy data. The amount and content of information available for retrieval is restricted only by system owners' policies. Policy rules are reflected in and enforced by the legacy listener programs. This**

guarantees that laws and regulations governing security and privacy of client information within a particular system are under the full control of the rightful owners of the data.

- **Detailed audit trail – records information on all inquiry transactions. SPIDeR has a built-in audit trail that keeps track of all transactions. The audit trail records LDAP accounts, worker names, IP addresses, date/time stamps, and search criteria used for inquiries. The availability of this information enables authorized personnel from local agencies, VDSS Home Office, and partnering systems to validate that SPIDeR is being used for business purposes and that search activities are consistent with existing policies, agreements, and regulations. Audit trail information is available upon request or through an on-line inquiry subsystem.**
- **System Health utility – provides problem detection and notification capability. Given the large number of SPIDeR interfaces, it is imperative to quickly detect and address communication and performance issues. SPIDeR's homegrown "System Health" utility detects problems, notifies support staff, and automatically takes non-responding interfaces off-line. The utility continues to monitor status of the impacted interfaces and turns them on when the underlying systems become available. This functionality prevents unnecessary use of system resources and enhances user experience.**

14. What were the program's start-up costs? (Provide details about specific purchases for this program, staffing needs and other financial expenditures, as well as existing materials, technology and staff already in place.)

    The initial development and pilot deployment costs were $300,000. To keep costs at a minimum, SPIDeR leveraged existing software, hardware and many existing staff resources. The project was responsible for setting up an enterprise web infrastructure, which was leveraged by all subsequent projects. Only three new Java developers were added as a result of the project.

15. What are the program's annual operational costs?

    Operational costs are between $10,000 and $20,000/year.

16. How is the program funded?

    A combination of state and federal funds was used.

17. Did this program require the passage of legislation, executive order or regulations? If YES, please indicate the citation number.

    No

18. What equipment, technology and software are used to operate and administer this program?

    The hardware and software used on the project includes: Fujitsu PP1500 server, Java, J2EE, WebSphere, Oracle, UNIX, LDAP and "homegrown" utilities.

19. To the best of your knowledge, did this program originate in your state? If YES, please indicate the innovator's name, present address, telephone number and e-mail address.

This initiative originated at the Virginia Department of Social Services. Alex Piven was responsible for initiating, marketing, and directing the project. Contact information: Alex Piven, 7 N. 8th St. Richmond, VA 23229 804 726-7784; alex.piven@dss.virginia.gov

20. Are you aware of similar programs in other states? If YES, which ones and how does this program differ?

    Other states have programs that are capable of searching for client data. SPIDeR's distinguishing characteristics are as follows: ability to match client records and assign common IDs and ability to seamlessly share data between partnering applications. Whereas systems in other states focus on the user interface, SPIDeR's user interface is provided as a bonus.

    SPIDeR's web services enable end-to-end system integration regardless of the software and hardware used by the other partners. For example, a worker of a SPIDeR partner system can utilize web services to search for client information in all partner systems without having to leave the native application. SPIDeR's web services enable localities, other departments within the state, and federal agencies to seamlessly and efficiently share information with each other.

21. Has the program been fully implemented? If NO, what actions remain to be taken?

    The program has been fully implemented. Today SPIDeR interfaces with 13 internal and external applications at state, federal, and private sector systems. New interfaces and functionality will continue to be added based on business need.

22. Briefly evaluate (pro and con) the program's effectiveness in addressing the defined problem[s] or issue[s]. Provide tangible examples.

    SPIDeR has had an extremely positive impact on efficiency and effectiveness by allowing users to realize tremendous improvements in their processes and procedures. Through SPIDeR, operations, system administrators, internal and external partners, quality control staff, and auditors have become far more productive.

    Prior to implementation, it took a screener 10 to 30 minutes to access data from disparate sources for a multi-member household; many queries required a separate logon and password. The lengthy process resulted in frustration for both the worker and the citizen. SPIDeR provides information from a greater number of sources in less than three minutes – a tremendous gain in productivity.

    Additionally, SPIDeR automatically matches records from various systems and provides a composite client profile. Previously this activity required a significant amount of redundant manual work. Localities are reporting significant time savings compared to the old process.

    The need for multiple logons puts a tremendous burden on system administrators at all levels. Local administrators and those at partner organizations had to create and maintain user accounts and associated paperwork. Due to complicated logistics of routing security requests, it sometime took days to set a user up with the necessary permissions in all systems. At the same time, the user community had to manage periodic password changes on their many accounts.

    SPIDeR has substantially reduced this bureaucratic process. A single form is filled out by the user, approved by the director, and the user is set up in LDAP with a single logon.

Subsequently, the user has to change only one password. Partner organizations no longer have to be involved in the user administration process. Additionally, audit trail capability that did not exist prior to SPIDeR, provides partner organizations with greater control; they now are able to monitor usage of their data and take corrective actions if necessary.

SPIDeR's real-time interface with Social Security Administration has gone a long way to replace a batch process which involved a 24-hour turn around. The new functionality has greatly expedited the delivery of benefits as the search turn around is now instantaneous.

An 18-months outreach marketing strategy included over 100 presentations and training sessions across the state at local offices, conferences, and local Director and league meetings. A SPIDeR focus group was established to represent users across the state, and all interested localities were invited to join. The focus group, which interacts on a bi-weekly basis, has become an integral part of SPIDeR initiatives. The group provides valuable input pertaining to system functionality and gives guidance on task prioritization. The close partnership between the state and the local members has contributed significantly to the success of the project and provides benefits to all stakeholders.

23. How has the program grown and/or changed since its inception?

SPIDeR's current usage rate is exceeding all expectations. When SPIDeR was implemented statewide in July of 2005 the number of users, representing a handful of the localities, was around 100. SPIDeR's user base has increased dramatically since then. Currently, there are nearly 7,000 users of SPIDeR's User Interface (UI), representing 145 local and district offices. Productivity gains experienced by the individual workers multiplied by the number of workers expected to use the system has resulted in a substantial gain in efficiency.

24. What limitations or obstacles might other states expect to encounter if they attempt to adopt this program?

Every state has its own unique requirements. SPIDeR's modular design makes it easy to adopt and modify. While state specific interfaces would require creation of additional modules, the core functionality and several interface components (i.e. interface with Social Security Administration and Work Number) can be deployed with minimal effort.

2007 Innovations Awards Program
Program Categories and Subcategories

Use these as guidelines to determine the appropriate *Program Category* for your state's submission and list that program category on page one of this application. Choose only one.

Infrastructure and Economic Development
- Business/Commerce
- Economic Development
- Transportation

Government Operations
- Administration
- Elections
- Public Information
- Revenue

Health & Human Services
- Aging
- Children & Families
- Health Services
- Housing
- Human Services

Human Resources/Education
- Education
- Labor
- Management
- Personnel
- Training and Development
- Workforce Development

Natural Resources
- Agriculture
- Energy
- Environment
- Environmental Protection
- Natural Resources
- Parks & Recreation
- Water Resources

Public Safety/Corrections
- Corrections
- Courts
- Criminal Justice
- Drugs
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CSG Innovations Awards 2007
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This application is also available at www.csg.org, in the Programs section.

Deadline: April 2, 2007