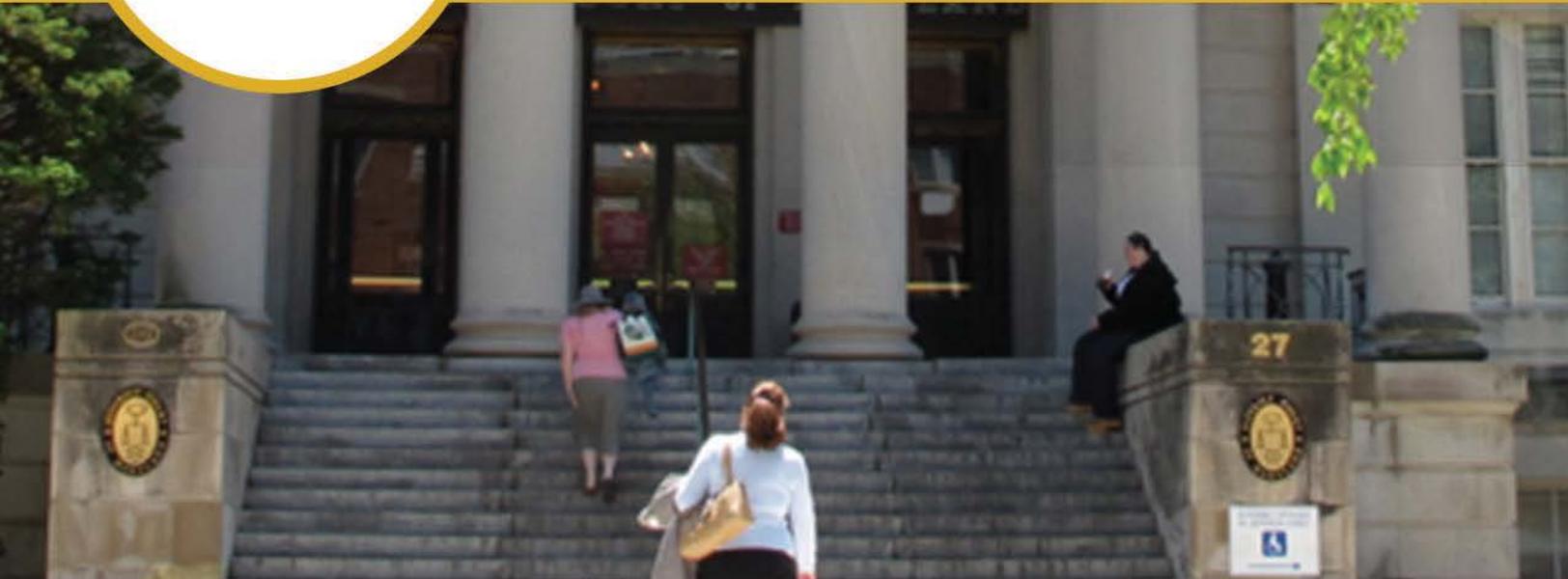




# STATE SYSTEMS INTEROPERABILITY AND INTEGRATION PROJECT - FINAL REPORT



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## Part A. ABSTRACT

### A.1. Introduction

The Final Report for State Systems Interoperability and Integration Projects is a comprehensive document that details the purpose, scope, methodology and findings from the Maryland Department of Human Resources (DHR) State Systems Interoperability and Integration Project Grant. This report describes the fifteen (15) elements required for this grant and includes information extracted from the various project deliverables and reports for this project.

### A.2. Project Background and Overview

The State of Maryland (the State) received one (1) of the seven (7) cooperative agreements awarded by the U.S. Department of Health and Human Services (HHS) in September 2012 to help a group of “Early Innovator” states design and implement the Information Technology (IT) infrastructure necessary to operate a Health Benefit Exchange (HBE). As an Innovator State, Maryland has worked to lead the way on building a better health insurance marketplace, and is developing a Health Exchange IT model that can be adopted and tailored by other states. As with all of the Innovator States, Maryland has committed to ensuring that the technology it develops is reusable and transferable.

Maryland recognizes that many of the residents it serves will utilize more than one service, and the State is committed to ensuring a “no wrong door” approach that minimizes the complexity and burden of service access to its residents, regardless of the administering agency. As such, Maryland made the decision to use its HBE as the client and worker portal that allows for a single point of entry to apply both for health programs and for social services programs such as Temporary Assistance to Needy Families (TANF), Supplemental Nutrition Assistance Program (SNAP), and energy assistance.

The DHR is a key partner in the enrollment and eligibility process for Medicaid. With 24 Local Department of Social Services (LDSS) offices throughout the state, DHR plays an important role in the “no wrong door” enrollment process. The HBE would introduce a new system and new processes for case workers. To support this transition, DHR is working collaboratively with the Health Exchange and the Maryland Department of Health and Mental Hygiene (DHMH) to establish an integrated technology platform and operating model.

The integration of HBE and the needs-based social services eligibility system is a great stride towards achieving integration of service access and service delivery across the State. However, DHR recognizes that this integration is a starting point, and to achieve seamless integration across all social services requires additional integration with other programs and systems such as child welfare, homeless services, and behavioral and public health. This integration can be achieved by leveraging the existing State investment in technology.

To achieve this integration, DHR has enlisted the Montgomery County Department of Health and Human Services (DHHS) to establish a blueprint and operating model that can be used across the State with the other LDSS offices, and in other states and local jurisdictions. DHHS is the largest department in the Montgomery County government and is responsible for public

health and human services that help address the needs of the community's most vulnerable children, adults and seniors. It is one (1) of 24 LDSS within Maryland that dispense DHR services to the local residents. The Montgomery County DHHS has more than 80 programs and delivers services at more than 20 locations within Montgomery County. The core services of the Montgomery County DHHS are to protect the community's health, protect the health and safety of at-risk children and vulnerable adults, and address basic human needs including food, shelter and clothing. They provide services through several service areas: Aging and Disability Services; Behavioral Health and Crisis Services; Children, Youth and Family Services; Public Health Services and Special Needs Housing.

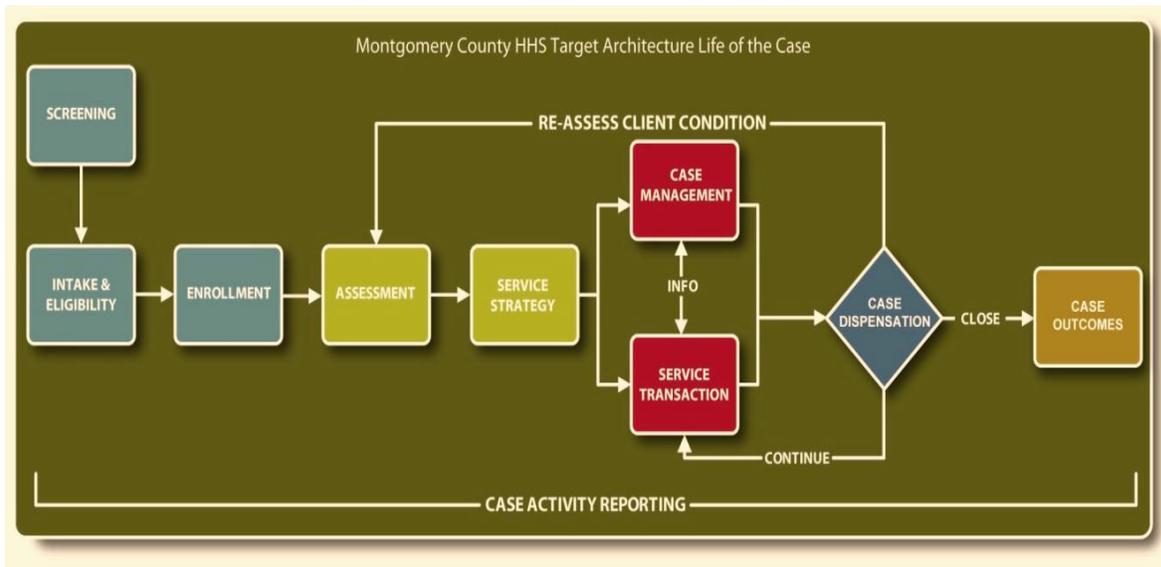
In order to support the goals of DHHS, improve client outcomes and increase worker productivity, DHHS has undertaken the Interoperability initiative. This project is aimed at creating enterprise wide solutions that create an integrated view of all the services and programs provided by the agency by leveraging the latest technologies. The size of the Montgomery County, coupled with the breadth of services and a diverse population, makes Montgomery County DHHS an excellent example for program, service and technology integration, and an excellent analog for other jurisdictions in proving the benefits of program integration and systems interoperability. The planning grant would be used to review domain-specific workflow models to assess current systems, identify opportunities to improve process efficiency and effectiveness, describe a future state for the improved system, articulate a path and level of effort to achieve the future state, and design tools to enable other states to apply our experience to their contexts. This effort dovetails with the Process and Technology Modernization (PTM) initiative currently underway in Montgomery County. PTM is a multi-faceted, multi-year initiative designed to improve the core business processes and supporting technologies used by DHHS.

### **A.3. Scope of the Interoperability Project**

DHR proposed the planning of interoperability components and deliverables in three (3) areas:

#### **A.3.1. *Technology***

The project identifies core information flows at process and data levels, across programs and an Integrated Case Management model for integrated case management practice that would inform system design considerations and implementation options for LDSS offices across the State. Components of the system design and options exploration would include Client Portal, User and System Interfaces, Master Client Index, Document Imaging, Enterprise Service Bus, Data Warehousing, Business Intelligence and Analytic Tools including Decision Support. Deliverables produced included Integration Definition and Draft Integrated Case Management (ICM) Information System Design.



**Figure 1. The "Life of the Case" Workflow Analysis Model**

The ICM solution is based on a Life of a Case workflow model designed specifically for health and human service operations. This model identifies both common functions across DHHS and unique needs of specific programs that do not fit the common Life of the Case, and therefore must be modeled separately for process future state and technology support.

### **A.3.2. Data Exchange and Governance Standards**

The project determined how existing interoperability standards can be extended and leveraged into repeatable artifacts that can be used by other states, including data architectures that leverage Service Oriented Architecture (SOA) for maximum integration, governance structures and data exchange standards. The focus was on leveraging the National Human Services Interoperability Architecture (NHSIA) and producing artifacts that can be leveraged by states for implementing the concepts of NHSIA that support interoperability. Deliverables include an approach to service discovery and reuse. These include designing either shared or federated service repositories as well as the mechanisms necessary to govern service use and maintenance. Security concerns would be addressed and documented as DHHS, DHR and DHMH implement interoperable systems that cross organizational boundaries. This also included the identification and documentation of standards and industry best-practices to address security concerns, and design and documentation of cross-organizational security architecture to guide implementation within the State as well as provide specific guidance to other jurisdictions.

### **A.3.3. The Practice of Integrating Health and Human Services**

This approach was chosen because it provides a model that other States can leverage to clearly demonstrate efficient and effective use of taxpayer money as well as the positive social outcomes produced through interoperability. It also maximizes the process and technology investments already made across DHR, DHMH and Montgomery County.

This grant facilitates development of planning documents to define interoperability and to examine the impact of interoperability on client outcomes at the practice level. The scope of the project will support interoperability for the programs across DHHS. To evaluate the benefit of interoperability, a Return on Investment (ROI) calculator was applied to cases involving clients in Transition Age Youth (ages 16-24) programs and homeless services. Programs for this age group include, but are not limited to, children aging out of the foster care system, pregnant teens, young people aging out of children's disability programs and homeless young adults.

DHR proposed to develop an ROI methodology, which includes an ROI from the taxpayer perspective, looking solely at the dollars spent by government, and a Social ROI (SROI) analysis, which is an extension of a cost-effectiveness analysis, that makes explicit the gains and tradeoffs of program-level outcomes against costs and outlays. Program-level outcomes would be assessed and aggregated across the five (5) domains of: (1) education and training to enable employability; (2) employment and income; (3) safe, affordable and stable housing; (4) access to health care for physical and mental health issues; and (5) permanent social connections.

### **Return on Taxpayer Investment:**

Montgomery County DHHS provides a broad range of public health and human services to support the needs of the community's most vulnerable children, adults and seniors through five (5) key service areas: Aging & Disability Services, Behavioral Health & Crisis Services, Children, Youth & Family Services, Public Health Services and Special Needs Housing. Currently, while the department is administratively integrated, most service delivery operates in silos, making it challenging to meet the needs of multiple service clients from a holistic perspective. To overcome this challenge, the department desires to invest in an interoperable technology and intensive teaming protocol that enables collaboration across multiple functions, increases operational efficiency across agencies, and ultimately leads to better client service and outcomes.

The goal of the Return on Taxpayer Investment (ROTI) is to create a business case to show the potential ROI from the taxpayer perspective from implementation of an interoperable technology and an intensive teaming protocol (ITP), which is a type of integrated case management methodology, for a targeted subset of intensive support users within two categories of clients: homeless and transition age youth. For the purposes of this analysis, "intensive support users" are defined as clients who used multiple services across multiple agencies within DHHS.

### **Key Terms of the ROTI Model:**

- Interoperable System: An enterprise-wide integrated case management system
- Integrated Case Management (ICM): Integrated/collaborative practice for clients with multiple needs that cross service areas but don't meet the level of intensity/complexity for intensive teaming
- Intensive Teaming Protocol (ITP): Client centered multi-agency intervention protocol for clients with intensive, multiple, and complex needs that meet specific criteria

- Intensive Support User: DHHS client who uses multiple services across multiple agencies
- “HEEAP:” Acronym for target ITP outcomes (Homelessness, Education, Employment, Access to Healthcare, Permanent Connection) as described in the table below.

<b>Homelessness</b>	<ul style="list-style-type: none"> <li>• Prevent homelessness from occurring or make the period of homelessness as short as possible</li> </ul>
<b>Education</b>	<ul style="list-style-type: none"> <li>• Obtain sufficient education and training to become employable and retain steady employment</li> </ul>
<b>Employment</b>	<ul style="list-style-type: none"> <li>• Obtain right job skills to get employed and stay employed</li> <li>• Generate sufficient income to support themselves</li> </ul>
<b>Health Care</b>	<ul style="list-style-type: none"> <li>• Access health care, including physical and mental health and emergencies</li> </ul>
<b>Permanent Connections</b>	<ul style="list-style-type: none"> <li>• Connect to and maintain a supportive relationship with a caring person</li> </ul>

**Table 1. HEEAP Outcomes**

- “As-Is” State: No Interoperability system and no ITP
- “To-Be” State: Interoperability system and ITP

### **Components of the ROTI Model Included:**

- “Double Intervention:” For the purposes of this analysis, we examined the application of an interoperability system (technology intervention) and the intensive teaming protocol (i.e. integrated case management) as applied to all subgroups
- Target Populations: Transition Age Youth and Homeless. Within both of these groups are sub-populations of users:
  - *Transition Age Youth:*
    - Children Aging out of Foster Care
    - Pregnant Teens
    - Children Aging out of Children’s Disabilities Programs
    - Homeless Youth
  - *Homeless:*
    - Homeless Families
    - Homeless Individuals
- Sub-Population Personas: In order to calculate the costs of each subgroup, we developed “personas” for each subgroup group within Transition Age Youth and Homeless. Each

persona was built around a set of criteria that a person would need to meet to trigger the need for multiple services from multiple agencies (i.e. intensive support users)

○ *Children Aging out of Foster Care Persona Criteria:*

- Seventeen (17) years old
- Mental health, physical disabilities, developmental disabilities
- Reside in foster care home

○ *Pregnant Teen Persona Criteria:*

- Sixteen (16) years old
- In high school
- Single parent, first child
- Previous trauma (i.e. sexual abuse)
- Highly dysfunctional family
- Housing is tenuous

○ *Children Aging out of Children's Disabilities Programs Persona Criteria:*

- Nineteen (19) years old
- Developmental disabilities, physical disabilities, mental health,
- In a residential program

○ *Homeless Youth Persona Criteria:*

- 21 years old
- Co-occurring diagnosis (mental illness and substance abuse)
- Behavioral issues

○ *Homeless Families:*

- 21 years old
- Single mother with children
- Unemployed parent

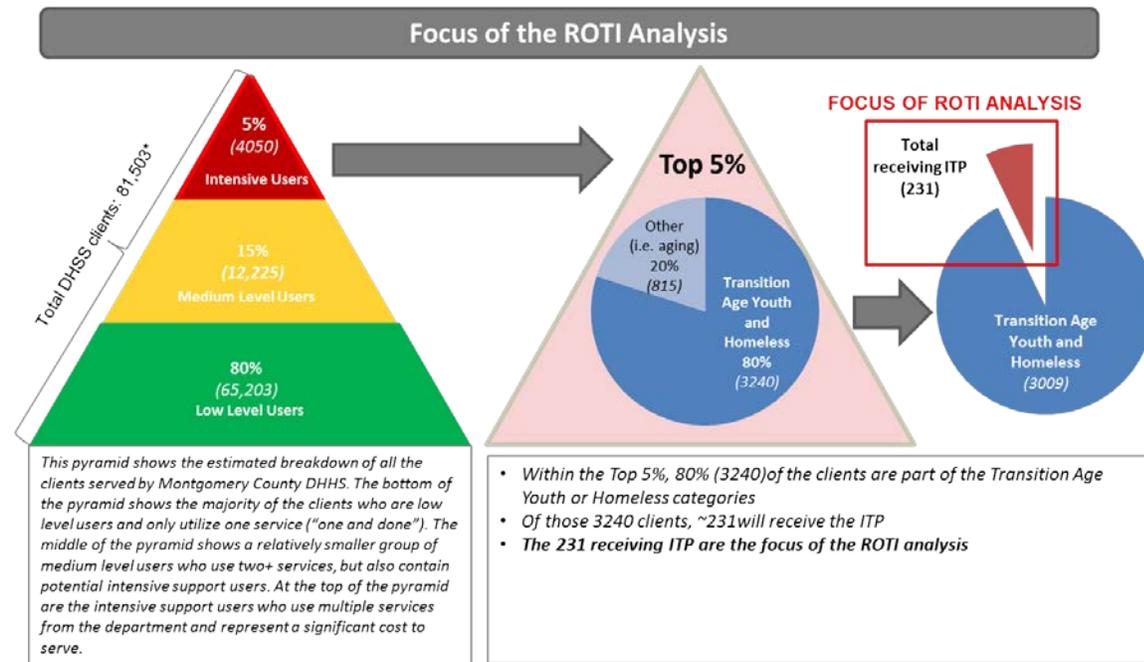
- Under-educated parent
- Mental health diagnosis
- No access to housing
- *Homeless Individuals:*
  - 45 years old
  - Mental health illness
  - Physical disability
  - Substance abuse
- “Bundle of Services:” In order to calculate the total cost of each subgroup, we examined all of the services that each persona would currently use to address their identified needs
- “As-Is” vs. “To-Be” States: In order to determine the potential cost savings, we established the “As-Is” states via the “service bundle” costs and the “To-Be” state reflecting any changes to those services or outcomes based on estimated changes from the use of an interoperability system or the ITP
- Costs: Three key investment costs over the five (5) year investment period: one time cost of building the interoperability system and hiring a third party vendor for organizational change management; fixed annual cost of system maintenance and operations; and variable cost of ITP staffing for expected number of ITP client sessions per year
- Cost Allocation: All costs were allocated across four (4) areas: County-DHHS, County – Non-DHHS, State, Federal and Other (i.e. non-profit and for profit service providers)
- HEEAP Outcomes:
  - Cost Savings: Cost savings applied to the expected efficiency gains related to the use of the interoperability system.
  - Cost Avoidance: The Cost Avoidance calculation incorporates the five (5) key domains (outcomes) to be achieved in the application of the ITP to each of the personas as well as the service bundle costs associated with a specific “future persona.” The link between the current and future persona is based on the assumption that without an ITP intervention, the future state represents a likely end state for the current persona.
  - Expected ROTI: The ROTI reflects investment of taxpayer dollars in each of the four areas – county, state, federal and “other.”

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**Key Assumptions:**

- Five (5) year projection
- Interoperability System and ITP are the two (2) interventions applicable to this analysis
- Total number of DHHS clients is 81,503, based on FY12 Performance Report
- One-time costs have been allocated to target population based on cost of system divided by total number of DHHS clients
- The maximum number of intensive support users who will receive ITP is 231
- Service costs for each persona have been determined using a cost per person calculation (total expenditure/total # of clients served). Multiple services are added to derive the “bundle of service” costs for each persona
- Cost savings reflect expected efficiency gains from reduced administrative time due to automation and decreased duplication of data entry from an interoperability system
- 100% of cost savings will start accruing in Years 4 & 5
- Cost avoidance reflects “worst case scenario” HEEAP outcomes for each target group with a 30% likelihood of success of ITP in achieving “best case scenario” outcomes

The ROTI analysis focused on the “top of the pyramid” of DHHS clients. These are clients that represent people who cycle through the use of services and consume a disproportionate number of DHHS costs.



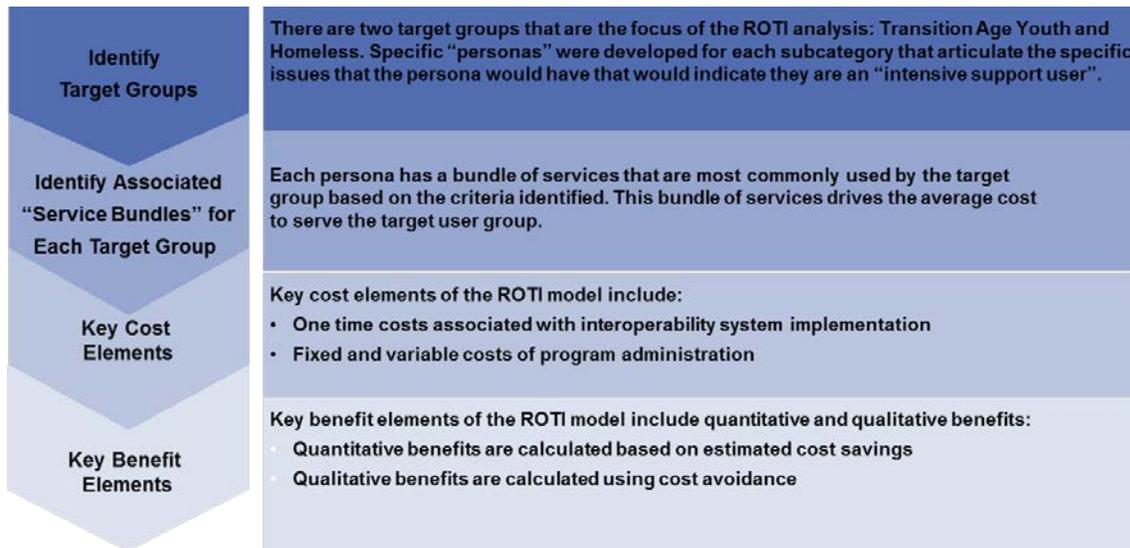
**Figure 2. Focus of ROTI Analysis**

The department elected to start with a small universe of clients with complex, interrelated needs. Transition age youth are at high risk of longer, deeper and more costly involvement with the health and human services system as their needs and issues are not effectively identified and addresses. Homeless individuals and families in this category typically have a range of issues that put them at risk of ongoing, high cost involvement with the system. In both cases, both system response and treatment effectiveness are key to improved outcomes. By starting with this group as the focus of the ROTI analysis, the hypothesis was that if there can be a positive return generated from the most complicated cases, then larger savings could be expected through the use of integrated case management and the use of an interoperability system as applied to all DHHS clients.

**ROTI Methodology:**

The ROTI methodology focuses on four (4) key steps to analyze the value of the County’s investment:

1. Identify the target user groups using a set of defined criteria and create a “persona” profile for each target group.
2. Develop a list of service bundles that are most commonly used by the target user group “persona.”
3. Identify key cost elements associated with the investment.
4. Identify the key benefit elements associated with the investment.



**Figure 3. ROTI Methodology**

**Social Return on Investment:**

This analysis of the SROI is an extension of the analysis on the ROTI cost-effectiveness analysis; both ROTI and the SROI were focused on the same case scenarios and were based on the same cost data. While the goal of ROTI was to provide a business case that demonstrated a return on investment from the implementation of an interoperable technology and an intensive teaming protocol, the goal of SROI is to assess qualitative factors for client outcomes from program services. The goal of the SROI analysis is also to provide an evidence-based tool, or an Intensive Case Management Calculator (ICMC), to Montgomery County’s service program management to aid in the decision for investment in Integration and Interoperability while considering the possible desired outcomes for a client due to intervention of services. The SROI Calculator, created from this analysis, enables users to experiment with the scenarios defined, to employ estimates of key parameters that reflect their own local practice or experience, and to view the results in tabular and graphical formats.

The typical SROI analysis for IT projects looks at the entirety of impact on as broad a range of stakeholders as possible and on as many outcomes as possible of a program intervention. Its goal is to justify the investment in terms of that totality. The goals of this current analysis are narrower by focusing the investigation on the impact on a particular set of clients. By considering the toughest cases that the DHHS agency is in a position to assist, the goal of the SROI model was to demonstrate through rigorous analysis the degree to which improving social services, through capital investments in systems and performance improvements, (1) can save in expenses for each client, (2) can improve client outcomes in a quantifiable way, and (3) can affect outcomes of those affected by the clients.

Broad impact, such as change to neighborhoods due to fewer homeless people on the street cannot be addressed by this analysis. However, impact on those directly connected to the clients in the personas discussed can be addressed. The typical SROI analysis uses dollars (money) as its

measure of even intangibles. Thus, the aim here is to consider impact on others, in a way that can be translated to dollars.

The question for this analysis, as articulated after interaction with stakeholders was the following: What impact does Interoperability make on the lives of DHHS department's most difficult cases? In particular, what impact does the To-Be service bundle, as experienced in a year, have on the subsequent four (4) years of a client's life, compare to the current, As-Is service bundle? Will this impact be large enough to warrant the investment?

This SROI analysis differs from the ROTI analysis in a number of ways. First, it addresses the value of outcomes to others in addition to the client alone. An example of such value could be what is found about HIV infections of others. Second, the analysis looks at each client's life course over five (5) years, rather than at the social services programs experience. Only the first year of treatment is considered as the investment by the analysis and projects the client's life course forward from that point. Third, it takes into account likelihoods of impactful events that occur to others, like impregnation and theft.

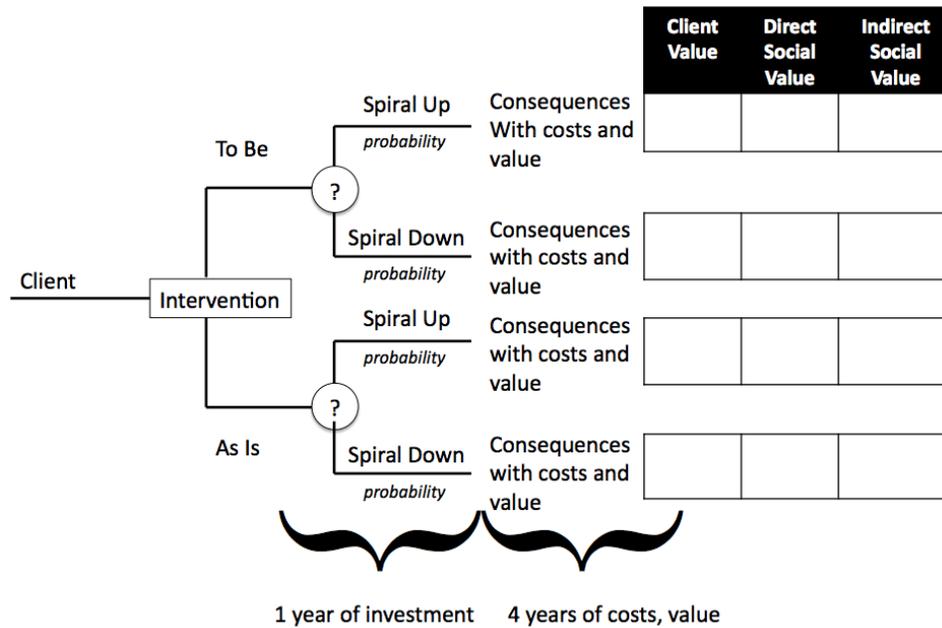
Considering the severity of condition of the clients in the cohort considered in this analysis, it is fair to claim that "spiraling up," a social state of being housed, gainfully employed, with good permanent connections, is in fact saving a "social life," if not a physical one. Just as medicine used certain threshold for "life saved" or "quality-adjusted life saved," we can talk about "social life saved." Thus, cost-consequence is about how much a jurisdiction is willing to invest to save a social life. Personas with a high cost-consequence take up more resources to save one (1) extra social life than another persona with a lower cost-consequence ratio.

### **Assumptions:**

- Year 1 of intervention followed by four (4) years of outcomes, impact, value generation (with parameters implemented to vary this assumption). Thus Year 1 is considered the *investment*.
- Interoperability and ITP are at their maximum effect.
- If the client improves, the client generally stays improved. (In Homeless Adult, we consider recidivism explicitly).
- If the client does not improve, the client receives the same bundle of services annually, without improving.
- An intervention (As-Is or To-Be service bundle) is either effective or not in year 1, and then followed impact from there (with parameters implemented to vary this assumption).
- "Deadweight," value (costs) that would normally be incurred.
- Inflation adjustment for costs taken from the literature five (5) or more years ago.

- Persona-specific assumptions related to their life course.

The heart of the SROI calculation was the following decision tree:



**Figure 4. Decision Tree**

The core pathway assumed in the models is as follows: An intensive-services client interacts with the DHHS. In the As-Is situation, services are provided as they currently are. In the To-Be situation, operations are more efficient through integration and interoperability and the client is referred to intensive teaming. The core assumptions of this pathway are:

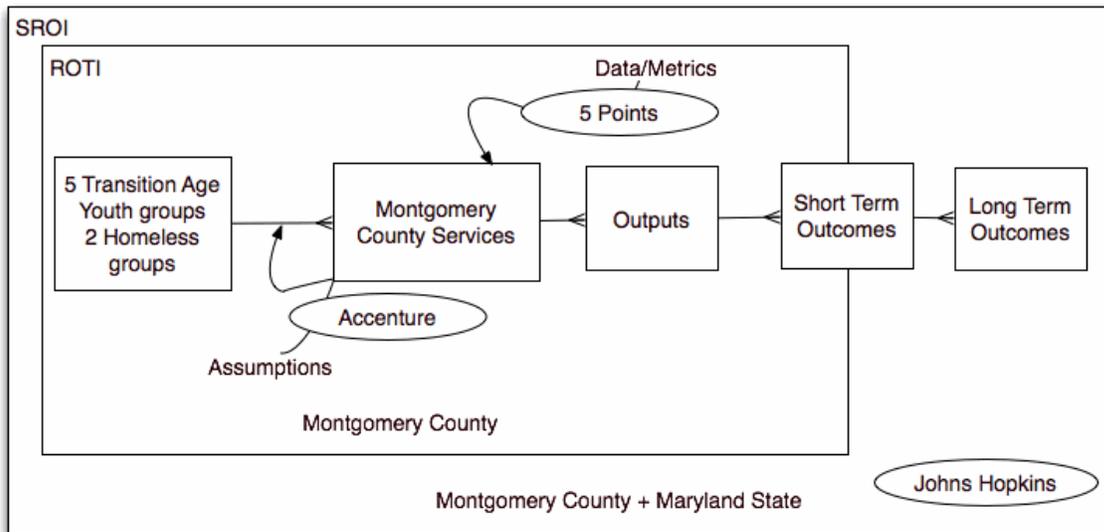
1. If the client improves, the client generally stays improved. (In Homeless Adult, we consider recidivism explicitly).
2. If the client does not improve, the client receives the same bundle of services annually, without improving.

The reality, of course, is more nuanced: Not everyone improves overnight, and those who don't improve might in fact spiral up after the first year. Either of these possibilities would lessen the difference between the improved and unimproved states, which in turn would reduce the numerical value of SROI. Hence our estimates show a type of maximum expected SROI. The SROI Calculator and User Manual, are provided as separate attachments along with this report.

### A.4. Project Participants

The Project team was comprised of exceptionally qualified personnel that included Saju Varghese (Project Manager), Harold Lehmann (John Hopkins University (JHU)), Laura Morlock (JHU), Babak Mohit (JHU), Joe Warren (JHU), Lisa Cawley (Accenture), Ying Huang

(Accenture), Mike Strange (Five Points) and Gregg Spence (Five Points). DHHS Director - Uma S. Ahluwalia, DHHS Chief Operating Officer - Stuart Venzke and DHHS Manager for Service Integration – JoAnne Calderone provided Executive Oversight for this project.



**Figure 5. Team Responsibilities**

The various project teams for Technology, Data Exchange and Return of Investment and the Project Manager, along with the Leadership team, met regularly to discuss objectives, critical issues and risks to ensure that the vision and goals of this Interoperability Grant were met.

## Part B. ELEMENTS OF THE FINAL REPORT

### B.1. Outcomes

The Montgomery County DHHS serves the needs of Montgomery County residents through nearly 80 programs in the areas of Public Health, Behavioral Health and Crisis Services; Children, Youth and Family Services; Aging and Disabilities Services, and Special Needs Housing Services. Systems that support this work range from departmental systems to county (Department of Technology Services) and state (DHMH and DHR) systems. Montgomery County offers these myriad services to a diverse population of close to a million residents, many of whom access multiple health and human services, thereby making Montgomery County DHHS an excellent example for service and technology integration and an excellent analog for other jurisdictions in proving the benefits of program integration and systems interoperability. Implementing an Interoperable ICM at Montgomery County DHHS that leverages Federal Interoperability architecture and standards such as NHSIA would lead to better outcomes and improve program integrity, administrative efficiency and service delivery. It would help reduce barriers to access and improve case outcome solutions which would help Montgomery County DHHS meet its goals of Better Health, Greater Independence and Risk Mitigation for its residents. ICM would result in streamlined work processes, improved cross-program information sharing, and reduced administrative burden. Implementation of the ICM approach across all six (6) services areas which represent most of the federal and state Health and Human Services programs will achieve the objectives of client-centric service as a result of integration among siloed agencies, programs and systems. The ICM system eliminates wrong doors and provides a seamless customer experience and access to all DHHS programs and services. The Interoperability System program functionalities would drive concrete benefits to both DHHS clients and Montgomery County taxpayers, including:

- Cross-systems view of clients enables workers to identify the health and human services needs of an individual or family more quickly through a comprehensive lens.
- Connect the individual or family to services to meet those needs.
- Improve client outcomes as result of earlier prevention measures leading to a faster transition to self-sufficiency.
- Consistent processes across departments promotes collaboration toward a common case plan across all involved services with common goals and interventions toward those goals, and assigns responsibility and tracks activity and outcomes for the appropriate service provider and/or client.
- Ensure that the common case plan is consistent and compatible with the individual program service plans.
- Support improvements in case practice through appropriate information sharing.

- A single view of the client producing a comprehensive view of a client's service history and engagement across the entire department.
- Reduced cost of treatment through improved efficiency as ICM will allow the County to use existing data sources, to populate client data greatly reduce staff time needed to process applications, reducing fraud and duplication of services.
- Fewer errors.
  - Data will no longer need to be manually re-entered, an error-prone process.
  - Information will be verified through cross-checks against other sources.
  - Timely data through interoperability results in more accurate eligibility determinations.
- Higher quality services since DHHS workers can spend more time with clients instead of performing administrative tasks.

### **Project Deliverables:**

The following describes project deliverables for the Interoperability Grant, submitted as attachments to this Final Report:

**Technology:** Draft Integrated Case Management Information System - Statement of Work, Integration Definition, Technical and Solutions Architecture.

**Data Exchange and Standards:** Project Plan for Development of a Reuse and Common Services Plan, Performance Information Repository Plan and Security and Privacy Framework Plan, Integrated Architecture, Reuse of Common Services, Identification of Common Services, Analysis of defined performance metrics, Analysis of data flows and sources, Cross Organizational Security Concerns, Target IT Security Architecture, and Review and Document Industry Best Practices.

**ROI:** ROTI Business Case, ROTI Model Template, SROI Model Report, Key Stakeholder Analysis, Inventory of Target Data, SROI Functional Design and Technical specifications, Monitoring and Assessment Plan, Calculator and User Manual

## **B.2. Issues Examined**

The following are the list of issues explored as a part of the Planning Grant:

- Establishing and maintaining privacy and confidentiality policies, processes and technologies.
- Determining cost benefits accruing from interoperability and integrated case management for the most complex cases of DHHS clients.

- Providing quantitative estimates for social intangibles resulting from interoperability.
- Managing information for program policy decisions.

### B.3. Options Considered

Following an assessment and evaluation provided by industry leaders, Montgomery County decided to design and implement the ICM project to promote objectives for seamless integration that would lead to better case planning, efficiency, program integrity and client outcomes. Since one of Montgomery County’s guiding principles is to leverage existing assets, DHHS decided to base the ICM Design on the Oracle-Siebel architecture already implemented for the County’s 311 System (MC311). To promote reusability and maintainability, we proposed an ICM information system that includes a modernization of the technical environment with an emphasis on commercial off-the-shelf (COTS) technology including:

- Oracle Siebel Public Sector 8.2.2 – a Case Management solution for health and human services.
- Oracle 11g Database for Business Intelligence and Data Warehousing.
- Oracle Business Intelligence Enterprise Edition (OBIEE).
- Oracle Enterprise Integration Manager.

Some of the other alternatives that were considered but were not pursued are given below.

Option	Alternative Description	Reason for Non-Selection
No Project	Leave Existing Systems in Place	<ul style="list-style-type: none"> <li>• Inefficiencies will Continue</li> <li>• Audits will expose HHS to fines</li> </ul>
Non-Oracle CRM	Select Another CRM Package	<ul style="list-style-type: none"> <li>• HHS would not be able to leverage current Montgomery County Siebel licensing</li> </ul>
Develop Proprietary Solution	Develop a HHS Specific Solution	<ul style="list-style-type: none"> <li>• High Chance of Failure</li> <li>• High Costs for Proprietary Solution</li> </ul>

**Table 2. Options Matrix**

### B.4. Options Impacts and Goals

Unlike some of the above alternatives, the ICM design based on an Oracle Siebel architecture solution is extensible with integration of additional functionality or replacement of modules, as the needs of Montgomery County change over time. Components of the system design in the proposed architecture include: Client Portal, User and System Interfaces, Master Client Index, Document Imaging, Enterprise Service Bus, Data Warehousing, Business Intelligence and Analytic Tools including Decision Support. These solutions are proven in the marketplace and were determined to be the best environment to support Life of the Case. In addition, experienced resources are available for customizing functionality reducing DHHS dependence on a single source. Since there are many solutions pre-integrated with the Siebel environment, DHHS can

add new features and technology without the significant investment required to integrate with a custom built solution.

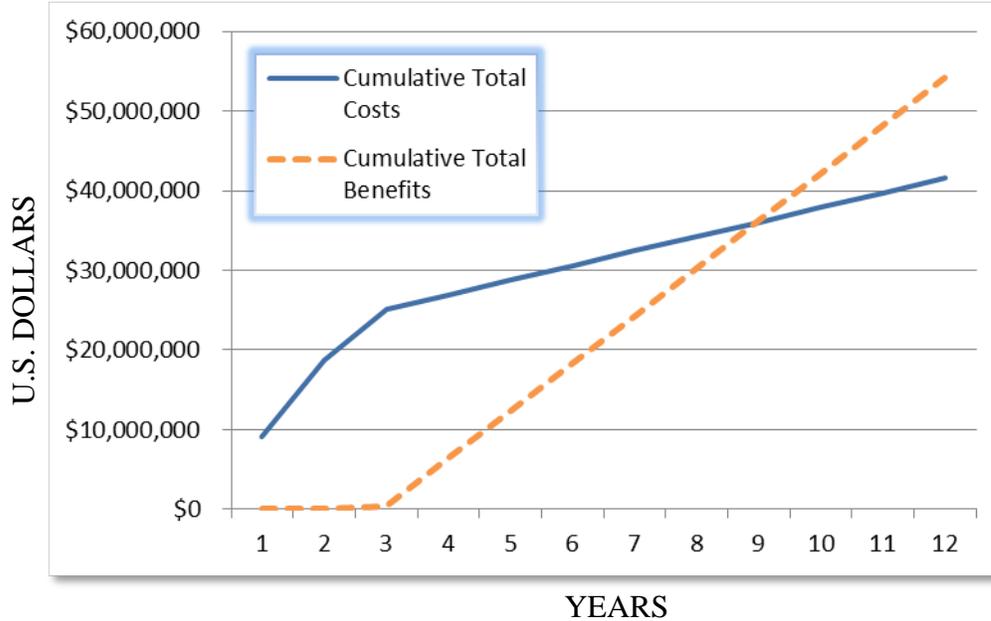
Additionally, with a COTS solution, the vendors are responsible for maintaining the systems, ensuring the technologies remain state of the art.

Implementing this proposed option (an Oracle Siebel architecture for DHHS) results in Interoperability that would ensure a “no wrong door” approach and minimize the complexity of service access regardless of the administering agency. Additional benefits include:

- Increasing efficiency and effectiveness of case processing for service areas operating within the integrated case management.
- Leveraging existing technology and modernization investments reduces the up-front investment and reduces future costs and effort of maintaining and enhancing the system.
- Strategically introduces new technologies to support reengineered business processes within the integrated case management.
- Supports COTS technology to integrate disparate State and County data systems and eliminate dual entry.
- Single point of access for all case information.
- Calculated metrics for key process to monitor program performance.
- Analytics and reports on procedure compliance, provider performance, and client outcomes.

## **B.5. Options Cost Benefit**

Justifying any investment the size and scope of the ICM requires a thorough and rigorous assessment of the costs and benefits of the project to determine the return to the County taxpayer. To assess those returns, we analyzed the ICM system development and ongoing maintenance and operations (M&O) costs over ten (10) years, as well as direct quantitative benefits, indirect quantitative benefits, and qualitative benefits to the County from implementation of the ICM over the same period. In summary, implementing the ICM will provide a positive return of taxpayer investment within the ten-year time frame, with significant additional benefits accruing beyond then. The graph below illustrates the cumulative costs and quantitative benefits of the ICM project.



**Figure 6. ICM Cumulative Costs and Quantitative Benefits.**

**The ICM will break-even in Year 9 of the analysis, and will yield annual quantitative benefits well in excess of costs**

## B.5.1. Analysis

### B.5.1.1. Project Costs

In estimating projects costs, we assessed two (2) types of costs: initial implementation costs, and ongoing maintenance and operations costs. As the table below illustrates, we estimate the initial implementation costs at \$23.6 million.

Cost Element	Initial Cost	Notes
System Implementation	\$19,000,000	Based on indicative pricing provided by vendor (August 2013)
Project Management	\$1,500,000	Allocated 50% of PMO for two (2) years (5 FTEs)
Hardware	\$500,000	Estimate based on Xerox estimate, validated with MC311
Software Licenses	\$700,000	Initial additional licensing costs
Contingency	\$1,900,000	Estimated at 10% of system implementation cost
<b>Total</b>	<b>\$23,600,000</b>	

**Table 3. Direct Implementation Costs.**

**Direct implementation costs include contracted systems integrations services, project management, hardware and software costs. These represent one-time only costs tied directly to the systems implementation effort.**

In addition, we estimated total M&O costs of \$15.1 million over the ten-year project period, at an annualized rate of \$1.8 million annually. These M&O costs would extend beyond the ten-year analysis time frame. The table summarizes the elements of M&O costs.

Cost Element	Initial Cost	Total 10-Year Cost	Notes
M&O Services	\$1,132,000	\$9,056,000	8 year costs – assumes M&O services begin after deployment. 8,000 hours at \$140/hr
M&O Project Management	\$250,000	\$2,000,000	Assuming 1 Project Manager at \$125/hr beginning in Year 3
Infrastructure Hosting and Maintenance	\$300,000	\$2,700,000	9 year costs – assumes limited infrastructure maintenance in Year 1, based on MC311 experience
Software License Fees	\$144,000	\$1,296,000	22% of initial software costs
<b>Total</b>	<b>\$1,826,000</b>	<b>\$15,052,000</b>	

**Table 4. Maintenance and Operations Costs.**

**We validated the M&O costs in part by benchmarking costs against the County's MC311 implementation.**

In total, we estimate the ten-year investment in the ICM project at \$38,652,000.

#### B.5.1.2. Project Benefits

To assess the benefits of the ICM project, we looked at three types of benefits to County residents:

1. Direct Quantitative Benefits: These represent the cost savings or avoidances directly attributable to the implementation of the ICM, through gains in efficiency, redeployment of resources, and other immediate effects.
2. Indirect Quantitative Benefits: These represent cost savings or avoidances indirectly attributable to ICM implementation. While not all secondary quantitative benefits accrue to the County directly, they represent an important benefit to the DHHS clients and County taxpayers. For example, accelerating a client family's transition from TANF and SNAP through better integrated case management will produce significant savings to the human services system, even though the program costs for those programs are borne by the Federal and State governments.
3. Qualitative Benefits: These include important benefits that, while not easily assigned a dollar value, nonetheless represent significant gains to Montgomery County residents. The ROTI and SROI models provide insight for Montgomery County leadership around the costs and qualitative benefits associated with their most complex cases.

We conclude that the direct quantitative benefits over the ten-year time frame total \$42.2 million, with an annualized run rate of \$6.0 million. Beyond the quantitative benefits, implementing the ICM will provide significant qualitative benefits to County residents.

#### B.5.1.3. Direct Quantitative Benefits

Direct quantitative benefits stem from two sources: the ability to reprogram resources from existing IT projects the ICM will make obsolete, and the ability to reprogram resources from the administration and delivery of DHHS programs. The chart below summarizes the direct quantitative benefits.

Savings/Cost Avoidance	Annual Savings (\$)	10-Year Total Savings	Notes
<b>Legacy Systems Maintenance</b>			
JD Edwards (JDE) Software	\$25,000	\$200,000	Annual JDE Software Costs
JDE Maintenance	\$80,000	\$640,000	8 year costs – assumes JDE sunsets after year 2
Other Legacy Systems Maintenance	\$320,000	\$2,560,000	HIMS, others. Assumes 2 resources at \$80/hr
<b>Subtotal</b>	<b>\$425,000</b>	<b>\$3,400,000</b>	
<b>Program Administration</b>			
Program Administration	<b>\$5,544,000</b>	<b>\$38,808,000</b>	7 year costs. Assumes 3.5% reduction in DHHS headcount (58 positions) beginning in Year 4, <b>all other things being equal</b>
<b>Total Direct Savings/Cost Avoidance</b>	<b>\$5,969,000</b>	<b>\$42,208,000</b>	

**Table 5. Direct Quantitative Benefits.**

**The direct quantitative benefits of the ICM will accrue to the County at a rate of \$6.0 million per year once the ICM is fully implemented.**

#### B.5.1.4. Indirect Quantitative Benefits

Because many of the programs DHHS administers are funded, in whole or in part, by sources other than County General Fund, improved outcomes in those programs due to more coordinated, better integrated case management may not yield benefits directly to the County in the form of reduced program outlays. Nonetheless, those improved program outcomes are a key driver of the ICM project. To estimate these indirect quantitative benefits, we identified several key program measures that we anticipate to improve due to the implementation of the ICM. We then determined the current cost of providing those services—regardless of whether the County ultimately paid for those services—and a reasonable improvement in program outcomes due to the ICM, over the same ten-year timeframe we used to calculate direct quantitative benefits. It is important to note these benefits represent only some of the program benefits we expect to realize through the implementation of the ICM. It is also important to recognize these benefits may not translate into direct savings, but instead could be captured as reduced unit costs rather than overall costs. For example, reducing the average length of stay in an emergency homeless shelter may allow DHHS to serve more homeless individuals and families for the same budget, rather than reducing the total budget. The table below summarizes a couple of these indirect quantitative benefits.

Program Benefits	Annual Savings (\$)	10-Year Total Savings	Notes
If we can reduce length of stay for emergency shelter families by 10%	\$164,620	\$1,152,341	Assumes \$79/day per family, serving 453 families annually for 41.4 days beginning in Year 4
If we can reduce length of stay for emergency shelter individuals by 10%	\$270,585	\$1,894,093	Assumes \$37/day per family, serving 1,283 individuals annually for 51.3 days beginning in Year 4.
<b>Total</b>	<b>\$435,205</b>	<b>\$3,046,434</b>	

Program Benefits	Annual Savings (\$)	10-Year Total Savings	Notes
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**Table 6. Indirect Quantitative Benefits.**

*We estimate significant, measurable benefits to the County’s human services system through better integrated case management supported by the ICM implementation.*

**ROTI - Option Cost Benefit:**

The ROTI analysis calculated the costs associated with each sub-group through the “bundle of services” used. The costs were associated with the funding source (not the provider) to ensure cost savings could be allocated appropriately. For each of the sub-groups, there are both state and federal programs that are incorporated into the “bundle of services.” For the state, the following program costs have been incorporated into this analysis:

- Maryland Children's Health Insurance Program (MCHIP)
- Childcare Subsidy Program
- Women, Infants, and Children (WIC)
- Developmental Disabilities Administration (DDA) – Support Services

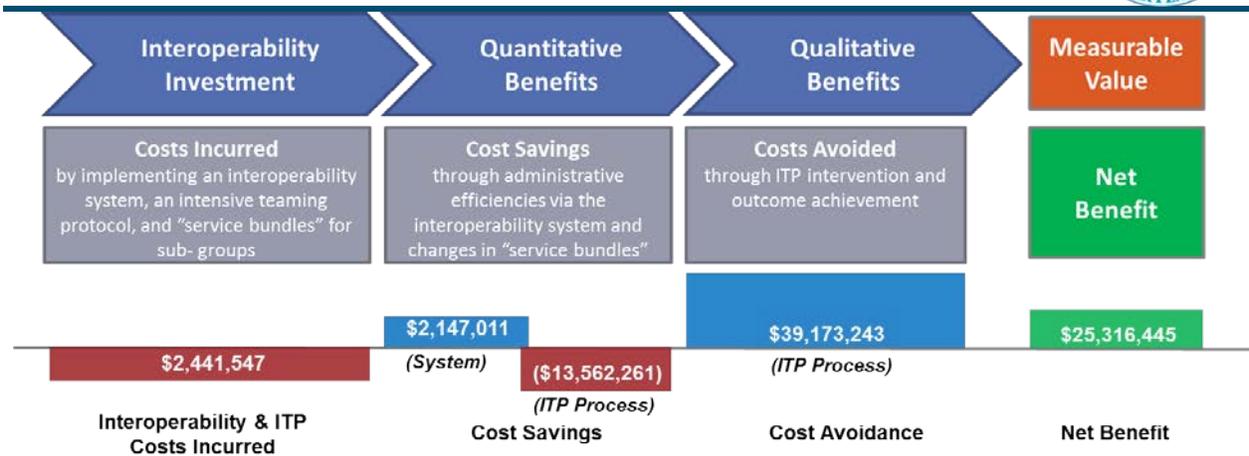
The following federal programs are included in the service bundles:

- SNAP
- TANF

Base Case Key Assumptions					
	Y1	Y2	Y3	Y4	Y5
<i>Efficiency Projection</i>	30%	30%	60%	100%	100%
<i>ITP Likelihood of Success</i>	30%	30%	30%	30%	30%

**Figure 7. Base Case Key Assumptions**

The results of the ROTI base case indicate that there would be a positive return on investment for county, state and federal taxpayers. Based on the analysis of the intensive support users within the Transition Age Youth and Homeless categories, the net benefit of the interventions is approximately \$25M.



**Figure 8. ROTI Cost Benefit**

There are considerable benefits that accrue to both the state and the federal agencies responsible for the funding of these programs when there are successful outcomes for a target subgroup through the ITP process. Over a five (5) year period, the state could save up to ~\$14M from costs avoided through the successful outcomes generated from the ITP process applied to all six (6) sub-groups. The federal government could see up to ~\$7M in savings over those same five years in the reduction in use of SNAP and TANF benefits.

### **B.5.2. Assumptions/Constraints/Dependencies:**

#### **B.5.2.1. Assumptions**

We based this business case on the following assumptions:

- The scope and cost of the ICM are reasonably reflected accurately in this analysis. Significant reductions in scope and/or significant increases in overall cost would affect this analysis. In particular, reductions in the proposed scope would reduce the business benefits on which this analysis is grounded.
- All financial calculations are on a current dollar basis, and do not include the time value of money, wage and salary increases for County staff, inflationary adjustments, and other factors.
- Cost avoidance calculations assume no other changes in the demand for services, the portfolio of services provided by DHHS, or other changes that would likely drive changes in the agency's staffing mix.
- While we have confidence in these estimates, we will not know final costs until we have completed the relevant procurement processes.

#### **B.5.2.2. Limitations and Dependencies**

Some of the state's systems with which ICM will need to transmit and receive data are in flux. The system will be designed to decouple other systems from ICM. However, if information in

the state's system is not available, this will limit the information in ICM. Some of the system dependencies are:

- Continuation of the Montgomery County desktop refresh project. This project, started in 2012 and expected to complete in 2015, will provide updated desktop systems that meet the minimum system requirements of the operating system and applications that county employees would use as part of the ICM solution. This includes access to scanners or scanning stations through the enterprise content management solution (ECMS) project.
- Establishment of Memorandums of Understanding (MOU) governing Data Sharing Agreements (DSA) between the service areas and program units that will use the solution.
- Establishment of MOUs governing DSAs with the State where integration with State systems is required.
- Achievement of project milestones related to the HBE, EHR and ECMS project schedule (specifically, the functionality for eligibility determination rules management).
- Compliance by all programs participating in the ICM with the Life of the Case workflow model designed to support program interoperability and information sharing.

## B.6. Options Enterprise Architecture

The Technical Architecture Document describes the Technical Architecture of the ICM for Montgomery County DHHS to implement the functionality and satisfy business technical, operational and transitional requirements documented in the Business Requirements Document. The Oracle-Siebel application is an integrated business software suite supporting the business processes and data integration requirements of the ICM. The detailed Technical Architecture Document defines the technologies, products, and techniques necessary to develop and support the system, and to ensure that the system components comply with the enterprise-wide standards and direction defined by Montgomery County is submitted as a separate attachment.

## B.7. Answers to Issues Examined

### *B.7.1. Establishing the Maintenance of Privacy and Confidentiality*

The ability of an Interoperable System that can securely share and protect information through business processes and principles of Confidentiality, Integrity and Authentication encourages trust and confidence for the clients to share information and avail needed DHR and DHHS programs and services. Some of the features of DHR's infrastructure to promote compliance of confidentiality and privacy include:

- Processes for safeguarding and streamlining information based on industry best practices
- Revised notice of privacy practices
- Department wide policy and training for Information Security to safeguard privacy
- Role based access depending on job related purpose
- Alignment with HIPAA, 42CFR and other privacy statutes and regulations

Benefits include:

- Coordinated treatment of services as a result of sharing information between programs improving efficiency, integrity and service delivery
- Improved quality of services provided to our clients by managing DHR's programs and services

### ***B.7.2. Determining Cost Benefits Accruing from Interoperability and ICM for the Most Complex Cases of DHHS Clients***

The interviews and research conducted by the ROTI and SROI teams showed that the proposed Interoperable ICM system improves efficiency at every stage of Intake, Eligibility, Assessment and Treatment thereby significantly reducing handle times and resource requirements.

The Interoperable ICM increases accuracy of case worker decisions made at each stage. It facilitates a faster cycle of intervention and coordination, this when applied to intensive users who use multiple services from the department represents a significant reduction in costs and improved outcomes.

The ROTI analysis evaluated cost savings through the lens of efficiency gains captured through the use of an interoperability system which would reduce the total amount of administrative time for case workers using the new system. There is an anticipated positive return associated with the expected efficiency gains through the use of an interoperability system. The model takes a conservative approach to the accrual of benefits and does not anticipate seeing the full effects of the efficiency gains until Year 4 (on a five-year timeline). Although the data included in the ROTI model is predicated on data gathered from DHHS Subject Matter Experts (SMEs) as well as from discussions with the system vendor, a more rigorous review of the current process versus the future state would be advisable. There are additional areas DHHS can investigate to determine a variety of cost savings opportunities through the use of an interoperability system which would provide the state with a higher return on their investment. The ROTI and SROI analysis includes parameters whose values could be set by other locales in order to adapt the analysis to the conditions of their jurisdictions.

### ***B.7.3. Providing Quantitative Estimates for Social Intangibles Resulting from Interoperability End Result***

Beyond the financial programmatic concerns, DHR examined the general impact to society of Integration and Interoperability. For each scenario, ideal best and worst end states were articulated by Montgomery County leadership and staff, and the probabilities (or difference in probability) of achieving those end states under As-Is and To-Be practices. The social return on the states was assessed from the literature. The Social Return on Investment compared the difference in return between the two strategies (“As-Is” and “To-Be”). The SROI analysis uses dollars (money) as its measure of even intangibles to determine if the investment is worthwhile holistically. Thus, the aim here is to consider impact on others, in a way that can be translated to dollars.

The SROI model addresses client presenting need(s)

- Improves client base condition(s)
- Reduces incidence of re-assessment, service re-enrollment, and non-productive client program participation, as well as its opposite, recidivism
- Articulates a value to the primary states that clients find themselves in at the end of five (5) years, but still in dollar terms
- Accommodates the research literature on the primary outcomes and on the efficacy of intensive case management

### ***B.7.4. Managing Information for Program and Policy Decision-Making***

An Interoperable System would provide various output and outcome measures regarding service effectiveness, service cost and provider performance for program and policy decision making.

Key to implementing such a decision support system is the following:

- Client-centered workflows across all program areas by integrating data into to a single view of the client
- Managing multiple case contributors through interoperability
- Use of a universal service catalog to allow common definition of services across program areas
- Mediated service planning to identify and mediate overlaps and gaps in service
- Comprehensive Outcome Measures

Key to both achieving and demonstrating these improved outcomes is the timely and accurate collection of data that will facilitate performance measurement, analysis and improvement. Within each reporting category that captures compliance, performance and outcome information are specific measurement indicators through which an agency's performance is assessed. It is also helpful to measure the various input categories so that the effects of changes over time in these inputs can be linked to changes in the output and outcome performance measurement indicators.

The Health and Human Services industry is subject to many regulatory reporting requirements by service area. However, there are a number of challenges that in the existing system that include:

- Disparate/Outdated Technology Solutions
- Lack of Robust Integration
- Lack of Enterprise Reporting
- Data Quality Issues
- Login to multiple applications
- Fraud cases

Good quality data is essential for effective analytical reporting. By implementing an Interoperable system, DHHS will combine county and state case management data into a consolidated environment with processes and software tools to ensure consistent and high quality data.

Case Management Data from the integrated solution will be used to implement an analytical environment used for:

- Procedural compliance monitoring: Measure service workflow within the Life of the Case to determine whether case activity complies with policy and procedural compliance goals
- Productivity and Performance measurement: Measure performance against agency, county, state, and federal case management and service delivery requirements
- Outcomes Measurement: Program's success at meeting client needs and improving client conditions
- Fraud Detection: Provide DHHS the ability to correlate data and anomaly detection required for fraud detection
- ROTI: The information will provide data for ROTI and SROI Analysis

A good Interoperable model and a well perceived plan for implementation will give Montgomery County the data it needs to create many new reports and dashboards to meet new requirements coming from state and Federal Government.

## B.8. End Result

The desired end result of this project is to develop and implement an enterprise-wide integrated case management information solution for Montgomery County DHHS to improve process efficiency and effectiveness and to establish an improved health and human services information system that:

- Integrates with identified Maryland system(s) to streamline intake and eligibility for all State and County programs
- Extends the County Siebel environment to support the ICM model and replace local tools
- Updates County technology to integrate disparate State and County data systems and eliminate dual entry
- Provides a single entry and access point for all case information
- Implements a provider portal to facilitate data exchange with contract providers and community based organizations (CBOs)
- Calculates metrics for key process to monitor program performance
- Collects data and reports on procedure compliance, case performance, and client outcomes
- Supports customer self-service by leveraging the State portal
- Integrates the Montgomery County ECMS project to reduce DHHS reliance on paper files

## B.9. Breadth

The results from the grant-funded interoperability planning activity will lead to a process and technology improvement and an ICM initiative serving Montgomery County DHHS clients receiving services from more than one program. The nature of a large, diverse social service agency like Montgomery County DHHS requires many data systems to support case management processes. Because the County is closely tied to the State, the ICM system will expand beyond County-managed information systems into State systems. The County relies on a number of State-supported systems as integral components of the existing service model. These systems provide case management, tracking and reporting features that are controlled at a State and Federal level, the ICM system will provide data to or extract data from the various state systems in order to provide an accurate, compliant view of a client's benefits and services. The ICM project team expects to integrate with State and County-level systems supporting the overall goals of the Interoperability and PTM initiative, including CIS, OHEP, CARES 2.0, HBE, and ECMS.

The total breadth of the interoperability effort could be achieved through the following process:

### ***B.9.1. DHHS Interoperability***

Planning will support interoperability for approximately 86,000 clients a year. These clients participate in services delivered by nearly 80 programs spanning five (5) service areas: Aging and Disability Services (ADS); Behavioral Health and Crisis Services (BHCS); Children, Youth and Family (CYF); Public Health Services (PHS); and Special Needs Housing (SNH). They include clients who are low level users and only utilize one (1) service (“one and done”) others who use multiple services from the department and represent a significant cost to serve.

ICM will provide comprehensive Client and Case Management functionality that empowers the health and human services workers to offer superior services to their client cost-effectively. Some of the major features of the ICM that enable the case workers to provide superior services to the client are:

- Client-centric case management, delivered through a complete 360-degree view of individuals and their relationships, by bridging program silos and systems
- Seamless integration with legacy systems
- Mechanisms for calculating accurate client outcomes

### ***B.9.2. State-Level Interoperability, Pilot***

DHR will explore translation of the ICM, NHSIA, ROTI, SROI and Calculator initiatives to a pilot project at the State level, creating an integrated case management environment for case workers serving common clients in the Independent Living programs. This pilot project across all counties in Maryland could focus on at-risk children preparing to age out of the state foster care system; high consumer of social services. The goal of the pilot is to prove the efficacy of case coordination via integrated case management and interoperability for “deep end” consumers, and to “test drive” the ROTI and SROTI models. DHR will evaluate both the Montgomery County PTM initiative and the State pilot project to create an interoperability model for all DHR programs across all 23 counties in Maryland. This expanded interoperability project will serve up to one million residents per year in Maryland.

#### **Health and Human Services Considered:**

- Aging and Disability Services (ADS)
- Behavioral Health and Crisis Services (BHCS)
- Children, Youth and Family (CYF) non-child-welfare programs
- OCF
- Public Health Services (PHS)

- Medicaid
- SNAP, Temporary Cash Assistance
- SNH

## **B.10. Human Services Program and Initiatives**

DHR and DHHS are working to integrate needs based social services such as TANF and SNAP with health programs. The Interoperability system will include additional programs such as Aging and Disability Services; Children, Youth and Families programs such as child welfare and early learning; Behavioral Health Programs to include mental health, substance abuse, crisis response, victim services and domestic violence; Public Health programs from infectious diseases, licensing and regulatory matters, community health planning, maternal and child health, healthcare programs for the uninsured; and Supportive Housing programs for special needs populations and households at risk of or experiencing homelessness.

## **B.11. Information Technology Initiatives**

The County relies on a number of State-supported systems as integral components of the existing service model. The ICM project team expects to leverage and integrate with State and County-level systems that support the overall goals of the PTM initiative, including CARES, CIS, OHEP, HBE, and ECMS. This is why interoperability plays such a large role in the ICM.

We will leverage whatever data feeds are available to extract data and otherwise interact with these systems of record. To accomplish the goal of recusing dual entry, all data from the client's application will be entered into the ICM and sent in real time to CIS for case and person clearance. Once complete the application data will be transmitted to CARES for eligibility determination and the decision and benefit will be returned to the ICM.

Long range plans include the consolidation of all eligibility into a single system, based on the HBE. These interfaces will be based on federal standards such as MITA, NHSIA and NIEM. For this reason, the ICM will leverage as much of the NHSIA/NIEM standards as are practical. In addition the Innovation Center at the State DHR is considering NIEM as the underlying structure for storing and exchanging data between state systems.

In addition to the HBE, several other state initiatives are planned over the implementation timeframe of the ICM, including a new MMIS and a modernized portal for all Health and Human services. These initiatives and the modern systems implemented will further drive adoption of standards in Maryland.

### ***B.11.1. Application, Intake and Eligibility Integration***

Once completely implemented, the HBE will support the State-wide eligibility determination system for all federal HHS programs. Initially, users of the Montgomery County ICM solution will interact with the eligibility system, initially CARES and the HBE for Modified Adjusted Gross Income (MAGI), by means of web services based on the NHSIA standard. These same

web services can be implemented in the expanded HBE system, allowing the ICM to be integrated with the new eligibility engines without significant modification.

### ***B.11.2. ECMS Integration***

The State of Maryland sponsored an electronic repository system, known as the ECMS, which has three key pieces of functionality:

- Scanning of the case related documentation
- Storage of electronic information based on client case numbers
- Retrieval of that information in digital format for case workers to be able to process the case.

The objective of the ECMS is to achieve near-paperless operations enabling faster retrieval of electronic information, faster processing of client cases and the resulting better client experience, and real-time reporting that can support the improvement of DHR and DHHS mission services enterprise-wide. Further, the ECMS will improve the client experience as documents need only be delivered and certified once and used by other programs or service providers.

ECMS is a State-wide web-based imaging system designed to convert the tons of paper handled by the Department into electronic images. The ECMS solution will enable DHHS workers to capture, index, manage, store and deliver these documents in electronic format allowing documents to be scanned and stored once, further extending the single point of entry concept foundational for Interoperability.

The State of Maryland DHR implemented ECMS at the state and county levels in primarily two service areas – Family Investment Administration (FIA) and Child Support Enforcement Administration (CSEA). Montgomery County, DHHS expanded the DHR ECMS to include additional service areas beyond the FIA offices.

The Montgomery County ICM solution will interact with ECMS to capture documents throughout the Life of the Case lining them to the relevant case or individual client.

### ***B.11.3. Integration with Legacy State Systems***

Montgomery County relies on more than a dozen of State supported legacy information systems as integral components of the existing service model. As part of the ICM design, the project team identified the highest value transactions, based on caseload, user count and administrative requirements, among other factors. The results pointed to the current DHR systems (CIS, CARES, OHEP, and CSES) and the HBE as the highest value systems for early implementation. These systems support the majority of the clients and users and constitute a high percentage of the dual entry. Adding additional trading partners and interfaces to the system as funding and capabilities exist will further reduce dual entry and expand tracking of services and individual client outcomes.

## B.12. Health Intersection

DHHS’s proposed ICM is predicated on work underway to integrate social services and health programs in Maryland via the HBE. Working with DHR and DHMH, Montgomery County DHHS leverages the interoperable systems being developed for the Healthcare exchange intersecting with the States’ plans related to the Medicaid expansion that took effect on January 1, 2014.

Initially the systems will exchange data from the client’s application using web services for processing in the individual systems of record. Over time, the eligibility rules for other benefit programs will be modernized into an SOA so they can be consumed by other applications as well, such as the Montgomery County ICM. Once implemented, the SOA will provide seamless integration between applications without the need to transfer bulk data from system to system. The data can reside anywhere and be processed in place by simply calling the “Eligibility Determination” service and passing the appropriate parameters

## B.13. Stakeholders

The senior leadership of DHHS has been enthusiastic advocates for an Interoperable system and Process and Technology Modernization to improve efficiency and effectiveness. A steering committee is currently in place that includes Service Chiefs from various departments and representatives from DHR for the PTM initiative. This steering committee is focused on collaboration and ensuring work that is completed is evaluated across agencies and functions for the integration of the state systems with ICM. This steering committee along with the Project Management Office (PMO) team that manages several other initiatives under PTM such as Quality Assurance, EHR and Organizational Change Management will be leveraged for oversight of the grant.

The ICM team has developed a process for gathering input and reviewing requirements that includes advocates from all department levels of DHHS. A “Service Area Representatives (eSARS) Team” established for the project ensures continued involvement throughout the process. The continual involvement of County and State-level stakeholders improves the chance of success for this initiative by allowing end users of the solution to have ongoing input to the direction of the project, and providing a forum for discussion of additional process needs that might require addressing within the ICM solution.

A critical component of ROTI and SROI was understanding the various human service programs and services provided to our target groups. In order to capture this data, our team conducted extensive interviews and gathered data from key Montgomery County personnel as well as other county and state services. The following stakeholders, as shown below, were interviewed for this project:

Agency	Program/Service	Name	Title
Montgomery County DHHS	Administration	Uma Ahluwalia	Director
Montgomery County DHHS	Administration	Stuart Venzke	COO
Montgomery County DHHS	Planning, Accountability and Customer Service	JoAnne Calderone	Manager
Maryland – Department of	Administration	ML Wernecke	Chief of Staff

Agency	Program/Service	Name	Title
Human Resources (DHR)			
Maryland – Department of Human Resources (DHR)	Administration	Isabel Fitzgerald	Former Deputy Secretary
Maryland – Department of Human Resources (DHR)	Administration	Bonnie Ariano	Special Assistant to Secretary Grants
Montgomery County DHHS	DHHS	Ron Rivlin	Service Integration Coordinator for ITP
Montgomery County DHHS	Administration – DHHS Budget	Patricia Stromberg	Budget Lead
Montgomery County DHHS	Administration – DHHS Fiscal	Victoria Buckland	Fiscal Lead
Montgomery County DHHS	Aging and Disabilities Services	John Kenney	Service Area Chief
Montgomery County DHHS	Behavioral Health Services	Kate Garvey	Service Area Chief and Social Service Officers
Montgomery County DHHS	Behavioral Health Services	JoAnn Barnes	Service Area Deputy Chief
Montgomery County DHHS	Children, Youth and Families Services	Raymond. L. Crowell	Service Area Chief
Montgomery County DHHS	Children, Youth and Families Services	Scott Greene	Service Area Deputy Chief
Montgomery County DHHS	Public Health Services	Ulder Tillman	Service Area Chief and Health Officer
Montgomery County DHHS	Public Health Services	Helen Lettlow	Service Area Deputy Chief
Montgomery County DHHS	Special Needs Housing	Nadim Khan	Service Area Chief
Montgomery County DHHS – Aging and Disabilities Services	Assessment and Continuing Case Management	Mario Wawrzusin	Administrator
Montgomery County DHHS – Aging and Disabilities Services	Developmental Disabilities	Lauren Newman	Administrator
Montgomery County DHHS – Aging and Disabilities Services	Aging and Disabilities Services	Odile Brunetto	Director
Montgomery County DHHS – Aging and Disabilities Services	Adult Services Intake	Ron Weinreich	Social Worker
Montgomery County DHHS – Aging and Disabilities Services	Adult Protective Services Assessment	Bonnie Klem	Social Worker
Montgomery County DHHS – Aging and Disabilities Services	Resource Coordination	Tom Greene	Manager
Montgomery County DHHS – Aging and Disabilities Services	eSAR & Adult Services Intake	Ron Weinreich	Service Area Representative for integration & implementation (eSAR) & Social Worker
Montgomery County DHHS – Behavioral Health Services	Crisis Intake and Trauma Center	Terry Bennett	Manager
Montgomery County DHHS – Behavioral Health Services	Crisis Intake and Trauma Center/Trauma and Safety Net Clinic/Access to BHS	Gene Morris	Manager
Montgomery County DHHS – Behavioral Health Services	Treatment Services/Outpatient BHS/Child & Adolescent	Nicki Drotleff	Manager

Agency	Program/Service	Name	Title
Montgomery County DHHS – Behavioral Health Services	Treatment Services/Screening and Assessment Services for Children and Adolescents	Regina Morales	Supervisory Therapist
Montgomery County DHHS – Behavioral Health Services	Core Services Agency/Special Programs/Reporting	Rich Schiffauer	Program Manager
Montgomery County DHHS – Behavioral Health Services	Violence Prevention Initiative	Amy Morantes	Family Intervention Specialist
Montgomery County DHHS – Children, Youth and Family Services	Purchase of Child Care and Working Parents	Rene Williams	Manager
Montgomery County DHHS – Children, Youth and Family Services	Child Welfare Services/ Transition Youth Services	Lisa Merkins	Manager
Montgomery County DHHS – Children, Youth and Family Services	Child Welfare Services/ Transition Youth Services	Cynde Burgess	Manager
Montgomery County DHHS – Children, Youth and Family Services	Child Welfare Services/Positive Youth Development/Street Outreach Network	Luis Cardona	Human Services Program Manager
Montgomery County DHHS – Children, Youth and Family Services	eSAR	JoAnne Becka	Service Area Representative for Integration & Implementation
Montgomery County DHHS – Public Health Services	Nurse Case Management	Ernestine Nicolson	Supervisor
Montgomery County DHHS – Public Health Services	eSAR	Mark Hodge	Service Area Representative for Integration & Implementation
Montgomery County DHHS – Special Needs Housing	Special Needs Housing/Homeless Services	Kim Ball	Administrator
Montgomery County DHHS – Special Needs Housing	Special Needs Housing/Homeless Services/Contract Monitoring Staff/Homeless Single Adults	Tanya Jones	Contract Manager
Montgomery County DHHS – Special Needs Housing	Special Needs Housing/Homeless Services/Homeless Families	Aneise Childress-Harvell	Manager
Montgomery County DHHS – Special Needs Housing	Special Needs Housing/Housing Stabilization Programs	Sara Black	Administrator
Montgomery County DHHS – Special Needs Housing	eSAR	Robert Eaton	Service Area Representative for Integration & Implementation
Montgomery County Public Schools (MCPS)	MCPS placement specialists	George Moore	Program Manager
Maryland Health Benefits Exchange	Health Benefits Exchange	Kevin Yang	CIO

Agency	Program/Service	Name	Title
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**Table 7. List of Stakeholders**

## B.14. Privacy and Confidentiality Framework

Montgomery County is charged with the protection of data for its clients. This includes creating a secure environment and providing safeguards and standard operating procedures to ensure that their privacy is maintained. There are many laws and regulations that govern privacy policy for this secure environment.

The advantages of operating a secure IT environment greatly outweigh the disadvantages. While properly adhering to national standards may be costly, not keeping your security policies up to date can be disastrous if you get hacked. Everyone is, or should be, concerned with privacy, addressing those concerns is paramount in today’s environment. The proper security environment offers secure communication with its users and protects their data.

Confidentiality is fundamentally about how we control information. It is about sharing the information we want to share and with whom. The information technology can not only greatly facilitate the sharing of information, it can also greatly enhance both the security and the confidentiality of information in electronic form over that of paper-based information.

The HIPAA clearly defines how protected information is to be treated and what the exceptions are regarding release without patient authorization. State and federal laws other than HIPAA provide further guidance regarding the release or restrictions on release of information by identifying sensitive information. Legal requirements though, represent the floor and not necessarily all of the privacy protections that an organization may choose to adopt or should adopt. In other words, organizations can go above and beyond the law providing greater protections than state or federal laws require.

Information may be shared for a number of reasons. First, information sharing may be expressly permitted (rather than prohibited) under federal or state laws. For example, HIPAA spells out the conditions and circumstances under which protected health information may be shared. Similarly, SAMHSA’s 42 CFR, Part 2 specifies the conditions and circumstances, although more restrictive, under which substance abuse and mental health information can be shared. Finally, FERPA (Family Educational Rights and Privacy Act) spells out the conditions and circumstances under which educational information may be shared. These federal laws specify the minimum thresholds that an organization must obey. States may add additional restrictions that go above and beyond these federal laws.

In addition to permitting the sharing of information, the law typically specifies the requirements for individual consent to the sharing of information. As a general rule, individuals must be able to deny consent, limit the consent to a particular period of time or a particular type of information, or withdraw consent altogether. For example, schools must generally have written permission from the parent or eligible student in order to release any information from a student's education record.

Finally, the sharing of information may be directed by court order. For example, FERPA allows schools to disclose records without consent in order to comply with a judicial order or lawfully issued subpoena.

While the specifics of client consent will vary from jurisdiction to jurisdiction, appropriate use of security mechanisms can be used to restrict access to client information in accordance with the client's consent decisions.

The first aspect is to electronically record information relative to an individual's consent to share his or her information. This should provide a means for an individual to consent to sharing information or to opt out. Further, it should provide a means for the individual to specify which types of information to share and with whom. Finally, consent must be set to expire as of a given date.

The second aspect is for the system where the information is stored to make appropriate information available based on the consent in place and the attributes of the person seeking to access the information. The attributes of the person should be a part of his or her federated single-sign on credentials.

Security and privacy concerns are pervasive throughout the architecture domains and in all phases of the architecture development for ICM. Its fundamental purpose is to protect the value of the systems and information assets of the enterprise. The expected benefits of implementing secure architecture are:

- Security services provide confidentiality, integrity, and availability services for the platform.
- Consistently manage IT risk across the enterprise while leveraging industry best practices.
- Reduce the costs of managing IT risk and improve flexibility by implementing common security solutions across the enterprise.
- Allow decision makers to make better and faster security-related decisions across the enterprise.
- Promote interoperability, integration and ease-of-access while effectively managing risk.

It is important to note that while technology can be put in place to restrict, encrypt, or otherwise protect information in electronic form, those protections are only as good as the processes put in place by the sender and receiver. All the technology in the world will not protect information from disclosure if a user shares a password, leaves a terminal with sensitive data displayed or prints and leaves paper copies of information in non-secure areas. For this reason, any privacy and security plan must have process and physical security (i.e. access to servers, networks or secure areas) in addition to electronic safeguards.

Security and privacy will be implemented into this architecture through various policies to help protect the systems, business information and data. These policies will also provide

confidentiality, integrity, and availability of services for the platform, as well as help manage IT risk across DHHS. The enterprise architecture principles protect information from unauthorized access. This will allow DHHS to:

- Protect the security and privacy of the framework that will facilitate interoperability and the sharing of information across organizational boundaries.
- Ensure data exchanges are encrypted during integration and authorize systems to have the ability to decrypt the messages.

## **B.15. Benefit to Other States**

DHR and DHHS will share all of the lessons learned and best practices developed during the ICM implementation with other states and counties. Artifacts, including the Draft Statement of Work provide a Roadmap of Implementation of ICM and a perspective on what should be considered by other jurisdictions making the decision to implement an interoperable environment. We are also providing the functional design and specifications for the ROTI model and SROI model that could be used for analysis of the financial and social returns for strategic investments in Interoperable systems and technology. The Calculator, itself, is open-source and available to other States. The following are some of the benefits to other states:

### ***B.15.1. Development and Reuse of Common Services***

Identifying and developing a common process is vital to building an information system designed to be used across programs. This includes preliminary identification and assessment of common services and the methodology for how those services could integrate with local systems to facilitate interoperability between states and counties. Reusable common IT services are autonomous, reusable and discoverable components that provide business functionality at a low level of granularity, and can be part of an enterprise application. A reusable service is identified with a business purpose and that purpose forms the basis of the service's specifications. Reusing common services support interoperable architecture goals since these independent business components can be shared across the DHHS programs and by other states and agencies.

### ***B.15.2. Definition of an Integrated Case Management Model***

The Life of the Case Model and Core Information Flows provide the foundation for an enterprise-wide, integrated case management system that improves visibility into the entire array of services being provided to a client, regardless of program, agency or service area. We are providing an integration definition that explains the mechanisms used for the ICM to interoperate with necessary State systems. We are also providing a Draft Statement of Work that describes the proposed approach to developing and implementing an information system that supports an enterprise-wide model for ICM for the Montgomery DHHS.

### ***B.15.3. Development of a Performance Information Repository***

The Life of the Case core information flows defines data required to flow from one process to another in order to track client outcomes and provider performance. A detailed plan for creation

of a performance information repository containing the data needed to support both program-level performance and evidence-based outcome assessments is also provided.

#### ***B.15.4. Development of a Security and Privacy Framework***

A plan to design and implement a security and privacy framework to facilitate interoperability and information sharing across organizational boundaries has been provided. The plan addresses barriers and concerns of agencies sharing information and will be useful to other states looking to implement security mechanisms to promote integration and information sharing between organizations.

#### ***B.15.5. ROI Models and Calculators***

We designed ROTI and SROI analyses to address the question of impact of ICM (especially in the context of the ITP) on financial and social outcomes of the most-needy clients in Montgomery County. The rationale was that, if we demonstrate an expected return on just these clients, then the ICM project will have been successful. If we do not demonstrate such a return, then analyzing the ability of HHS to intervene earlier, because of ICM, in the lives of distressed clients, becomes even more important, to address the timing and “dosing” of HHS interventions. The Calculator itself includes Worksheets for each Persona presented in this report. Local jurisdictions are welcome to modify the numerical values in the Worksheets, to make the Personas match local experience. The Calculator is not Web based, so there is no sharing of data entered on specifics nor on the Willingness to Pay (WTP) threshold. The User Manual associated with the Calculator explains the process.

*Benefit of the Models:* The approach and methodology used to examine the use of taxpayer dollars and social outcomes for a system and process intervention can be used for other types of interventions and target groups. The benefit of this type of analysis for other states is that it provides an approach and a baseline model from which they can build their own analysis as applied to any kind of intervention – be it an IT system, an integrated case management model or an innovative program that is showing real results in areas of priority for the community.

*Benefit of the Analysis:* The value of the ROTI and the SROI models is in the understanding of how well taxpayer money is working towards achieving the positive social benefits we want as a community. When using the lens of the taxpayer as “investor” in improving social outcomes, our models can help human service organizations better direct their dollars towards solutions that impact qualitative factors and value for client outcomes from program services

*For Montgomery County DHHS:* The focus was at the top of the pyramid, the most complex and complicated set of clients. Based on the analysis done to date, there is value, both quantitative and qualitative in the application of the ITP with the Intensive Support Users. The results from the ROTI and SROI Analysis provide insight for Montgomery County leadership around the costs and benefits associated with their most complex cases. It establishes a foundation upon which Montgomery County can continue this analysis to find the “right dose at the right time” for all DHHS clients. It also provides DHHS with valuable data that shows taxpayer savings that can be reinvested to drive continued investment into solutions that work.

## Part C. GLOSSARY

Name	Acronym
Aging and Disability Services	ADS
Behavioral Health and Crisis Services	BHCS
Child Support Enforcement Administration	CSEA
Children, Youth and Family	CYF
Commercial off-the-Shelf	COTS
Data Sharing Agreement	DSA
Department of Health and Human Services	DHHS
Department of Health and Mental Hygiene	DHMH
Department of Human Resources	DHR
Developmental Disabilities Administration	DDA
Enterprise Content Management System	ECMS
Family Investment Administration	FIA
Health Benefit Exchange	HBE
Health Insurance Portability and Accountability Act	HIPAA
Homelessness, Education, Employment, Access to Healthcare, Permanent Connection	HEEAP
Information Technology	IT
Integrated Case Management	ICM
Intensive Teaming Protocol	ITP
John Hopkins University	JHU
Local Department of Social Services	LDSS
Maintenance and Operations	M&O
Managed Care Health Insurance Plan	MCHIP
Memorandums of Understanding	MOU
Montgomery County Public Schools	MCPS
National Human Services Interoperability Architecture	NHSIA
Process and Technology Modernization	PTM
Public Health Services	PHS
Program Management Office	PMO
Return on Investment	ROI
Return on Taxpayer Investment	ROTI
Service Oriented Architecture	SOA
Social Return on Investment	SROI
Special Needs Housing	SNH
Supplemental Nutrition Assistance Program	SNAP
Temporary Assistance for Needy Families	TANF
Willingness to Pay	WTP
Women, Infants, and Children	WIC