



Integrated Health and Human Services (IHHS) National Trends

HHS Advisory Service Point of View

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The Future of IHHS National Trends and Lessons Learned – Overcoming Decades of Silos

Key Federally Funded State Systems and Initiatives

A Large System of Silos

System Name	Description	Federal Partner
Core Public Assistance Eligibility	Family Assistance Management Information System – FAMIS (Title IV-A – TANF; Welfare to Work; Medicaid; and Food Stamps) – often a separate agency or under an umbrella human services agency	U.S. Department of HHS Administration for Children and Families (ACF); U.S. Department of Agriculture Food and Nutrition Service (FNS) and Centers for Medicare and Medicaid Services (CMS)
Integrated Eligibility	Title IV-A-TANF; Supplemental Nutrition Assistance - SNAP (Food Stamps); Medicaid; State Child Health Insurance Program (S-CHIP); Medicaid Waiver Services; Energy Assistance; Subsidized Child Care; others – often under an umbrella human services agency	ACF, CMS and FNS
Medicaid Management Information System (MMIS) – Medicaid Enterprise System (MES) Modernization	<p>Mechanized claims processing and information retrieval system which states are required to have for Title XIX purposes, unless waived by the Secretary of U.S. Department of Health and Human Services – often provided by a separate Medicaid agency or under umbrella human services agency or department of health</p> <p>With the Affordable Care Act and the High-Tech Act, CMS updated developed new rules around Medicaid Enterprise System Modernization and related seven standards and conditions that focus on Modularity, Interoperability, Reusability, Agile and SOA and the movement from certification of the full MMIS to CMS certification of individual modules</p>	CMS

Key Federally Funded State Systems and Initiatives

A Large System of Silos, Cont'd

System Name	Description	Federal Partner
Medicaid Information Technology Architecture (MITA) 1.0 – 3.0	MITA State Self Assessment (SSA) and Roadmap for Enterprise Architecture for all Medicaid business processes – required to qualify for enhanced Federal Funding for MMIS systems	CMS
Health Information Technology (HIT)	A variety of federal initiatives – <ul style="list-style-type: none"> • State Medicaid HIT Plan for the Incentive Program for the Meaningful Use Adoption of EHR by Eligibility Providers • Office of the National Coordinator (ONC) Health Information Exchange • Health Insurance Exchange State Based or Federal Health Insurance Marketplace 	CMS; U.S. Department of HHS Office of the National Coordinator (ONC)
Child Welfare – Child Protective Services; Foster Care; and Adoption – Comprehensive Child Welfare Information System (CCWIS)	CCWIS (Title IV-E; Title IV-B; and Title XX) focus on data integration and robust decision support through the full life of a Child Welfare Case (CWS) – the journey of the child, family and CWS worker	ACF
Adult Protective Services – Focus on prevention, reporting and intervention in elderly abuse	Often a functional component of the Child Protective functionality of a SACWIS and today CCWIS system – or a stand-alone system – found in a state’s office of aging or elderly services or under umbrella human services agency	ACF
Behavioral Health Case Management Systems (From Encounter Systems to Electronic Health Records)	Behavioral Health (Developmental Disabilities; Mental Health; Substance Abuse – Drug and Alcohol) systems often through separate agencies or umbrella human services agency or a state’s public health department. With the Affordable Care Act the relationship of Behavioral Health (BH) and Physical Health are a top agenda as well as tailored EHRs for BH	U.S. Department of HHS Substance Abuse and Mental Health Services Administration (SAMSA) and CMS

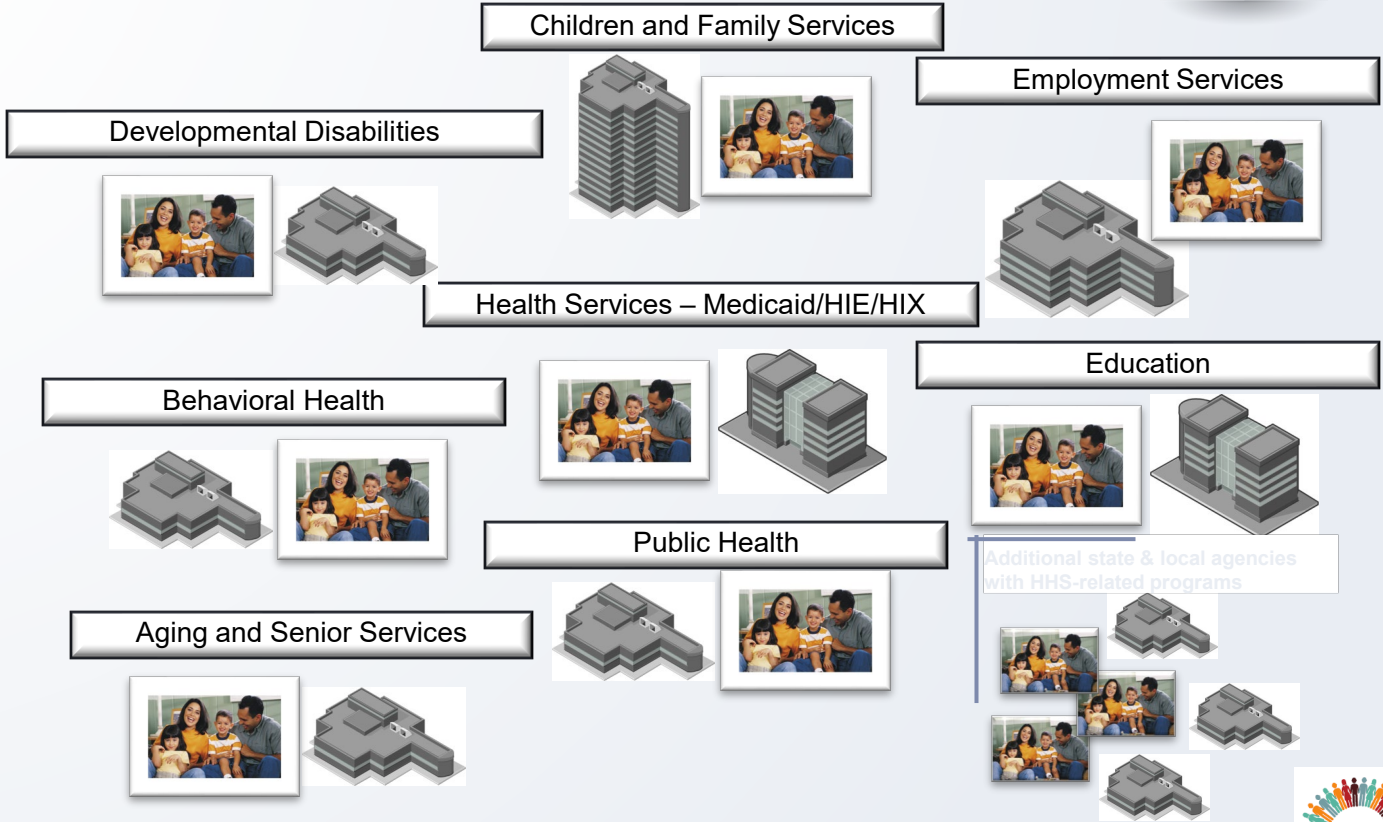
Key Federally Funded State Systems and Initiatives

A Large System of Silos, Cont'd

System Name	Description	Federal Partner
Women, Infants and Children (WIC) System	U.S. Department of Agriculture Food and Nutrition Service - Information Systems (IS) for the Special Supplemental Nutrition Program for Women, Infants and Children (WIC Program) – often under a state’s public health department	FNS
Child Care Management Information System	CCMIS (Title V; Title XXII) enrollment and management of subsidized child care programs including licenses and registration of providers	ACF
Child Support Enforcement	CSEMIS (Title IV-D) – state activity to support the determination of and fulfillment of child support through court related processes – often a separate agency or under the Attorney General or under an umbrella human services agency	U.S. Department of HHS Office of Child Support Enforcement (CSE)
Early Childhood Screening and Case Management	Assessment, planning and case management system for sight, hearing and developmental screening for infants and preschool children – often through a state’s health department	U.S. Department of HHS Centers for Disease Control (CDC)
Public Health - Vital Statistics	Core system for collection, repository, retrieval and reporting of births, deaths, marriages, and divorces	CDC
Public Health – Health Statistics	Core system for collection, repository, retrieval and reporting of immunizations, cancer, trauma, lead, STDs, HIV/AIDS, communicable diseases, etc. (Often called registries). Includes bio-surveillance and syndromic-surveillance	CDC
Integrated Health and Human Services Case Management	With ACA, CMS new rules and OMB Circular regarding cost allocation, states are leveraging enhanced CMS 9/10 money to develop integrated HHS approaches. If the technology is needed for Medicaid it ca be used for other HHS programs – only if specific tweaking is required for a non-CMS program does cost allocation need to be applied. These efforts include such things as: Front-End Portal; Common Client ID Repository (EMPI); Consent Registry; Full Life Cycle Case Management Support for all Health and Human Services; Data Integration and Shared Analytics providing predictive and performance analytics – these efforts are often under an umbrella human services agency	CMS, ACF, FNS, CDC, CSE, SAMSA

Traditional Health and Human Services (HHS) Paradigm

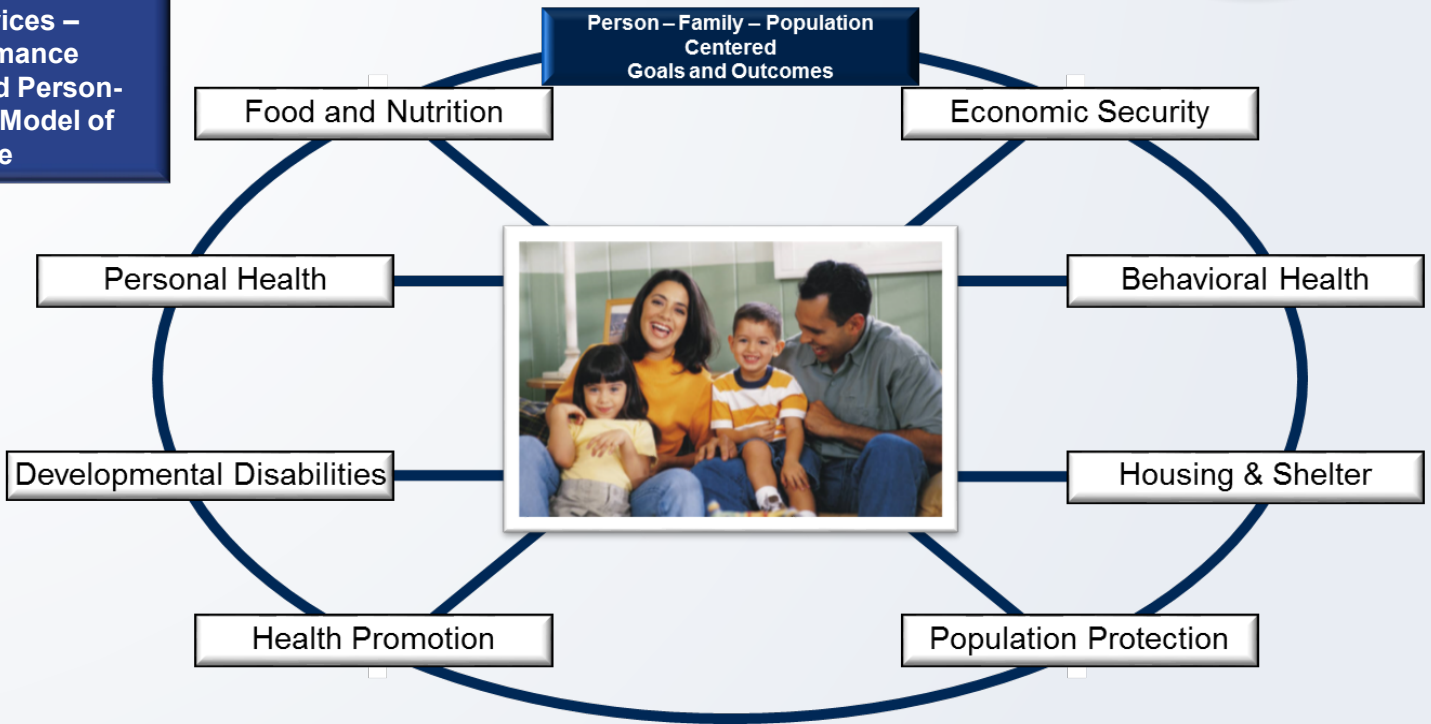
Agency-Centered Collection of Programs



Future State Health and Human Services (HHS) Paradigm

What to consider for the future of technology enablement for HHS?

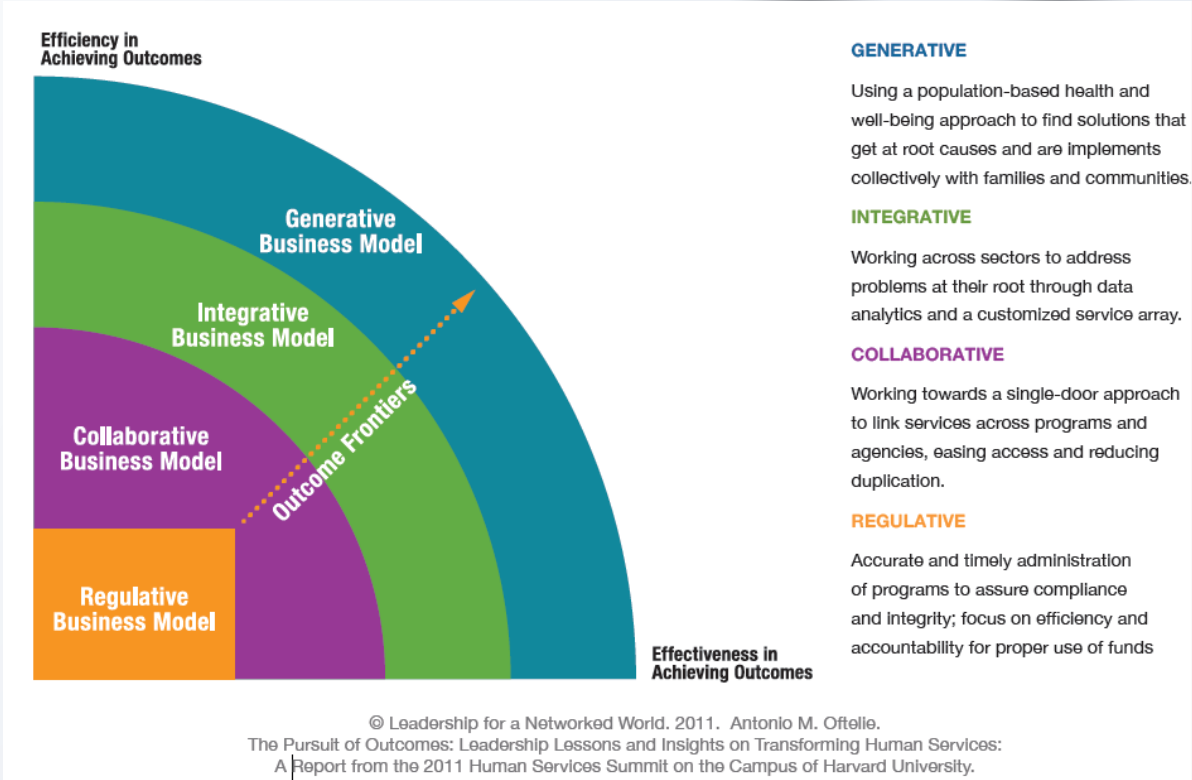
The Future of Health and Human Services – High Performance Outcome-Based Person-Centered HHS Model of Practice



National Drivers – Human Services Value Curve

On the Road to a 21st Century Business Model (APHSA)

- American Public Human Services Association (APHSA) “white paper” has initiated a national discussion around an envisioned future for public sector health and human services based on best practices
- The Human Services Value curve is an continuous improvement maturity path for a more integrated approach to enhance access, outcomes, cost, accountability and quality of programs and services



National Drivers – Federal Funding Streams and Opportunities

Billions Being Invested to Support the Transformation in HHS

■ Centers for Medicare and Medicaid Services (CMS)

● Medicaid Programs

- CMS Rules – Requirements for modular approaches to future enhanced federal investments in Medicaid Enterprise Systems – moving away from monolithic traditional MMIS solutions to modularization
- Medicaid Information Technology Architecture (MITA) Assessment, Roadmap and MMIS Enhancements
- Enhanced Eligibility Determination and Integrated Approaches – Eligibility & Enrollment (MAGI, Medicaid, SNAP; TANF; etc.) – Opportunity to integrate all of the State’s HHS programs on one rules engine platform – and to retire to legacy eligibility system – 90/10 Funding available and up to last year that investment came along with OMB Circular A-87 Cost Allocation Waiver
- State Medicaid HIT Planning - SMHP (Electronic Health Record - EHR / HIT Adoption – Meaningful Use) - Implementation and Management of Medicaid Incentive Program for Medicaid Providers – Opportunity to integrate multi-agencies’ data stores, warehouse and business intelligence capabilities (Shared Analytics) to support improvements in Medicaid costs
- Centers for Medicare and Medicaid Services Innovation (CMMI) and State Innovation Models (SIM) Grants – Invested millions to improve access, quality and cost of Medicaid services focusing on the integration of physical and behavioral health services

■ Administration for Children and Families - Children Bureau – New rules for modular approaches to Comprehensive Child Welfare Information System (CCWIS)

■ Office of Child Support Enforcement – Movement to “model system” approach leveraging COTS and Modular development

■ U.S. Department of Agriculture Food and Nutrition Services – Modernization of eWIC Solutions and critical role in Eligibility & Enrollment initiative with CMS

The Future of Health and Human Services

Universe of Challenges Facing HHS Organizations

- **Enhancing the Coordination and Effectiveness of HHS Programs and Services** focuses on Key Performance Indicators (KPIs) for improving:
 - Access
 - Outcomes
 - Cost
 - Accountability
 - Quality
- **Urgency** – Move forward with initiatives expeditiously, with plans and initiatives. Build on current successes and keep the momentum going
- **Agnostic and Digital** – Make technology investments with an agnostic reusable modules and digital strategic perspective; minimize vendor and solution dependency and maximize reuse, data integration, cloud opportunities, platform as a services (PaaS) and future efficiencies in maintenance and operations
- **Analytics** – Prioritize technical investments into enterprise data and information services and analytics to enhance the ability to:
 - Anticipate and predict trends
 - Enhance performance
 - Be prepared to respond to changes based on information and knowledge, not just data



The Future of Health and Human Services

Enabling Key Benefits of an Integrated HHS (IHHS) Enterprise Approach

- Leverages the vast data, information that are resident in the HHS organizations
- Provides robust capacity to support the full continuum of the organization's operations and programs
- Aligns with the needs of users at every level
- Provides for forecasting and trend analysis across the organization – Identifying “Patterns” -
 - Findings and utilization in one business unit / program / service area that impacts others
 - Enhanced targeting of investments and interventions
 - Prevention and community education
 - Early intervention
 - Appropriate level of intervention, service, support
 - Quality assurance and program integrity
 - Continuity and congruency of services
 - Promotion of self-care, responsibility and sufficiency
- Identifies cost reduction and cost savings opportunities
- Links regulatory / enforcement activities with operations, funding and contracting
- Enhances capacity to do “Predictive Modeling” and “What If” scenarios to support investments and program and policy development



The Future of Health and Human Services

Enabling Key Benefits of IHHS – Moving from Data to Information to Knowledge to Action

- At Each Level of Operations, Within and Across HHS Program Areas
- Moving From Data to Information to Knowledge to Actions
- Improving ...
 - 1) Access,
 - 2) Outcomes,
 - 3) Costs,
 - 4) Accountability and
 - 5) Quality
- Data, Information and Knowledge for Improving Decision Support Capacity to -
 - Anticipate and Plan;
 - Support; and
 - Validate Key Decisions and Activities at All Levels



The Future of Health and Human Services

Enabling Key Benefits of IHHS– Shared Analytics Benefits



- Data and Information can support the protection and promotion of health and well-being at both the population and consumer level across all State HHS initiatives and partnerships with other State and Community-Based Partners
- The secure exchange of data and information, built on national interoperability standards strengthens public/private partnerships to produce better outcomes more efficiently
- Shared analytics, with appropriate security and privacy protection controls is vital to improving the quality, outcome and costs of the State's HHS

**Innovation in Health and Human Services – New Way to Think
About Technology: *The Health and Human Services Enterprise***

Health and Human Services Enterprise

A New Way to Think About Technology

- Developing an enterprise approach that will leverage both the National and State agenda for integrated health and human services programs and the technology necessary to move HHS agencies into the future – moving from business/program-centric to a person / family-centric enterprise Model of Practice
- The enterprise approach does NOT focus on a single transactional technology solution – but rather an integrated collection of agnostic, key, common, shared technical components (modularity) and services that support the full continuum of business operations, programs and services
- Moving from large legacy silo systems to an agile, flexible, interoperable and extensible enterprise based “HHS platform” architecture
- Applies IT Best Practices and National HHS standards/initiatives and technology trends including:
 - Service-Oriented Architecture (SOA)
 - Modularity
 - Agile Planning and Development
 - Reusability (Build Once Use Many Times)
 - Multi-channel Access – *No wrong screen or device*
 - Low/No Code Platform and Software as a Service (PaaS, aPaaS and SaaS)
 - Cloud and Software-defined Infrastructure
 - Social Networking and Collaboration



Health and Human Services Technology Enterprise – Common Shared Components

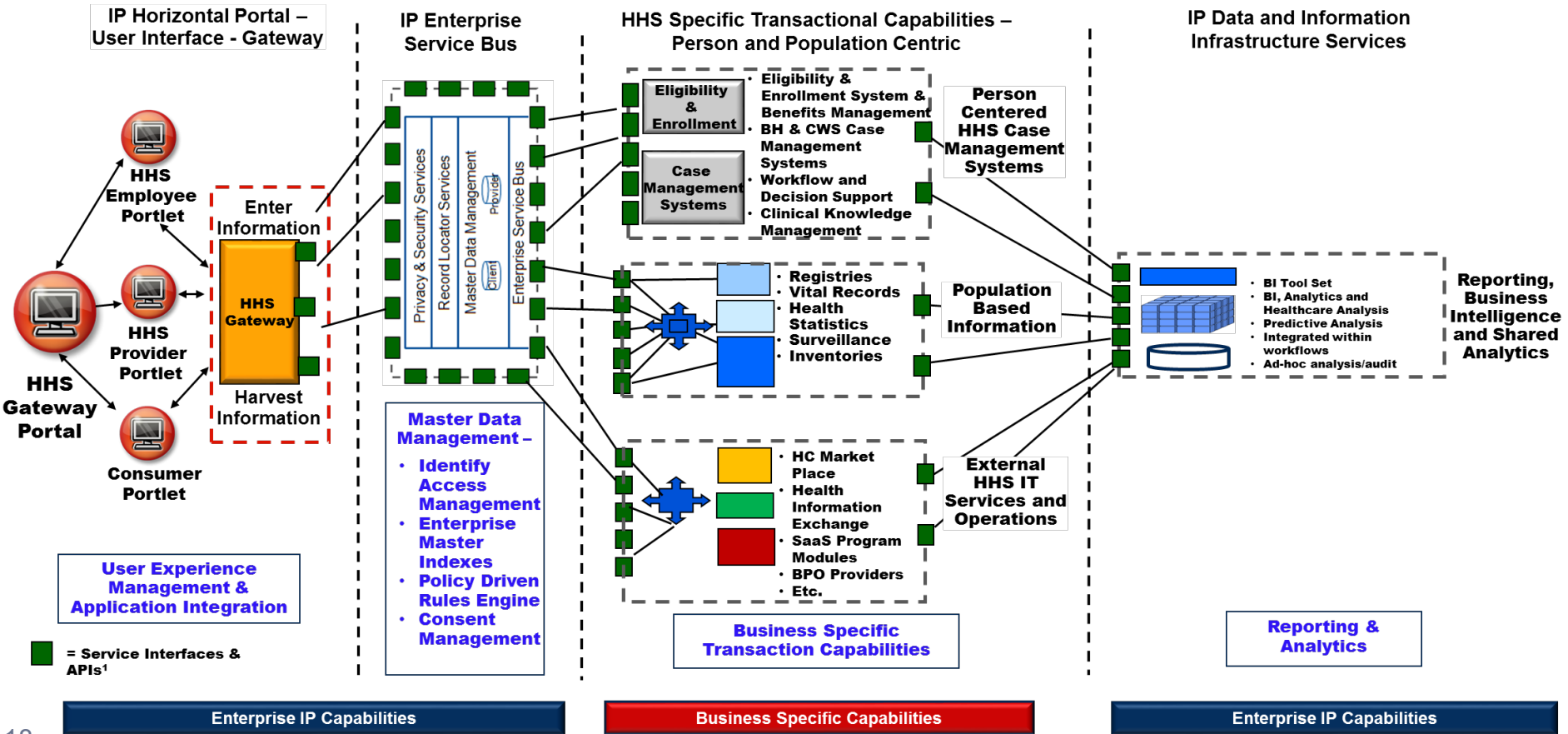
- Key Integrated Enterprise HHS Components to Consider – Start with Strengthening Person and Family-Centered approach to services (*your consumer's journey with you*), for example:
 - **Common Web Based Gateway Portal** – Robust horizontal portal that provides One-Stop-Access and Robust End User Self-Service – Multi-Channel – “No Wrong Screen or Device”
 - **Integrated Eligibility** – Real-time eligibility determination including robust self-service capabilities – Screening – Application – Determination
 - **Rules Engine** – Single dynamic, policy driven rules engine that allows for update of eligibility and other HHS rules without significant effort
 - **Master Data Management** – Key Person and Provider Indexes, Identity Access Management and Consent Registry (To managing privacy and confidentiality)
 - **Client Look-up, Search and View Query Results** – Capability to search for client summary and demographic information across programs and services, access to shared information such as identification of program enrollment and current services with appropriate authorization
 - **Enterprise Secure Information Exchange Capabilities** – Supporting new application development and information sharing as well as providing for the harvesting of data and populating data into the organization's legacy systems (Open APIs; Enterprise Service Bus; etc.)
 - **Shared Analytics and Business Intelligence** – Decision support, data integration and analytics including Performance and Predictive Analytics aligned to Key Performance Indicators (KPIs)



Health and Human Services Technology Enterprise

Conceptual View of An Integration Platform (IP)

Example



Health and Human Services Technology Enterprise

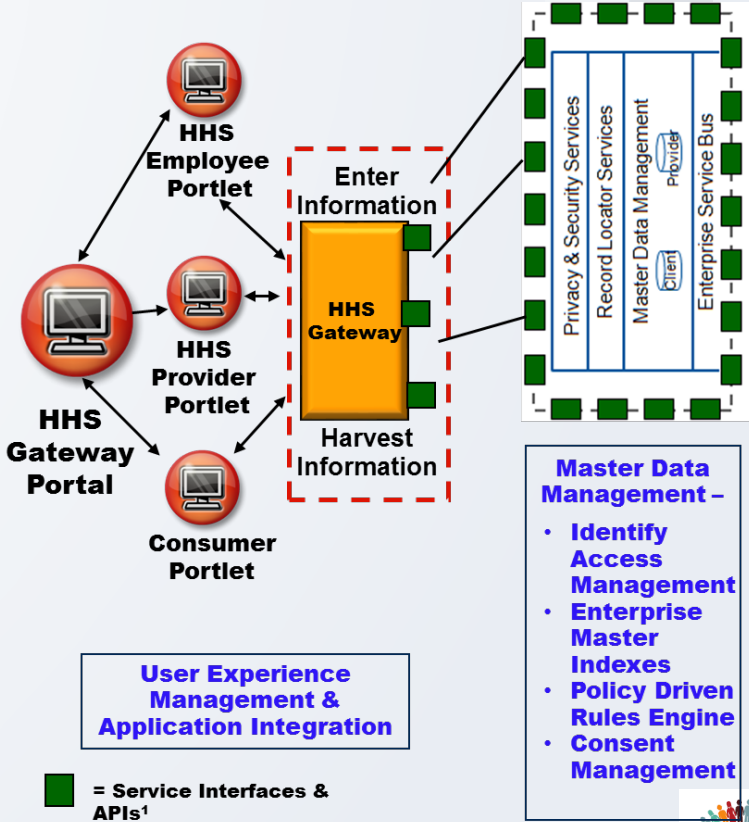
Conceptual View of the HHS Gateway

Example

The HHS Gateway

Leveraging agnostic shared common components that can provide business functionality across HHS business domains. These include:

- **HHS Gateway** – Portal and Portlets to input and harvest information and manage workflow and activities
- **Information Exchange** – Service Bus, Hub and/or Open APIs; Enterprise Content Management; Policy Driven Rules Management; Master Data Management Identity Access Management; Enterprise Master Person and Provider Indexes; Security; Workflow Management; Consent Registry; etc. that manages user access and the flow of information

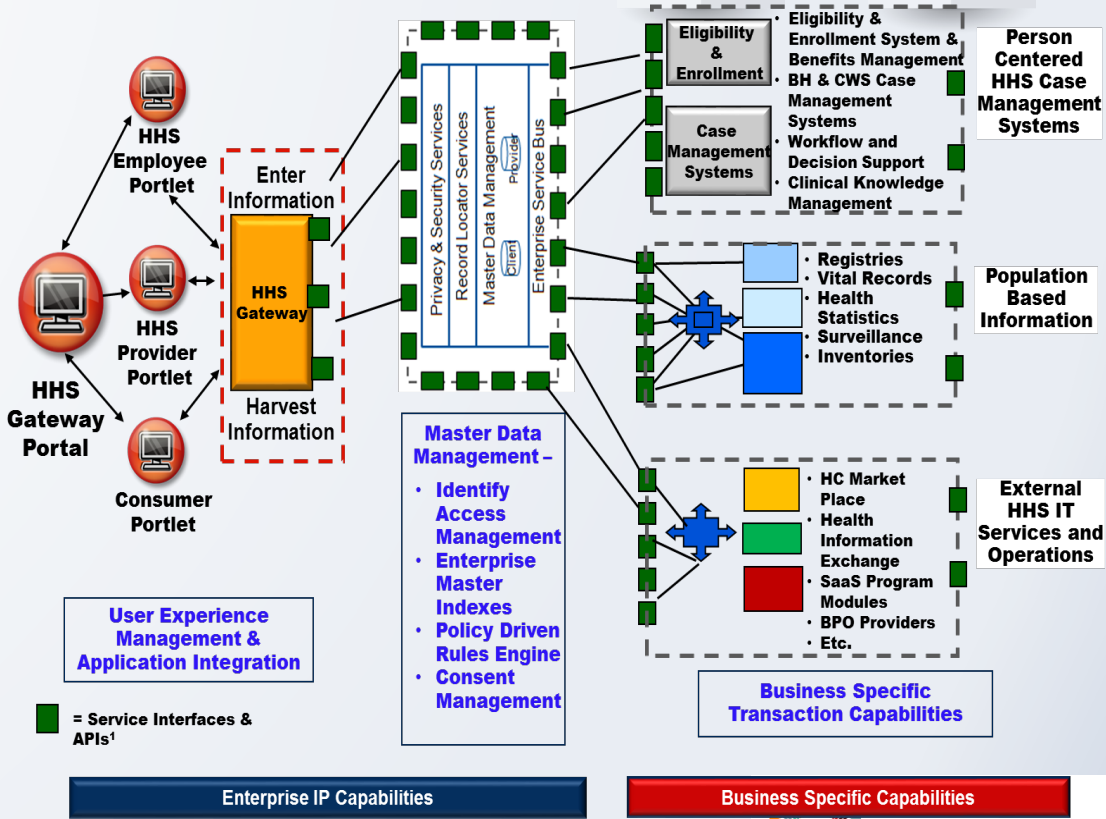


Health and Human Services Technology Enterprise– Common Shared Components Supporting a Modular Architecture and Legacy Phased Retirement

Example

A Modular HHS Application Architecture for an Enterprise Integration Platform and resulting Procurement Approach allows for an incremental modernization and legacy retirement of the current HHS technology ecosystem, however:

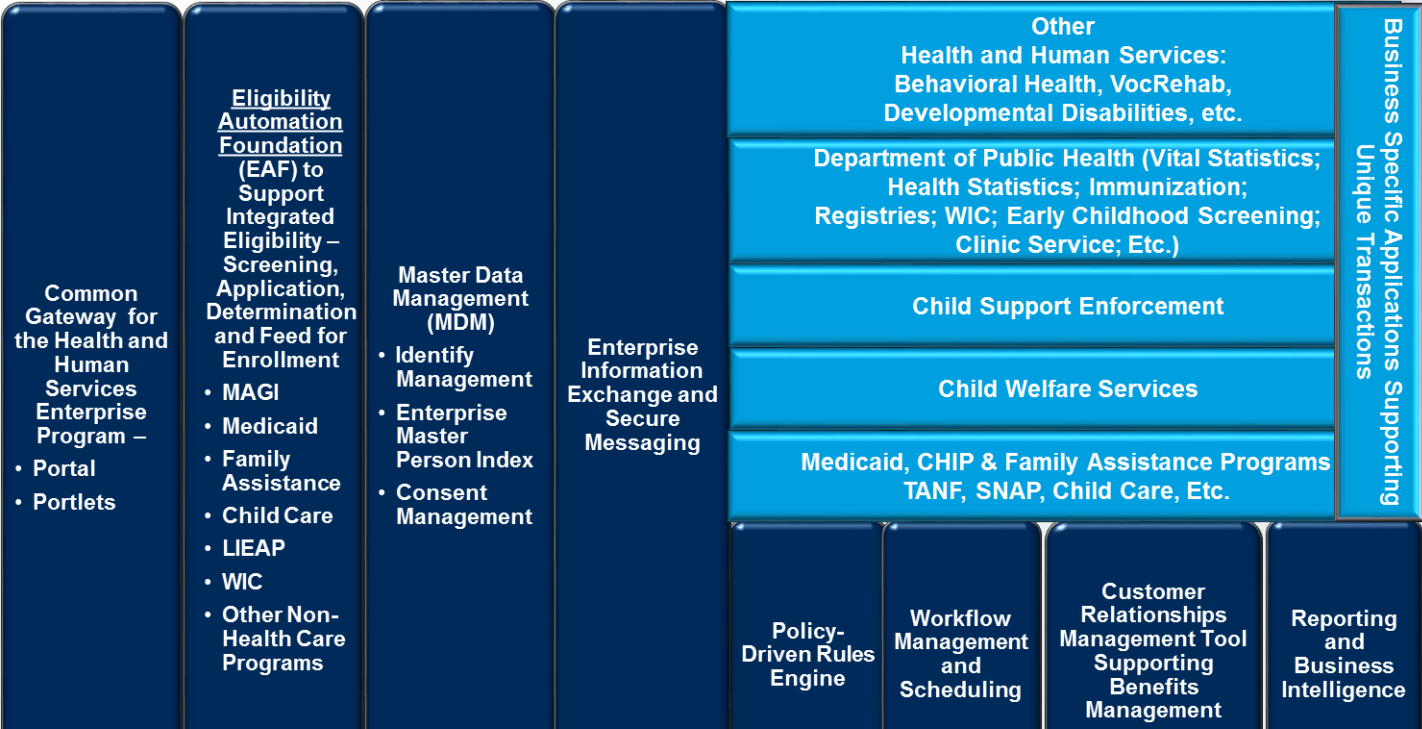
- **Module selection must be a disciplined process** assessing business model, workflow and technical fit with the established Enterprise Standards
- All **Modules** (whether in-house technology, SaaS, aPaaS or PaaS Module) will need to be **integrated through a formal Information Exchange or Integration Hub (Bus) with compliance to established Integration Standards**
- This allows for the **wrapping and pace layering retirement of the legacy system(s)** including the business specific transactional applications



HHS Service Oriented Architecture (SOA) Enterprise Platform

Functional Conceptual View (Common Business Processes)

Example



Integrated HHS Platform – Common/Shared Components and Services Supporting the HHS Enterprise of Program’s Business Functionality

Common Components Across the Enterprise

Unique Business Transactional Components

Health and Human Services Technology Enterprise – Phased Approach

Phase I - Legacy Wrapping and Establish Integration Platform in Support of IHHS

1. **Gap Analysis** – Focused gap analysis for phase I business capabilities – what to “wrap” through pace layering
2. **Front End** – Establish, through near-term value and benefits, front-end capabilities to address:
 - **Robust Horizontal Portal and Portlets** (as may be required for Consumer, Provider and Staff) with emphasis on “no wrong device/screen” – providing for consumer and provider’s self service and account establishment
 - **User Interface Experience (UIX)** – intuitive navigation aligned with the journeys of the consumer, staff, providers, etc.
 - **Policy Driven Rules Engine** – providing for more adaptable approaches to ever changing rules, priorities and federal mandates
 - **Master Data Management including:**
 - Enterprise Master Person/Consumer Index/Registry (EMPI)
 - Enterprise Master Provider Index/Registry (EMPI)
 - **Managing access to systems including:**
 - Identity Access Management and Authorization
 - Account Creation (Consumer and Provider)
 - **Enterprise Content Management Services (ECM)** including records digitalization
 - **Workflow Management**
 - **Security, Privacy and Confidentiality including Consent Management Component**



Health and Human Services Technology Enterprise – Phased Approach

Phase I - Legacy Wrapping and Establish Integration Platform in Support of IHHS, Cont'd

3. **Integration Engine** – Mechanism such as enterprise service bus, open APIs, data hub, etc. to enable required data/information transfer/flow and interface
4. **Data/Information Services** – Establishing of data/information layer supporting data lake, marts and stores along with open business intelligence and analytics tools and visualization capabilities supporting the full continuum of reporting, business intelligence, predictive and performance analytics and related drill up and down dashboards. Aligned with the need of users at all levels from executive to line staff focusing on Access, Outcomes, Cost, Accountability and Quality to:
 - Anticipate and Plan,
 - Support, and
 - Validate key decisions and activities necessary to achieve HHS vision, goals, objectives and key performance indicators

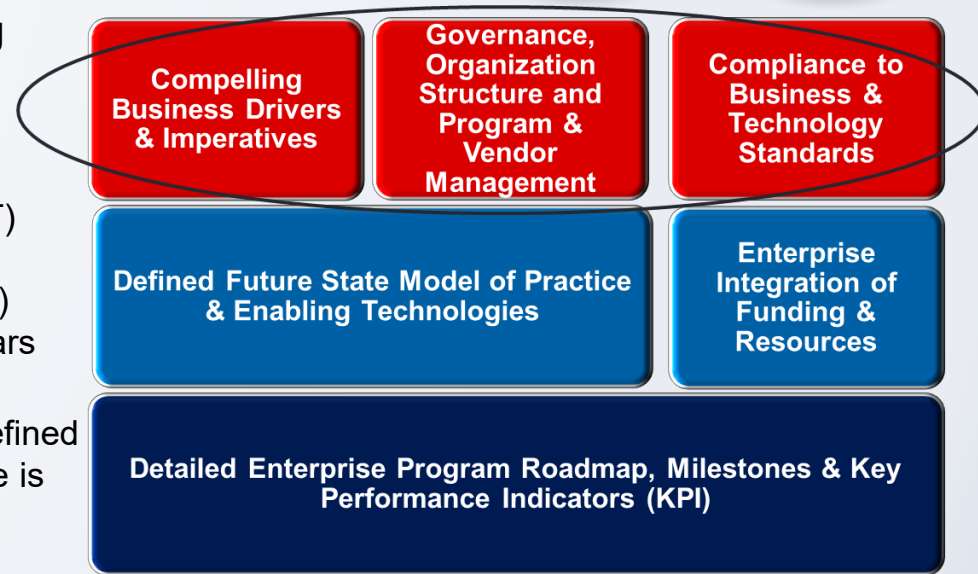
Integrated Health and Human Services Technology Investments – Planning for Success

Integrated HHS Technology Initiatives

Lessons Learned – Critical “Gates” for Success

■ The **Critical “Gates”** are the most challenging but are essential in providing the foundation for success –

- **Agreement of Executive Leadership and Management Team** (Operations, Program and IT) on the compelling benefits, Key Performance Indicators (KPIs). and Return on Investment (ROI) to be achieved by investing time, people and dollars in the IHHS Program
- **Business and Technology Standards** – Well defined and fidelity to agreed upon standards unless there is compelling justification for deviations
- **Robust Governance, Priority Setting and Decision Making Infrastructure** for managing the initiative, resources and vendors
 - **Resource Commitment** – Allocation and integration of the organization’s resources necessary to ensure success
 - **Making Wise Investment Decisions** in technology investments focusing on reusability
- **Compliance with well defined future state Business and Technology Standards**



Integrated HHS Technology Initiatives

Lessons Learned – Critical “Gates” for Success, Cont’d

- The **Critical “Gates”** are the most challenging but are essential in providing the foundation for the success of an Integrated HHS Program Strategy –
 - **Agreement of Executive Leadership and Management Team** (Operations, Program and IT) on the benefits, Key Performance Indicators (KPIs), and Return on Investment (ROI) to be achieved by investing time, people and dollars in the HHS Technology Initiative
 - **Robust Governance, Priority Setting and Decision-Making infrastructure** for managing the initiative
 - **Resource Commitment** – Allocation and integration of the organization’s resources necessary to ensure success
 - **Making Wise Investment Decisions** in technology investments
- ✓ Requires demonstrated ownership and leadership from all HHS executives and managers
- ✓ HHS leadership and staff drive the effort and invest the right level of resources for success
- ✓ Requires clear vision, goals and well defined KPIs that will benefit HHS, those served and provider partners
- ✓ All investments and decisions must ensure vision, goals and ROI are achieved
- ✓ Requires an active and aware Executive Steering Committee
- ✓ Requires a dedicated Project Management Office with an IHHS Program Operations Team made up of the leads for all projects and initiatives under the IHHS Program umbrella supporting the life cycle activities of the initiative and its related projects
- ✓ Requires meaningful participation and ownership of key stakeholders and actions are taken to ensure that they are:
 - Aware of the focus and scope of the initiative
 - Understand the impact on their current workflow, model of practice, role and responsibilities
 - Active participants in key decisions in the life cycle of the HHS technology initiative

Integrated HHS Initiatives Program Governance and Management Requires....

- Strong executive leadership, Program Director and a robust PMO structure and framework for setting, sequencing and integrating the Program's priorities and initiatives
- Commitment and fidelity to the governance and program management structure and processes by leadership and stakeholders with appropriate accountability, incentives and as necessary sanctions
- Defining an effective decision-making framework with clearly defined decision rights and responsibilities. This includes:
 - Establishing the role and responsibilities of the IHHS Program's organizational leadership in making decisions regarding setting priorities, policies, principles, standards and investments
 - Defining the decision role and responsibilities of the operations, program and technical units
 - Ensuring that all actions and decisions are guided by the IHHS Program's Vision, Goals and Objectives
 - Identifying and following clearly communicated decision-making processes
 - Positioning decisions and processes with a focus on taking action and achieving results
- Ensuring risks and issues (both vendor and State's performance) are identified, properly analyzed, discussed and mitigated, and when necessary escalated to the appropriate governance decision-making body

Integrated Health and Human Services Strategic Planning

Approach Focus

- The following key factors across the full continuum of HHS programs and services for the envisioned future of an integrated HHS enterprise need to be focused on:
 - **Users' Needs:** The alignment of functional capabilities with the needs of users at all levels—the system should align with the HHS meta model of practice and be easily adaptable to changing needs
 - **Integrated Access and Consistent Interface:** The ability of systems' user interface to provide users with an integrated access to all modules, data, and services relevant to the user group – each user should be provided a consistent, customizable, and easy to use interface
 - **Ease of Use (Usability):** Ability to provide user-defined criteria for ease of learning, use, and support – the system needs to be intuitive for the user and provide easy to use online policy, practice and system support
 - **Decision-support:** Timely, accurate, and complete decision support information made available by authorized users, at all levels, through the application and standard tools – at all levels users need to be supported in three key areas - **Anticipation, Support** and **Validation** of key activities and decisions
 - **Service-Oriented:** The target architecture for HHS should consist of a number of services that are compliant with industry standards for service-oriented architecture to facilitate reuse, adaptability and interoperability
 - **Agile:** The ability of to readily adapt to changing business needs quickly and with minimal technical resources

Integrated Health and Human Services Strategic Planning

Approach Focus, Cont'd

- The following key factors across the full continuum of HHS programs and services for the envisioned future of an integrated HHS enterprise need to be focused on: Cont'd
 - **Scalable and Extensible:** Ability to scale to accommodate additional users and extensible in expanding capabilities to meet future business needs and Federal and State mandates
 - **Secure and Manageable:** Capacity to protect against common threats and will be manageable within the existing operational and financial constraints
 - **Location Independence:** System should not restrict users (Staff, Consumers and Trading Partners) based on the location. Authorized users should have access based on their roles irrespective of their geographical location
 - **Data Availability:** Is the most up-to-date version of data available to users at all times within cost and performance constraints
 - **Maintenance and Operations:** Total cost of ownership for licenses, hardware, enhancements, maintenance and operations

Integrated HHS Technology Initiative

“Where to start?” – Key Planning Guidelines

1. **Develop Consensus on a Unifying Vision – The “Why” – Compelling Justification:** *Vision and Scope for the HHS Integration Initiative*
2. **Involve the Right People and Focus on the Right Issues –** *Representative Stakeholders Focusing on Strengthening Collaboration and Transformation*
3. **Identify the Benefits to Be Achieved Through Integrated HHS –** *Elected and Executive Leadership, Departments, Staff, Collaborative Partners and Consumer - Measurable Benefits and Outcomes – Key Performance Indicators*
4. **Identify Common Needs and Concerns –** *Opportunities for Improving Services to Produce Better Outcomes at Lowest Cost*
5. **Identify Citizen, Consumer, Staff, Managerial and Executive Needs to be Achieved -** *Operations/Funding/Policies/Procedures/Practice/Results*
6. **Develop Functional and Technical Specifications –** *Aligned with the Mission, Mandates, Programmatic Needs, Envisioned Outcomes and Return on Investment of the Collaborative Partners through the Integrated HHS Technology Initiative*
7. **Plan and Budget for HHS Integration Initiative –** *Prioritizing and Sequencing – “Doable” Staged Process Building on Demonstrated Successes Along the Way*



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