Applying Business Intelligence to social services and social security

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Introduction

Worldwide, government organizations are reengineering their policies and programs in order to respond to the new service and accountability demands of their customers. The Internet and other computer technology has changed the way private business interacts with customers, and public organizations want to be able to offer the same type of service. While it was once sufficient to measure the number of people receiving welfare services, how many people participated in a drug abuse program, the number of substantiated reports of child maltreatment in a year, or the number of dropouts in a job training program, programs are now evaluated by, and funding is frequently dependent upon, answering questions like:

- Does a newly funded job training program help individuals return to work and gain self sufficiency?
- Do people who are addicted to drugs and alcohol benefit from a particular program and stay clean?
- Can abused children be safely returned to their homes when their parents participate in a counseling program?

This white paper examines the changing business environment in which social services and social security organizations operate, the ways that Business Intelligence (BI) technology is helping organizations meet new demands and describes the IBM social services and social security focused BI solutions.

A new way of doing business

Albert Einstein once said, “Not everything that can be counted counts, and not everything that counts can be counted.” With the advent of computer technology, it is probably safe to say that government organizations will count everything that can be counted. Why? In large part because they can, but also because government organizations have historically had to meet accountability demands by counting the number of services they provide, the number of people served and the amount of public funds used to deliver the services.

Government organizations at all levels—federal, state, and local have an abundance of data available to them. Unfortunately, the data typically resides in antiquated, unrelated, and unwieldy legacy systems that do not always lend themselves to timely or cost effective analysis. As a result, data sits unused...
Where used, BI is often limited in scope in social services and social security organizations. There are now greater demands from citizens for increased service and increased accountability and service improvements from governments.

A well-managed social services or social security organization has the same management information needs as a well-run business.

The benefits of good decision support solutions can be seen directly in the programs.

The IBM Decision Support Solution for Social Services and Social Security is designed to meet the information needs of this industry.

Highlights

or continues to be collected with no purpose or cross correlation. Service utilization is documented and recipients of services are counted, but this information is not always used to the greatest effect.

With increasing service demands from citizens and legislators, accurate data and usable information are more important than ever before. However, social services and social security organizations are finding that they are not equipped to respond. Often they are searching for cost-efficient ways to bring together disparate sources of data and distribute it as usable information that will help decision makers meet new demands for accountability and service improvements.

Accountability and service improvement

We hear it, read about it, and see it on television every day. Politicians, government watchdog groups, the media and the general public are all calling for government accountability. But what does it mean for a government organization to be accountable? More importantly, what does it take for an organization to be accountable?

Government accountability once meant, quite literally, counting. Until recently, the key accountability questions were: “How much money is being spent?” and “On what?” Delivery of services was, and often still is, referred to and counted as ‘units’. In order to determine the portion of a budget spent on personnel, the number of ‘items’ are counted. If you want to know how many people live and receive services in a residential program or government-operated institution, the number of beds are counted. Accountability was determined by how much was spent, how it was spent, and whether or not the proper rules and procedures were followed for spending public funds, awarding contracts, and tracking expenditures. Social services and social security organizations are now finding that accountability means something very different. Counting is no longer sufficient.

Social services and social security organizations are now being asked to provide enhanced services to constituents, strengthen revenue collection, reduce fraud, increase compliance, improve the management of scarce resources, predict societal trends and accurately measure program outcomes.
Globally, governments are requiring social services and social security organizations to revise policies and reengineer programs in order to improve and demonstrate effectiveness. In many instances, future funding hangs in the balance. As can be seen in table one below, governments worldwide are placing new demands on public organizations to demonstrate their effectiveness. These new requirements frequently tie funding to efficacy.

<table>
<thead>
<tr>
<th>Table one—examples of government accountability requirements</th>
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<tbody>
<tr>
<td><strong>The Government Performance and Results Act (US)</strong></td>
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<td><strong>The Workforce Investment Act (US)</strong></td>
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<td><strong>The Personal Responsibility and Work Opportunity Reconciliation Act (US)</strong></td>
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<td><strong>Performance and Innovation Unit (UK)</strong></td>
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<td><strong>Services First Unit (UK)</strong></td>
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<td><strong>Canada</strong></td>
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<td><strong>Germany</strong></td>
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The good news is that social services and social security organizations have vast amounts of data to help them meet these demands. The bad news is that, since the 1960’s, there has been an ever-widening gap between data availability and the ability of organizations to analyze their data. Organizations are relying on stovepipe legacy systems that are often home grown, of different eras, and unrelated to other legacy systems which may contain related valuable data. These aging legacy systems were designed as transaction processors not as information engines that can respond to queries and enable cross-department analysis. Until recently, the tools needed to convert legacy systems and the data they contain into useful information were unavailable or prohibitively expensive.

As can be seen in figure one, the ability to analyze information has always lagged behind the availability of information. That lag however, has increased dramatically in the last 20 years. BI technology is helping to close the gap between the availability of information and our ability to analyze it.

![Figure one—the availability of information outpaces ability to analyze it](source: Gartner Group)

The right information where it’s needed, when it’s needed
The private sector has long known that the key to success is understanding the customer, their likes and dislikes, the products they want to buy and the services they need. Private business also wants to identify good prospects, deliver an appealing message, and develop potential repeat customers. BI (which includes user query and reporting tools, online analytical processing, executive information systems, data mining and data warehouses), has allowed private business, and now government organizations, to go beyond counting, collecting and storing large amounts of customer data. They can now mine that data for hidden facts and unexpected relationships that can help lead to innovative program and services approaches.
As pointed out in the 1999 National Partnership for Reinventing Government report, 'Balancing Measures: Best Practices in Performance Management,' many feel that government management is different and that the rules that apply to the private sector should not be applied to social services and social security organizations. After all, the reasoning goes, social services and social security organizations do not have a bottom line or a profit margin and are not traditionally thought of as having customers.

The truth is, of course, that social services and social security organizations do have a bottom line— their mission. And they do have customers—the people who rely on programs and services on a day-to-day basis. Just as businesses in the private sector are responsible to boards of directors, stockholders and employees, social services and social security organizations are responsible to elected officials, tax payers and their employees. Just as private businesses need the right data at the right place and the right time, so too do social services and social security organizations. In many ways, social services and social security organizations have the same guiding principals that drive private business:

- Good product or service—does the organization meet the service recipients/customers need for programs or services? Do they rectify a perceived wrong?
- Good image—how does public opinion view the organization? Are employees enthused by the public’s perception of them?
- Good availability—can service recipients/customers get easy access and satisfaction? Is the organization ready and able to respond quickly to any reasonable challenge?
- Good employer—are there high levels of staff retention, staff morale, and job satisfaction?
- Continuous improvement—is there a continuous evaluation process to identify and implement improvements? Do improvements benefit the service to the community?
Today, accountability for social services and social security organizations means demonstrating to the public:

- What products and services they are getting from the use of public funds
- How these expenditures benefit their lives or the lives of those they care about
- How effectively and efficiently these funds are used.

Government is not only responsible for its actions, it’s responsible for the results of those actions. In order to meet these demands, social services and social security organizations need usable information that is readily available and easily accessible for all staff. Unfortunately, this information is not always easily accessible. In fact, in many instances the wait for information can be exceedingly time consuming and frustrating.

**Playing the information waiting game**

Before the availability of BI technology, professionals in need of strategic information played the information waiting game. After deciding what information was needed, a request would be submitted to the information technology (IT) staff. Extensive manual data compilation and analysis might be necessary to bring together related data housed in different systems. Gathering and presenting information was often time-consuming and the more that manual processes were involved, the more likelihood there was of errors. Receipt and review of the requested information often resulted in additional data requests that would begin the data request cycle again. Many potentially valuable reports and analysis could not be done because they were too time consuming and/or costly.

![Figure two—the information waiting game.](image-url)
**Winning the waiting game—how BI can help social services and social security organizations meet the demand for accountability**

Next to the Internet, BI is one of the most asked-about business processes today. BI is about turning data into knowledge and knowledge into action by helping to:

- Reveal hidden relationships
- Spot key trends and opportunities
- Plan more effective strategies
- Make more informed decisions.

In order to attract and retain the best customers, private sector businesses need a precise snapshot of who they are—their wants, their needs and their buying patterns. To accomplish this, private companies are relying on BI to analyze and interpret vast quantities of data such as:

- Customer demographics
- Product purchase histories
- Service calls
- Internet experiences
- Online transactions.

Companies are turning that data into usable information that drives the development of conclusive, fact-based strategies. Social services and social security organizations are learning that they can do the same thing.

By using a variety of BI tools, social services and social security organizations are learning that they can integrate information from various systems into a single, structured source. They are discovering that they can make organization reports relevant to customers, stakeholders and employees. They are developing...
the capability of detecting fraud and abuse, identifying the clients most in need of services, and uncovering unknown relationships and correlations. The BI tools that enable organizations to accomplish this are detailed in table two below.

<table>
<thead>
<tr>
<th>Table two – key BI components for social services</th>
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<tbody>
<tr>
<td><strong>Data warehouse</strong></td>
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<td><strong>Balanced scorecard</strong></td>
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<td><strong>Fraud and abuse management (FAMS)</strong></td>
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<td><strong>Risk management tools</strong></td>
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<td><strong>Data profiling and mapping</strong></td>
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<td><strong>Campaign management</strong></td>
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<td><strong>Customer relationship management (CRM)</strong></td>
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<td><strong>Benefit profiling</strong></td>
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<td><strong>Policy analysis</strong></td>
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<td><strong>Outcome measurement</strong></td>
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By using the broad range of BI services, social services and social security organizations can easily answer such questions as:

- What is the breakdown of the client base by program, service, demographic makeup?
- What are the characteristics of individuals receiving assistance who are active in other programs?
- What income and assets does the family have?
- What is the organization’s history with a service recipient?
- How do service recipients interact with the organization? Do they use the Internet? Do they call toll-free numbers? Do they prefer to speak face-to-face with a caseworker?
- What needs are the organization currently fulfilling and what needs are not being met?
- What is the overall satisfaction level with various aspects of the organization and its programs and services?
- What is the cost effectiveness of various programs?
- What is the recidivism rate for a particular program?
- What are the reasons for case closure/termination?

The benefits of BI in social services and social security

When implemented, BI can help social service and social security organizations realize tremendous savings and improved services. By using industry best practices, organizations will be able to:

*Measure outcomes*—organizations are increasingly interested in demonstrating the efficacy of their programs and services. They are faced, however, with the unavailability of consolidated and useful data that links outcomes to clients and services offered by the organization. By implementing outcome measurement techniques, the data in multiple program-specific databases can be combined into a data warehouse for analysis of program outcomes and can help identify which programs are effective as well as the circumstances under which they are effective. The result is a better understanding of existing program and service effectiveness, better decision making regarding new and existing programs, improved control of financial resources, including reduced spending on ineffective programs, and better services.
Get information to workers who need it when they need it—in a social services or social security setting, a child or family might have contact with numerous professionals in different departments within the same or multiple organizations. For example, it is not unusual for a child to have been involved with child protective services, the state’s foster care system and adoption services, while at the same time the family receives income or back-to-work assistance. Front line managers and staff do not always have easy access to case histories, client history, and client services – information which they might need to do their day-to-day job. If they do have access to the information, it may not be fast enough for them to make effective decisions. Data warehouse technology can provide managers with current, detailed and structured access to relevant data resulting in better control and use of resources, as well as improved decision making at all levels of the organization.

Make better policy decisions—data is not always readily available to help make informed policy decisions. BI can incorporate data from a variety of sources, both internal and external data, and will allow unstructured queries from policy makers. Policies can reflect accurate information, real trends in existing programs, services and demographics; and can respond to the real needs of recipients. New, effective policies can be developed, and existing policies updated more quickly and easily.

Reduce fraud and abuse—between five percent and ten percent of program expenditures are routinely lost to fraud and abuse in social services and social security programs. Entity profiling can, for example, help to identify abnormal service provider billing activity and can point the way to remedial actions. The result can be reduced fraud, reduced program-related expenditures, and the redirection of resources to people in need.

Improve risk management—risk assessment tools can help target services to clients who are most in need and can identify organization policies and practices which introduce liabilities to the organization.
Well-designed and well-targeted BI systems can help transform social services and social security organizations. What it requires is a focused, targeted and strategic vision on the impact expected. Organizations can expect more effective policies and procedures, more efficient use of scarce resources, a better understanding of when their programs and services work, and for whom, and improved decision making.

IBM is helping social services and social security organizations with BI technologies
IBM has been working with a number of social services and social security organizations to implement BI solutions. In each of the examples described below, legacy databases were unable to provide the usable information needed by executive management to assess the efficacy of programs and policies. IBM was able to provide BI solutions that allowed organizations to meet accountability demands.

- The New York State Comptroller’s Office has implemented a data mart based on IBM’s Visual Warehouse™ that assists local governments in program audits. The city of Winnipeg is using Visual Warehouse to build a BI solution to track and manage its public workforce diversity efforts.
- The New York State Office of Temporary and Disability Assistance is using the IBM Fraud Solutions to identify and investigate problematic providers under the Medicaid program. The IBM Fraud Solutions utilizes advanced data mining technology to profile provider behavior, ranking providers against their peers. Once a suspicious provider is identified, a suite of analytical tools can be used investigate further. The system also supports ongoing monitoring of providers.
- As one of the largest social security organizations in Europe, INPS (Istituto Nazionale della Predidenza Sociale) has a vast database of information about its client group—the 17 million Italian citizens working in the private sector and 15 million pensioners. Until recently, INPS had to rely on a traditional system to extract the analysis required to help make informed policy decisions. For each new report, IT professionals had to write special Common Business Oriented Language (COBOL) programs to query the data on its DB2® Database. The result was slow and lacked the flexibility required for rapid decision making. INPS turned to IBM for a comprehensive data warehouse infrastructure and the result is a new environment that enables INPS to extract from their data the information needed on a wide range of issues relating to pensions and other benefits.
IBM helped the State of Louisiana build a data warehouse for welfare reform prior to implementation of the Personal Responsibility Act of 1996 (which includes fiscal sanctions for states that fail to meet welfare reform work requirements). This data warehouse has helped the State support its programmatic claims with the federal government and is supplying valuable information which provides unique insights into the outcomes the State is achieving by implementing policy reforms.

**BI solutions that can help transform your business**

Properly collected and analyzed data can help give social services and social security organizations new insights into their programs by linking activities and functions to strategic planning, organizational goals, and management. The key is being able to integrate a wide variety of data sources, convert that data into usable information, and make that information available to employees and managers.

The IBM Decision Support Solution for Social Services and Social Security is designed to assist social services and social security organizations meet their information needs. The solution encompasses traditional BI technologies and consulting methods with the business needs of social services and social security and is described in figure three.

![Figure three—IBM Decision Support Solution for Social Services and Social Security](image-url)
The IBM Decision Support Solution for Social Services and Social Security can help social service and social security organizations solve significant business issues:

<table>
<thead>
<tr>
<th>Business issue</th>
<th>How the IBM Decision Support Solution meets that need</th>
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<tbody>
<tr>
<td>Delivering financial accountability program expenditure</td>
<td><strong>Measuring outcomes</strong> will allow program expenditures to be related to the benefits customers receive.</td>
</tr>
<tr>
<td>Reducing fraud and abuse</td>
<td>IBM Fraud Solutions will help organizations conduct <strong>risk assessments</strong> and help reduce fraud and abuse</td>
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<tr>
<td>Reducing error and increasing compliance</td>
<td>Better <strong>management reporting</strong> will allow errors to be more easily identified. Organizations can target compliance issues by conducting <strong>risk assessment</strong>.</td>
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<tr>
<td>Improving customer service</td>
<td>Undertaking <strong>policy analysis</strong> allows better programs to be created. Measuring outcomes will help meet customer needs.</td>
</tr>
<tr>
<td>Verifying recipients receive benefits and services they are entitled to</td>
<td>Organization can conduct <strong>needs assessments</strong> that will help identify the recipients that are likely to qualify for benefits or services.</td>
</tr>
<tr>
<td>Meet federal reporting requirements</td>
<td>Implementing <strong>management reporting</strong> will allow federal reporting requirements to be met with limited intervention.</td>
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</table>

IBM's Decision Support Solution for Social Services and Social Security is helping to transform social services and social security data into conclusive, fact-based and usable information that is allowing organizations to spot trends, enhance client relationships, reduce costs and, most importantly, assist people in need of services.

**IBM solutions for social services and social security**

IBM is one of the largest providers of solutions to social services and social security clients in over 200 countries around the world. IBM has invested in a portfolio of solutions and industry subject matter expertise to help enable clients to take advantage of best practice in social programs. We have expertise in e-business, CRM, BI and building core social services and social security business systems, supported by our national practices and a range of business partners.
To obtain additional information on the IBM Decision Support Solution for Social Services and Social Security, or any of our other services, please contact your local IBM representative, or visit our Web site at ibm.com/solutions/government/socialsegment

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