

# Child Welfare Technology Research Project

## Overview

The primary objective of phase 1 of this research project was to conduct a technology environmental scan of the child welfare industry. The scan focused on four areas: 1) SACWIS Systems; 2) Non SACWIS Case Management Systems; 3) Ancillary Technologies, and; 4) Information and Analysis Systems. This goal of the research is to help identify key technology issues and opportunities within child welfare for AECF and the industry as a whole, on a strategic and tactical level.

This project builds the foundation for additional R&D with leading technologies as well as the testing of various theories and models.

## Introduction

To understand how organizations use information technology (IT) within child welfare, one must first define two issues: 1) the type of organization using technology, and 2) which part of IT is being analyzed - the information or the technology. The data (knowledge) you choose to capture, analyze and report on is what creates the value of any human service IT system. The hardware and software are only tools used to record and display that valuable data. Each requires its own distinct set of metrics for evaluation.

There are six unique entities (federal, state, county, agency, supervisor/case-worker and child/family) within child welfare that can or should use technology. To comprehend the intricacies of technology in child welfare it helps to follow the data trail from the top aggregator of data (the federal government) to the community-based organizations that deliver care. By following the data trail in this manner, key issues, challenges and possible opportunities for improvement become more apparent.

Some of the key learning that came out of this research includes:

- The design, architecture and challenges of select SACWIS systems
- The use of third party non-SACWIS case management systems
- Innovative strategies, applications and technologies
- AFCARs and NCANDs data sets
- The development and use of data stores and supporting reporting systems
- Trends such as web based, mobile, multi-channel access architecture
- Electronic data transfers using 'Extensible Markup Language (XML) and data dictionary integration
- Predictive modeling using business metrics/analytics
- Implementation and training issues and challenges

## Background

The technology employed within child welfare is truly as diverse as the populations it serves. Today, there are literally hundreds of different strategies and systems in use, attempting to solve the same child welfare technology objectives of delivering usable information to the right person, at the right time, in the right place. Over the past few years, state of the art technology solutions designed for the child welfare industry have begun to be implemented - but those systems are far and few between.

The use of technology within child welfare is generally still about a decade behind the business sector. It is estimated that about \$2.8 billion have been spent on child welfare technology since 1996. So why has the

investment in child welfare technology not generated the quality and productivity gains seen in similar technology investment in the private sector during the same timeframe?

Most experts agree that the ineffectiveness of technology in child welfare stems from the historic approach of technology in government, including the protection of departmental budgets, ownership issue and disparate priorities. The pedigree and heritage of IT as a “transactional discipline” within government has caused also caused a disconnect between what was developed and what was needed. The reality is that SACWIS systems are more complex to build than earlier eligibility systems (IVA/ TANF, IV-D/CSE and title XIX/Medical Assistance) which were more check off/compliance technology systems.

### **Pre SACWIS Architecture and ‘Siloization’**

The principle reason for technology’s inability to significantly improve outcomes dates back to the 1970’s, when the large consulting firms hired by governmental agencies developed computer systems that were transactional powerhouses. They were designed using punch card technology from decades earlier. These systems did exactly what they were designed to do...collect and report data. In some instances, these legacy systems are still in use today, but most have been upgraded to 1990’s hardware and beyond.

A secondary reason for the limited success of technology to improve productivity and outcomes in child welfare has been the siloization of technology within state governments. Each department, TANF, Juvenile Justice, Medicaid, etc. has created independent and duplicative systems that must be navigated by workers to provide comprehensive services to children and families. For example in some states there are as many as 5 eligibility systems. These fiefdoms are huge bureaucracies focused on delivering their services, and are evaluated as such. There is little incentive, on top of the perceived risk, to provide integrated services. The next phase of improvement for human service technology depends on the coordination of services. In too many systems today, the current use of technology creates duplication, incompatibility and complexity undermining the care for families.

## **Microsoft HHS Strategy Paper**

“Solutions to these problems require coordination across departments and political boundaries, but many of these entities are disconnected. Multiple legacy systems that support services to the same persons or families have often been built without reference to one another. Clients may be served by multiple agencies that are unaware of each other’s involvement. High-risk predictors may come to the attention of one program and not be shared with another. Changes in a client’s life circumstances, such as incarceration or employment, may be captured by one program but not another. As a result, crises occur that might be averted; state and local governments fail to maximize federal revenue streams; and ineligible clients continue to receive benefits ”

As a strategy to combat technology and departmental siloization, states are now beginning to create data integration plans, instead of technology integration plans. This strategy allows states to continue using legacy systems, while accessing and sharing data through a “shared data store” (this will be described in detail in the Trends section). For example, Virginia is using a very sophisticated ‘SPIDER’ system that will eventually integrate all state human services systems by allowing a worker to search for any individual in any and all state systems (11 in total) using 4 key fields - name, address, DOB and Social Security number through a single interface. The system uses sophisticated algorithms to match misspellings and aliases and provide the worker with an overview listing of all the services from which the family and child have used in the past and are currently enrolled in. The Virginia Spider system uses what is know as “Service Oriented Architecture (SOA)” which allows various systems to share a single program. The single interface is the SOA application. SOA is the state of the art approach to bridging multiple systems SOA is becoming a primary architecture of choice in

large State and County systems throughout the country because it is a lower cost methodology to leverage historic IT investment with forward compatibility design. Virginia's SPIDER system is known as a legacy wrapper SOA. A ground up integrated SOA architecture provides services, such as a unified picture of all relevant information about the family and/or child, that might access data across multiple legacy systems and disparate databases. An additional benefit of SOA's is that they allow organizations to roll out new services more quickly and migrate high-cost legacy systems to newer technologies over time. This supports the trend of states to try and integrate their SACWIS systems with other state legacy systems.

### **Initial SACWIS Designs**

The business requirements of the 1990's, meeting Federal ASFA standards became the initial drivers of IT investment in child welfare. With the availability of federal matching dollars, states set out to create their SACWIS systems to report on the key federal outcome requirements. These original systems were built by technicians, programmers and case workers who had little or no experience using data, performing analysis or managing the continuum of care. A decade later, not a single state in the nation has met all the federal outcomes standards (CFSTRs) and only two SACWIS systems (OK, WV) have been fully "certified" by the Federal Government.

Despite billions of dollars invested in technology over the past decade the marginal outcomes are due to more than just the fact that the technology was designed to support transactional reporting functions. It is also due to the lack of focus on identifying and integrating best practices and workflow with the technology. The people charged with designing the architecture, selecting the hardware, developing the software and interfaces - building the SACWIS systems -designed them perfectly. They do exactly what the funders and overseers' specifications required of them. They are capable of collecting and reporting on the key AFCARs and NCANDs data sets. However, they don't provide useable data for case workers, supervisors and managers or the analytics necessary to drive improvements to practice.

State policy, practice and procedures also constrained SACWIS IT design and did not incorporate service delivery and/or work flow considerations. Further perpetuation of this issue was due to the fact that many SACWIS systems were designed using a "build and transfer methodology". In other words, once a system was created for a state, the contractor would transfer and customize the system for the next state, in spite of unique structures, processes and workflows from state to state. This transfer strategy was implemented regardless of differences in administration (state vs. county) or client focus (child vs. family) between the original state and the recipient of the transfer. For example, the initial New York State SACWIS (a county administered, family-centric state) system was transferred from Texas (a state administered, child and allegation centric state).

A decade and \$300 million later New York is still struggling to implement a fully operational system. This obvious difference in service delivery was not thought to be a critical issue for the purchasers and designers of SACWIS. That is why today many systems don't reflect actual work, stages, transfers or processes of delivering care. In the end, most SACWIS systems do not provide workers, supervisors and managers with access to quality information and/or tools to help case practice and decision making.

What we do have today from the \$2.8 billion investment in technology is terabytes of data. Today, this data is being extracted for reporting and analysis in a variety of ways with new software packages and systems. However since the data available for reporting was predefined by Federal requirements, supervisors and caseworkers do not get any more relevant analysis and reporting on their cases than they received from their index card system 30 years earlier. Instead, the richest data sets, available at case level and in ancillary systems, are not being used. SACWIS systems have not leveraged technology to collect and analyze this granular data. The bottom line is, technology investment to date does not really support the worker and family; the investment was and is focused on creating data for federal reporting compliance.

### **SACWIS – Phase II (2000 – Today)**

The demands on SACWIS today have grown beyond the original federal intent. Plus, the chronic underperformance on Federal CFSR's has created focus and urgency to develop outcomes based performance tools and more accessible information. This has led to increased interest in "commercial off the shelf" (COTS) products which are now appearing in the design of SACWIS upgrades. Newer systems are using COTS software for data analysis and reporting tools.

What is common amongst everyone's technology strategies is that the ASFA laws enacted over a decade ago have finally begun to alter the way most everyone within child welfare looks at what technology can and should do for them. The fact that statistics can measure the success of care is a newfound anomaly, and everyone in the system is adjusting to the possibilities.

It is important to note that the investment in technology to date has had some significant benefits. While not perfect, the industry has moved from predominantly paper based to electronic systems. The investment has also created a new body of knowledge in the industry, particularly in the areas of implementation and training. Today, new thinking is driving technology investment. What is common amongst everyone's technology strategies is that the ASFA laws enacted over a decade ago have finally begun to alter the way most everyone within child welfare looks at what technology can and should accomplish. The growing belief and interest in fact-based decision making is moving the field in new and positive directions.

### **Proactive or Reactive Management Systems**

The reporting systems in use today are generally reporting on data collected months or even years ago. So how is it possible to expect these systems to improve care today? They can't. Because everyone using the (new) reporting modules is in a reactive mode, addressing issues that show up on today's reports from data collected months or even years earlier. The objective should be to create technology systems that support the case at each point of contact, driving data and decision making down to the people who can use it best. If we use business analytics as an example, many retail organizations can adjust their business practice multiple times in a day depending on what is going in the local environment. These organizations have leveraged available technologies to read the situation in real time and alter their behaviors and actions to create changes in minutes and hours, not months and years. Marriott Hotels uses analytics to optimize and customize offers to customers and to assess the likelihood of customers defecting to competitors.

This leads us to the critical issue surrounding child welfare technology - the industry is data rich, but still knowledge poor. So while the quantity of data has increased exponentially, the availability of real information is very limited due to access, reporting and training challenges. Some work has been done to leverage the business worlds experience with mining intelligence from data (e.g. Texas), but this is primarily a future wish list item for most jurisdictions. Another, more pressing, issue exists. Many workers have little investment or confidence in data integrity because they don't use the data, or ever see it after submission. So the individuals who report most of the CFSR data have no ownership in the process or usage. Virtually all sources contacted for this research agree that the majority of time is spent gathering information rather than analyzing the information.

What has become apparent from this research project is that the specific hardware and to some degree software is somewhat irrelevant in the overall analysis. Regardless of the type of hardware (mainframe, mini, client server, blade server) or software employed the issue focuses on how the data is collected, organized and used. It is clear that the hardware and software technology trend is moving towards web-based and mobile systems. However, these systems are still years from broad-scale implementation.

### **The Free Market Phenomenon**

The data that flows to state and then federal systems comes from individual (public and private) agency IT systems. These IT systems tend to provide more granularity of data and support case work in more productive ways than state SACWIS systems. In Cuyahoga County, Ohio, the legacy FACTS system still provides more

case detail, including ticklers and reports than the SACWIS system. The county based FACTS system was designed by case workers and supervisors. There appears to be a correlation between the beneficial use of technology and the closeness an organization or user is to the actual care plan and case management. (This is another opportunity where AECF can provide leadership.)

So what happens when consumers of technology do not feel that they are getting what they need? They begin to seek out other alternative. The functionality gap between most State SACWIS systems and the needs of agency staff has created a market for third party case management systems and ancillary technology products that support the humanity of care, not just reporting functions. Many agencies reported using third party systems to support:

- Case Management
- Medical, Mental Health, Dental
- Financial Integration
- Reporting
- Field Level Data Collection

One of the more interesting strategies we have seen to create a more effective use of technology at agency and case work level is the creation of a consortium of seven private non-profit agencies in New York City who have developed grants to fund the creation of a shared IT system, by a California non-profit – AltruIT. The first phase of implementation has just been completed. The actions of this consortium address the core disconnect between state SACWIS systems and Agency needs. After New York has invested over \$300,000,000 in their SACWIS system, the state system of record is not able to provide its agencies with a technology system to meet their needs. Florida is another state that has seen this phenomenon.

### **Emerging Strategies and Technologies**

The ability of the child welfare industry to leapfrog technology today is showing promising results. States are innovating their approaches to technology and are using a variety of emerging technologies to integrate web solutions and provide greater access and productivity to constituents. These tactics and technologies include:

- **Data Marts/Data** Warehouses aggregate data into usable tables that can be accessed by third party systems. This is how the AltruIT system eliminates duplicate entry and insures data integrity between NY SACWIS and the private agency “consortium” systems.
- **Self Service Systems** are becoming important as providers create multiple access points for users and clients. Many states are now offering families access into their systems for filing forms and finding instructions, and some like the Texas TIER system offer self services for a wider variety of direct services.
- **Multi-Channel Access** to shared services offers users (workers, customers, partners or suppliers) many ways to enter or retrieve the same information. Access may include IVR/phone, web, mobile devices, fax or email.
- **Electronic Case Notes** that create data points for analysis in what was originally only a narrative progress note. An example of this is Santrax which is an adapted telephony (telephone, internet and database) technology from home health care. The technology was redesigned for child welfare to capture tasks, rubric evaluations and narratives. Now data points such as safety assessments can be evaluated over time by technology and flagged for changes that may not have been seen or remembered in narratives.
- **Universal Family Case Records** are integrated family records that link all the services a family is receiving into a single record.
- **Mobile technologies** offer access to workers in the field giving them the ability to enter and retrieve data while in the field.

- **Service Oriented Architectures** shares common applications between system and departments.
- **Dashboards** can be customized to offer key metrics to different user groups for comparative statistics, benchmarking and measuring results.
- **Business Rules and Workflow Design** create IT systems which duplicate best practices such as the “Life of Case Methodology” and Results Oriented Management (U of Kansas).
- **Mobile Internet Technology Architecture (MITA)** is a new web based protocol for using cell phones (keypad/SMS), PDA and laptops via wireless internet connectivity to access services and data.
- **Document Management** allows the integration of scanned paper records as well as other data types (photographs, audio recordings) into the case record.

While all of these examples hold promise and potential some are more widely used at this time and require a deeper understanding of their potential. The following contains broader views of the technologies and how they are being applied today.

SOA is an application architecture in which all functions, or services, are defined using a description language and have invocable interfaces that are called to perform business processes. Each interaction is independent of the other interactions and the interconnect protocols of the communicating devices (i.e., the infrastructure components that determine the communication system do not affect the interfaces). Because interfaces are platform-independent, a client from any device using any operating system in any language can use the service. Though built on similar principles, SOA is not the same as Web services, which indicates a collection of technologies, such as SOAP and XML. SOA is more than a set of technologies and runs independent of any specific technologies.

### **Service Oriented Architecture**

SOA layers technology design and allows the reuse of existing systems by sharing the computer code between systems. SOA is a method of conceptualizing, designing, and building applications by assembling reusable building blocks, each of which is usually represented as a service.

A typical view of the individual layers or service areas of SOA include:

- Access Channel Layer
- Presentation and Reporting Layer
- Business Process Layer
- Services Layer
- Application Layer
- Data Sources Layer

As described earlier in the Virginia SOA “SPIDER” system, by creating a layer of extraction and presentation tools, states can now provide a single log-in for worker to get all relevant (and legally shareable) information on a client across multiple HHS departments. This strategy helps eliminate the current silo-ism within government by sharing resources thereby eliminating redundancy and helping to detect fraud. The main focus of SOA in state governments at this time is integrating eligibility services across multiple systems.

### **Self Service Systems/Multi-channel Access**

Treating citizens as customers is new to government. What we are now seeing is a focus and movement towards building technology resources for improved services to children and families. For example, Texas now offers retail locations, phone, fax, email and web sites to access support services. To enable these new services, states are “extracting” data from current systems and display information through userfriendly “front-end presentation tools” (GUI’s). These tools are less costly and have faster implementations than replacing SACWIS systems.

### Mobile Technologies/Mobile Internet Technology Architecture (MITA).

Because most service delivery in child welfare occurs in the field, mobile technologies are obvious enhancement to current systems. The utilization of mobile technologies has multiple benefits for field workers, from expediting data capture and reporting to reducing caseworker paperwork and increasing productivity and job satisfaction. While MITA is a new technological development that has not permeated child welfare, it holds great potential. The opportunities for using mobile devices to capture and use new types of digital data, such as photos, audio and video data, biometrics and GPS are very compelling. Because most of the work with children and families occurs in their communities, mobile devices help improve productivity, access, accuracy of data and verifiability of services. Some of the most common forms of mobile technologies today are:

- Lap tops (Commercial)
- Simple Keyboards (Alpha Smart, Quick Pads)
- Tablet PC's (Commercial)
- Handheld PDA's (Commercial)
- Integrated phones (Symbol, Telzon, Treo)
- Telephony (Santrax, Cybersecretaries)
- Voice recognition/verification software (Dragon Speak)
- Digital Ink, Electronic Pens/coded forms (HP, Cross Pads, Unicentric)

Over time there is the potential that these new technologies will create a major unexpected benefit – the development of a new set of best practices based upon these new mobile devices and systems.

### Future Trends

While the further development of commercial third party system or COTS products will continue to enhance agency management and casework support, as these systems proliferate it causes some challenges for the industry as a whole. If each agency begins to collect their own unique data sets with unique nomenclatures, how will data move between systems, how will state and national data be integrated? Will it be plausible to scale any innovations that are proven to improve outcomes? The possible solution lies in a combination of three

## Metcalfe's Law

Metcalfe's law, simply derived, says that if you build a network so that any customer can choose to transact with any other customer, the number of potential connections each of the N customers can make is (N-1), giving a total number of potential connections as N(N-1) or N<sup>2</sup>-N. Assuming each potential connection is worth as much as any other, the value to each user depends on the total size of the network, and the total value of potential connectivity scales much faster than the size of the network, proportional to N<sup>2</sup>

promising strategies/technologies - a **data dictionary** to interpret data, federal and state **data stores**, and an **XML data transfer** methodology.

A **data dictionary** is simply a tool that provides for field specific data conversion/transfer. The dictionary creates a field by field definition translation to ensure that data collected and stored by one system/agency is the same data set collected and stored by another. (As a side note, some industry experts, such as those at Chapin Hall, feel the CFSR data being collected is not comparing the same real data sets in each state).

Here is a vision of how combining these three technologies might work...

The theory presented here is to create a "**universal data dictionary**" to stimulate innovative and scalable solutions. A universal data dictionary would allow third party developers to easily integrate into SACWIS systems and ensure that their products work in multiple environments, by simply accessing the dictionary to move their data in and out of the state's system. The use of data dictionaries helps to reduce development time and operational costs, and stimulates cross system

transfers. An example of this is how New York State agreed to open up their data for retrieval through a data store for the AltruIT consortium. AltruIT simply created a data dictionary to convert data sets from the state's Connections SACWIS system into their web based application. (The creation of a national/universal data dictionary is a potential opportunity for AECF).

The second step in this process is to continue to build and leverage the nationally funded (NRC-CWDT) "data store(s)" with additional data sets. Similar to Metcalf's law, by creating a process to add new definitions and new data sets to the nation's data store, the value of the data store(s) increases exponentially. These new data sets provide for broader measurements, metrics and analytics. With that said, the key issue raised by opening up the data stores with unlimited definitions is what data can or should be collected. Under a typical business analytic project every possible data point would be stored and analyzed for correlations. The January 2006 Harvard Business Review article, entitled "Competing on Analytic" describes the characteristics of building data sets in the following manner, " the transformation requires a significant investment in technology, the accumulation of massive stores of data and the formation of a companywide (national) strategies for managing the data."

The strength of linking a national data store with a universal data dictionary is that independent developers and caseworkers can add the unique data fields they chose to collect to the dictionary. This new stream of important (case relative) data, increases the likelihood that key demographic, family history, geographic, medical and behavioral factors can, through analysis, correlate into better outcomes. In this scenario it is the technology which enhances care guidelines and best practices

## What is XML?

- XML stands for EXtensible Markup Language
- XML is a markup language much like HTML
- XML was designed to describe data • XML tags are not predefined. You must define your own tags
- XML uses a Document Type Definition (DTD) or an XML Schema to describe the data
- XML with a DTD or XML Schema is designed to be selfdescriptive

### XML the Rosetta Stone of IT

What makes a universal data dictionary possible today? The shift from an EDI (electronic data interchange) and the x12 standard of electronic data transfer into a universal web standard tool. Today, **XML (Extensible Mark-up Language)** is the state-of-the-art conversion language for computers. With the proliferation of the Internet a new language was necessary to work with HTML, the standard language of the web. XML allows for easy transfer of information from one data system to another. What make XML unique from all other transfer languages is that XML uses plain English to define/describe the data begin transferred.

Today there are two groups, XML.gov and Child Welfare XML, which have begun to create an open translation source for child welfare data sets as well as standardize XLM electronic forms. Formed in 2002, the Child Welfare XML (CWXML) Workgroup represents the national Child Welfare IT data exchange community and works collaboratively to promote system interoperability and the efficient transmission of data among State child welfare agencies and their stakeholders. As one of their first project, the child welfare XML group has created electronic XML forms for documents like the ICPC 100A/B forms.

Another good example of XML usage is how the Colorado Child Welfare System has integrated their legal paperwork with an XML solution called - Court Data Exchange. This system automates the transfer of court data into their SACWIS system.

To summarize the vision: This strategy of creating a **universal data dictionary** supported by a national data store using **XML transfer methodology** could prove to be one of the greatest advances in child welfare technology systems. Simply by allowing an unlimited number of unique and disparate computer systems to communicate with each other we can eliminate redundancies and errors, speed up information access and aggregate



data sets that were previously unavailable. The expanded use of these technologies will allow the child welfare industry to begin to collect, integrate and analyze new data sets from other disparate systems such as school records, census data and medical emergencies. This offers the industry a broader look at multiple (disparate) factors that contribute to the causes of child maltreatment as well as what services actually have a direct correlation to the child's safety, permanency and well being.

### **Leveraging Maintenance Dollars To Deliver More Value**

Is it possible to create a system that can serve all six constituents who use technology in child welfare? Can an out of the box solution be implemented? What would it cost to build and maintain? Every year states expend an estimated \$262,000,000 on the maintenance of their SACWIS systems. Corporations with equally robust data needs are able to maintain their systems at much lower costs. With the advent of a flexible, web based, ASP delivered technology solution there is a possibility to create a true scalable model to serve everyone's needs. The development of a solution, based upon the vision, is an opportunity for AECF.

If we now have the right data how do we analyze it?

### **Metrics, Analytics & Dashboards**

There is a national debate taking place on what is the right data to measure at what points in time. It is clear that the AFCARs and NCANDs data collected at the federal level is not the ultimate data sets for the safety, well being and permanency of children. These reactive data sets and the systems that collect them need to bring knowledge and decision making closer to the case and the people who interact with children and families.

For AECF there is an opportunity to help lead this debate, with a key objective of linking technology and data collection at the field level (case management) with best practices. Today, there is general acceptance of rubric based decision tools. Systems like "Structured Decision Making" and "Life of Case Methodology" have proven that data and decision making can support each other within child welfare and more importantly improve outcomes. If we agree that data and decision making can (and must) coexist in child welfare, how does the process work? An example can be found in the insurance business. In the same way that the insurance industry can predict outcomes based upon hundreds or even thousands of factors, the child welfare industry has the opportunity to capture thousands of data points and create models and tools to build new approaches for day to day proactive case management.

So which data factors have the greatest impact on predicting a family's needs? How can data be accumulated and privacy rights respected? That is a debate that needs to occur. A model that may be appropriate to review for its balance of rights and ability to predict outcomes is the current "ComStat" police systems. These analytical systems represent the power of technology to improve outcomes. Can the child welfare industry build a "CaseStat" system based upon a multidimensional analytics model?

In Wake County, North Carolina they have been using school attendance as their primary decision tool to initiate a family review.

In a January 2006 Harvard Business Review article on analytics the authors created a table to exemplify the "things you can count on". The following table illustrates how child welfare can transform the model from business analytics to human services analytics. See **Table 1** on page 10.

### **Dashboards**

The end result of most analytics today is a set of dashboards that each user can customize to their needs. Today, we see dashboard being used mainly at the executive level in organizations. The best business organizations use dashboard at many levels and have many different (customizable) formats. In child welfare most dashboards contain the data that is aggregated to at least the agency level. We did not find any dashboards that are used for individual case management. Here is how dashboards are described in a Business Week

**TABLE 1**

Business Function	Child Welfare Function	Description
Supply Chain	Recruitment & Retention	A salesforce.com model for foster parents, mentors and workers
Customer Selection, Loyalty & Service	Prevention Risk Profiles and Services, Foster Parent Supports.	Market Segmented services for children and families, foster parents, teens, etc.
Pricing and Incentives	Foster Parents Payments, Child/Kin Supports	Variable pricing models and incentives for kinship support
Human Capital	Workforce Selection, Training and Leadership Development	Competency/performance management, inventory of resources for team assembly
Product and Service Quality	Outcomes Measurements	Predictive results based upon service delivery
Financial Performance	Programmatic ROI based upon Outcomes	The monetization of outcome
Research & Development	Data Set Correlation	<ul style="list-style-type: none"> <li>• Care plan</li> <li>• Services delivered</li> <li>• Outcomes</li> <li>• School attendance</li> <li>• School grades</li> <li>• Mental health</li> <li>• Medical</li> <li>• Dental</li> <li>• Work</li> <li>• Census data</li> <li>• Birth parents history</li> <li>• Sibling visitations frequency</li> <li>• Juvenile justice</li> <li>• etc</li> </ul>

article, dated February 13, 2006 , "So powerful are the programs that they're beginning to change the nature of management, from an intuitive art into more of a science. Managers can see key changes in their businesses almost instantaneously -- when salespeople falter or quality slides -- and take quick, corrective action. At Verizon, managers can choose from among 300 metrics to put on their dashboards, from broadband sales to wireless subscriber defections.

It must be noted that there is some backlash over the use of dashboards. Some feel it is simply an extension of Big Brother. The concern is that companies will use the technology to invade the privacy of workers and wield it as a whip to keep them in line. Even managers who use dashboards admit the tools can raise pressure on employees, create divisions in the office, and lead workers to hoard information.

In the past few years, a new wave of software makers like NetSuite, Salesforce.com, and Hyperion Solutions have begun making dashboards that are cheaper and easier to use than most custom systems.

The development of a "CaseStat" dashboard which automates warnings, flags, ticklers and recommendations can add much needed knowledge/intelligence to decision making in the field.

#### **Summary of Potential Opportunities For AECF**

- Support the development and testing of intelligent (expert) systems to assist case work and supervisors
  - > Research use of actuarial data and modeling to establish causal links between case practice, specific child/family services and outcomes

- Develop a center to research, catalogue, disseminate and train senior managers about IT trends, products, services
  - > Help organizations develop requirements and work flow analysis (Life of Case)
  - > Help match current system configurations (platform, architecture, software) with next generation solutions
- Support development of information analytics and best practices for training and implementation
- Support the creation of a national universal data dictionary and data store based upon XML transfer methodology
- Support demonstration project to create a universal digital family record (“Case Stat”)
- Explore Wi-Max technology to provide access to field for data collection and case management
  - > Secondary benefit is to provide web access to children and families
- Continue refining strategic IT plan/map for child welfare
- Optimize mobile devices, rubric based practice guidance and support

### **Next Steps**

The goal for technology in child welfare must be to reset the current investment drivers and move the expectation towards fact driven analytics that predict outcomes. That ultimate goal will require an extensive amount of R&D to bring the right players together, create fair standards, build quality data sets and begin the analytics process.

Phase 2 of this research should help articulate a long-term information technology vision for the AECF including the Foundation, Casey Family Services, AECF Program Sites and Child Welfare in general. In addition, an in-depth opportunity analysis of selected promising practices and emerging technologies should be conducted to identify and prioritize high potential demonstration project opportunities in the following areas:

- Standardized data dictionary
- Analytic and statistical approaches to enhanced practice and management
- Expert management/training systems
- Optimal Dash Board (form and function)
- Mobile and field systems usage
- Customer service and relationship management tools
- Comprehensive electronic/digital case file