



CTIS' Vision for the Transformation of the Health System



Performance and Innovation-Driven Quality Healthcare

*Performance and Innovation-Driven, Quality Health Care
Best Patient Safety and Care Outcome
Operating Efficiency, Effectiveness and Productivity - Reduction in Cost
Highest Return on Investment / ACO Compliance / Evidence-based Medicine*

Building World Class Quality Healthcare Brand Value

Cancer Clinic	Heart Clinic	Children's Clinic	Elder Care Clinic	Diabetes Clinic	Neurologic Clinic
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Building a Performance-Driven Learning Health System

Basic Research	Clinical Research	Personalized Research	Translational Research	Comparative Effectiveness Research	Academic Research and Institutes Collaboration
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Integrating with Ecosystem Stakeholders for Disease Management

Ambulatory Care Integration	Destination Services	Chronic Disease Management	Primary Care and Prevention	VA DOD and HHS Collaboration	Health Disparity Collaboration
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Providing Continuum of Care Access and Management

Emergency Room	Operating Rooms and Radiology	Pharmacy and Labs	Hospital Care and Clinics	Medical Homes	Home Health Services
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Transforming Operational Assets for Maximizing Cost Reduction

Best Practice, Standards and Regulatory Compliance	Clinical Quality and Operational Quality Management	Process Alignment Integration and Streamlining	Organizational Alignment, Integration and Development	Human Resource Education and Empowerment	Enterprise Asset, Resource and Supply Chain Management
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Building/Integrating Fragmented Data to Knowledge Assets

Information Infrastructure	Information Collection Systems	Data Warehousing	Data Analysis	Business Intelligence	Health Information Exchange
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Payor Optimization and Harmonization

Government Research Grants

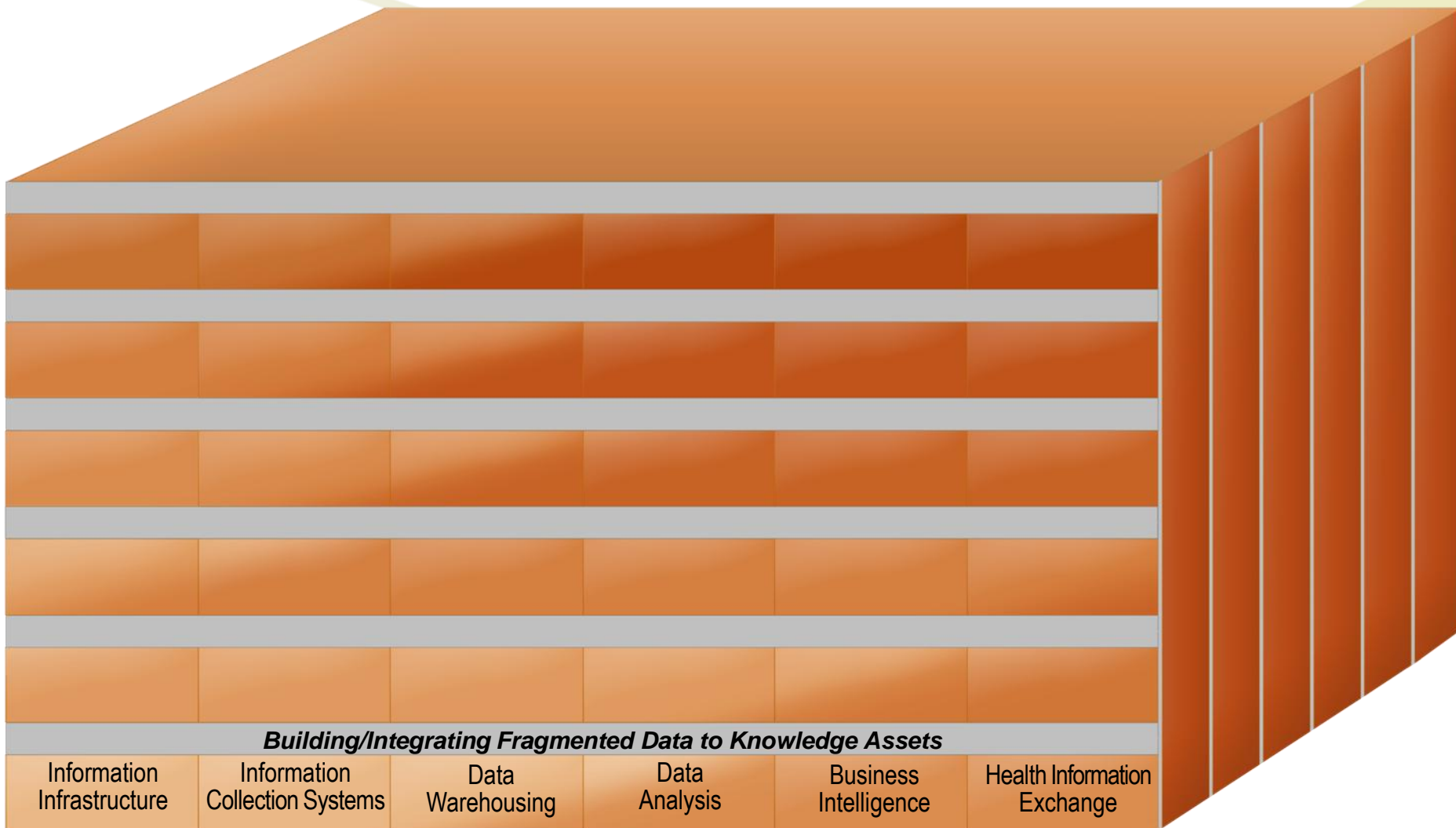
Foundations and Philanthropy

Life Science and Pharma/Biotech Partnership

Knowledge Libraries and Intellectual Property

Information Technology/CRO Joint Venture Company

Building/Integrating Fragmented Data to Knowledge Assets



Building/Integrating Fragmented Data to Knowledge Assets



Information Infrastructure - Establishment of protected, security and privacy based hosting facilities with appropriate systems and network infrastructure, associated information resource management and integration capacity with all data access technologies and enterprise operation management products.

Information Collection Systems - Integration and interoperability of all data sources: electronic medical record (EMR), electronic health record (EHR), personal health record (PHR), lab management, pathology management, clinical research, genetic and genomic information, financial and other operational data collection systems.

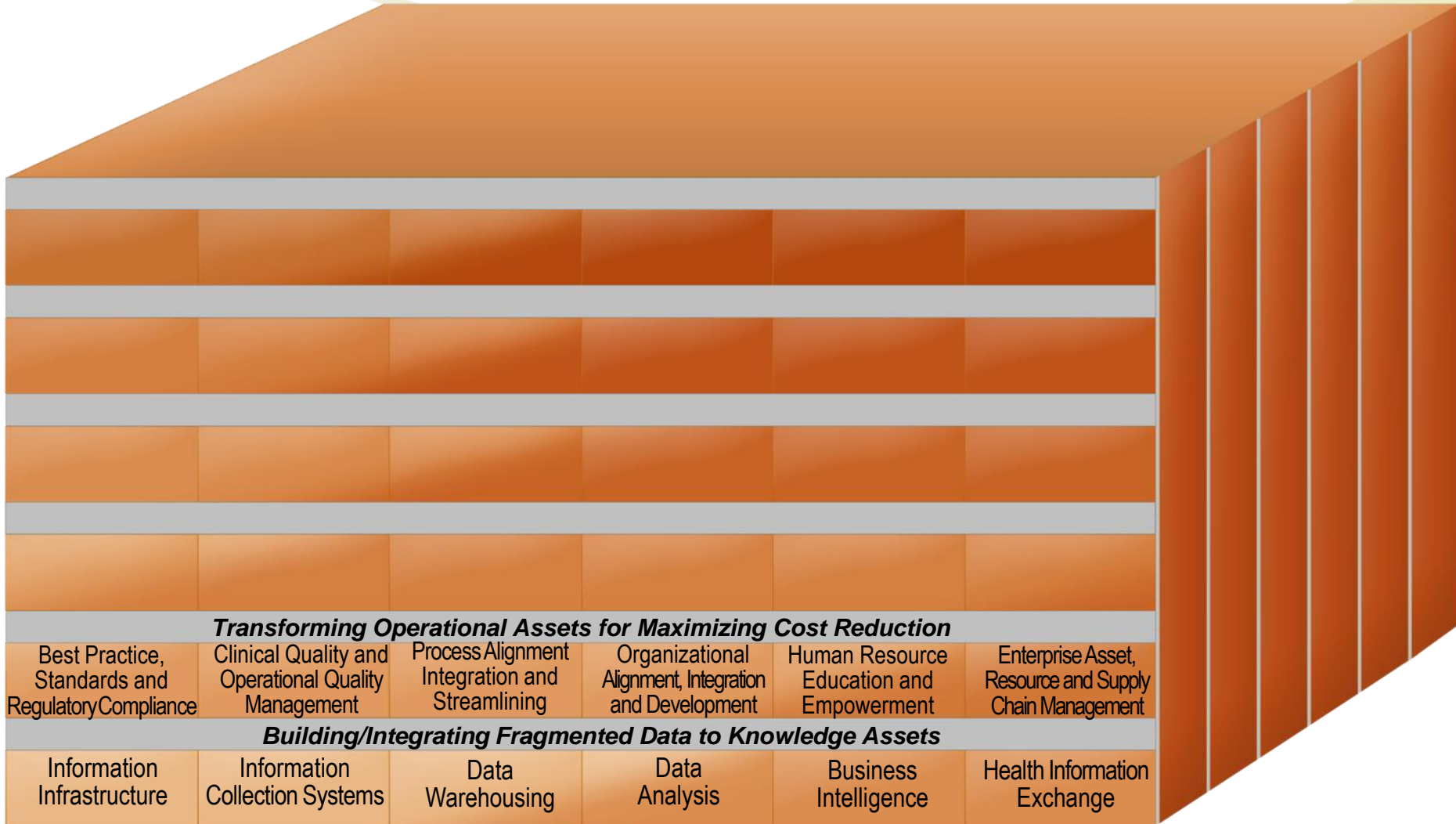
Data Warehousing - Building of a data warehousing system consisting of necessary data marts and applications to cover the full spectrum of the enterprise information needs: (operational, departmental, financial, process, clinical research, personalized medicine, regulatory). Using an integrated workflow within the applications, a well-defined critical path and rate-limiting factors to increase overall organization efficiency.

Data Analysis - Providing at the point-of-care a meaningful, minimum data set for physicians and patients to improve quality of care, safety and treatment outcomes. Providing longitudinal data for patients and cohorts allowing for clinical research and epidemiology studies. Improved care access, continuity and process, and comparative effectiveness research and outcome management.

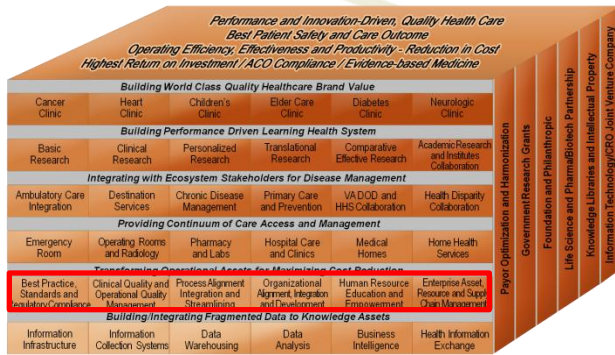
Business Intelligence – Business intelligence or smart information allows for predictive or forensic information analysis that helps with the population or cohorts of patients finding mechanisms for targeted treatment. Integration of genetic and genomic information with clinical information and the use of an inference engine allows for prescriptive characterization of patients and its overall goal to move from disease management to catching disease in the pre-disposition or pre-symptomatic stage.

Health Information Exchange - Health information exchange integration allows the health system to collaborate with other partners locally, regionally, nationally and internationally to build patient cohorts and help manage chronic disease and health disparity and improve patient access, management and continuity independent of geographic location.

Transforming Operational Assets for Maximizing Cost Reduction



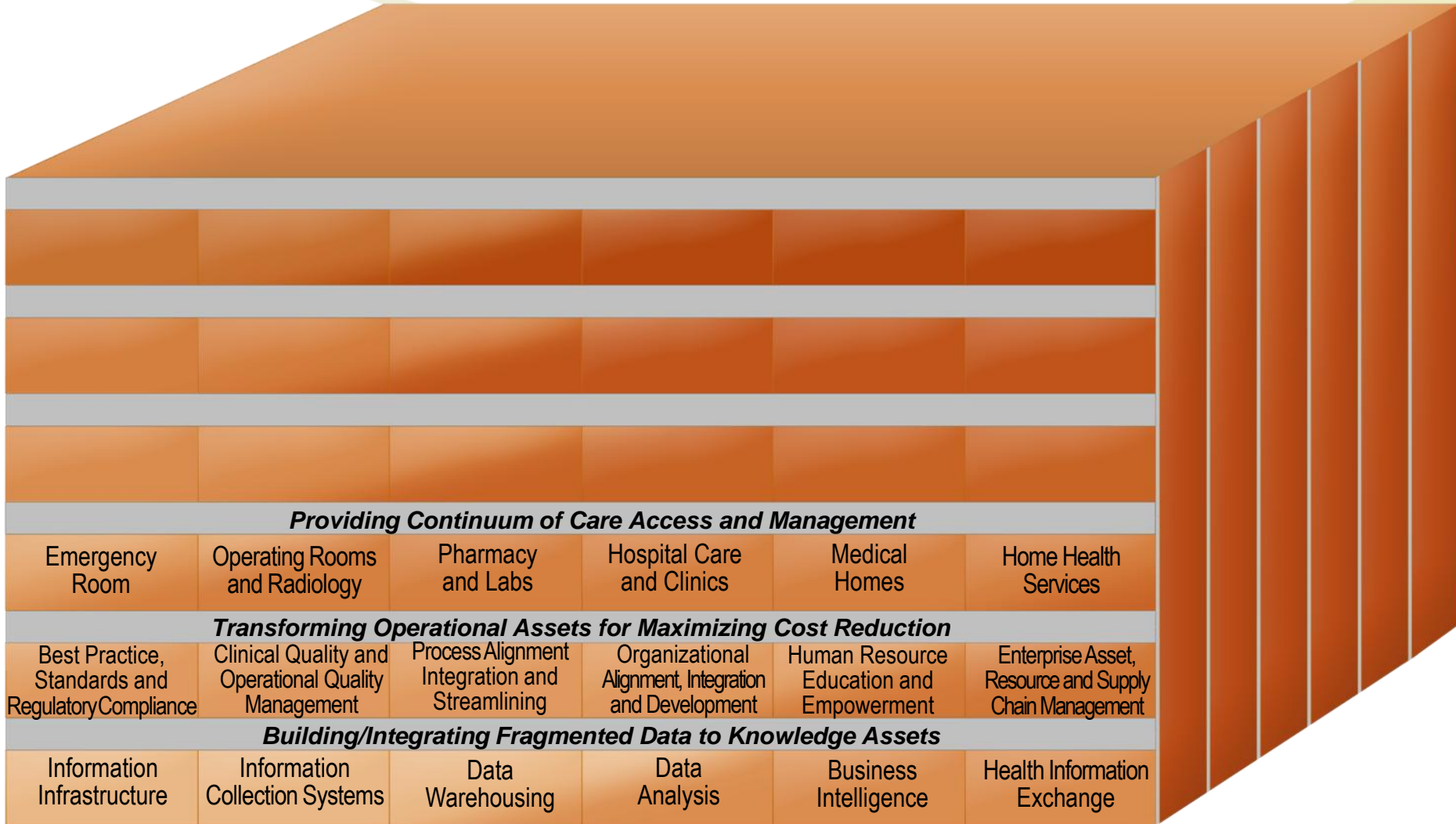
Transforming Operational Assets for Maximizing Cost Reduction



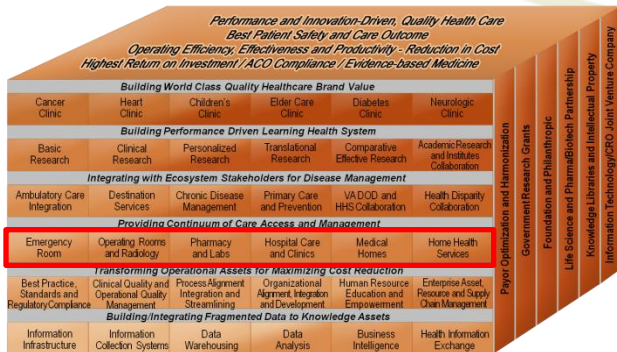
Best Practice, Standards and Regulatory Compliance - The transformation of the healthcare system in being compliant with all level of regulatory compliance including HIPAA for privacy, FISMA/ITIL for security, ICD, MedDRA, SNOMED for Data Coding, CMMI for information application development, Lean Six Sigma for customer relationship, Good Clinical Practice for clinical quality management, FEAF for architectural management, CDISC/HL7 for data exchange, 21 CFR-11 for electronic signature and so on will allow better patient care and higher reimbursement.

- Clinical Quality and Operational Quality Management - Establishment of proper workflow and work breakdown structure combined with care, critical path management, and integration of various health system assets and functions (lab, pharmacy, emergency room etc) further combined with proper education for health workers in management information and best practices will provide clinical quality and operational quality management.
- Process Alignment Integration and Streamlining - Establishing workflows for clinical, financial, operational and regulatory processes, and external collaborators requirements. Overall alignment, integration and process streamlining to improve efficiencies thereby reducing cost. Identification of work breakdown structures, process gaps, and appropriate mechanisms to complete the overall process requirements through business process re-engineering.
- Organizational Alignment, Integration and Development - Alignment of the organization structure and creating an integration framework to minimize redundancies and maximize communication and collaboration. Establishment of cross-cutting (matrix) innovative, initiative-based organization clusters to help manage change, increase development and effectiveness. A substantial contribution to cost reduction.
- Human Resource Education and Empowerment - Expedite the change management process and implementation of information technology with associated process streamlining, training of human resources, realignment of assignments and workforce integration, from an accountability, responsibility and authority point of view (empowerment), thereby providing an overall increase in productivity and reduction in cost. An appropriate blend of best-of-breed, in-house, and outsourced human resource teams.
- Enterprise Asset, Resource and Supply Chain Management - Utilization of an ERP system to better manage the enterprise is physical assets, human resources, and supplier/vendor relationships. Just-in-time inventory management to reduce necessary inventory levels and provide efficient and maximize utilization. A substantial contribution to optimization and cost reduction.

Providing Continuum of Care Access and Management



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⚡ **Emergency Room** - Utilization of information technology and electronic dashboards and integration with patient health records coupled with a workflow-based multi-discipline emergency management team and connectivity with the rest of the hospital's other departments for fast-track delivery will improve the emergency room processes and efficiency.

⚡ **Operating Rooms and Radiology** - Utilization of information technology and electronic dashboards and integration with patient health records coupled with workflow-based multi-discipline operation and radiology management teams and connectivity with the rest of the hospital's other departments for fast-track delivery will improve the operating and radiology room processes and efficiency.

⚡ **Pharmacy and Labs** - Utilization of information technology and electronic dashboards and integration with patient health records coupled with workflow-based multi-discipline pharmacy and laboratory teams and connectivity with the rest of the hospital's other departments for fast-track delivery will improve the pharmacy and laboratory processes and efficiency.

⚡ **Hospital Care and Clinics** - Building of hospital-wide registries and cross-cutting programs to integrate care across emergency, acute care, outpatient and community physicians leading to higher patient safety and better quality of care. Utilization of proper patient populations in clinical research and community education programs.

⚡ **Medical Homes** - In its commitment to continuity of care the health system provides chronic disease and elder care patients complete medical homes where full-service healthcare is provided for better patient care and cost-effective optimal care management.

⚡ **Home Health Services** - In its commitment to continuity of care the health system provides chronic disease and elder care patients complete home health services where full-service healthcare is provided for better patient care and cost-effective optimal care management.

Integrating with Ecosystem Stakeholders for Disease Management



Integrating with Ecosystem Stakeholders for Disease Management



Ambulatory Care Integration - Integration of community physicians, ambulatory care programs, associated elder care facilities and home health care services to ensure continuity of care across a full spectrum from prevention to management of disease and secondary prevention. Seamless connectivity and complete personal disease management.

Destination Services - Establishing new departments and/or organizational units to focus on disease management of high cost chronic disease areas. Establishment of destination services, development of demonstration projects for overall access, continuity and care management with a focus on patient safety and better outcomes.

Chronic Disease Management - Establishing new departments and/or organizational units to focus on disease management of high cost chronic disease areas. Establishment of destination services, development of demonstration projects for overall access, continuity and care management with a focus on patient safety and better outcomes.

Primary Care and Prevention - Focus on population-wide front-line public health support providing health fairs, early detection and prevention mechanisms. Integration of the primary care physicians with the overall care management program and participation in epidemiology studies for chronic diseases, improving quality and outcome of care. Act as first responders to support governmental public health programs.

VA DOD and HHS Collaboration - Working partnership with VA and DoD to provide total care management for wounded warriors in support of chronic disease, geographic disparity and total family support programs. Utilize the relationship with HHS to improve clinical research and public health support functions with the health system as a partner.

Health Disparity Collaboration - Work with National Association of Community Health Centers (NACHC) and National Institute on Minority Health and Health Disparities (NIMHD) to provide total care management for minority populations in support of chronic disease, geographic disparity and total family support programs. Utilize the relationship with NACHC and NIMHD to improve clinical research and public health support functions with the health system as a partner.

Building a Performance-Driven Learning Health System



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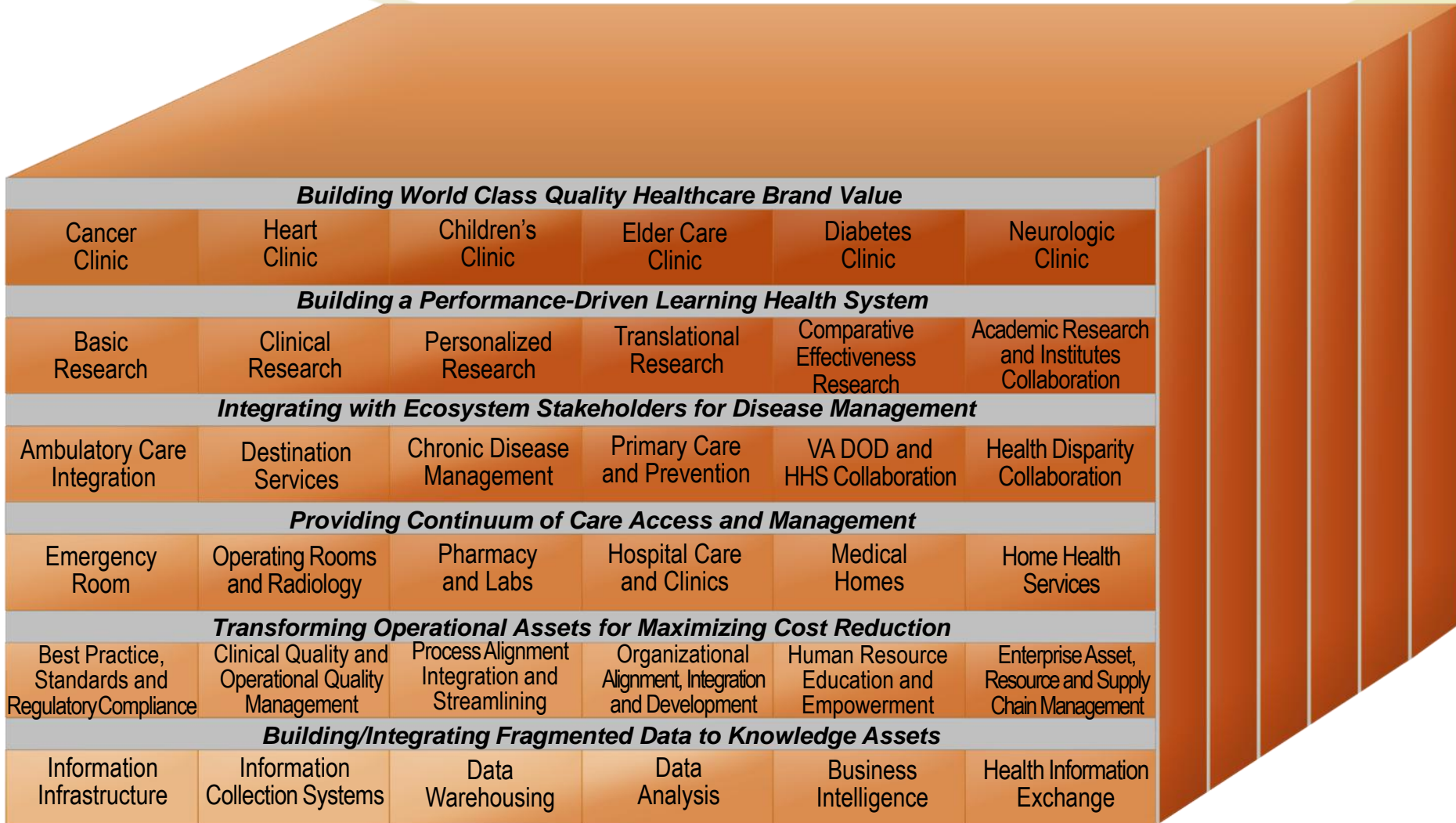


⚡ **Basic Research** - Basic research involves experiments and studies that occur in a laboratory setting.

⚡ **Clinical Research** - Clinical research is a branch of medical science that determines the safety and effectiveness of medications, devices, diagnostic products and treatment regimens intended for human use. These may be used for prevention, treatment, diagnosis or for relieving symptoms of a disease.

- ⚡ **Personalized Research** - Personalized research includes the integration of genetic and genomic platforms, convergence of clinical research and clinical care to provide better prescriptive characterization of patients and develop tailored and targeted treatments. This contributes to overall reduction in drug development processes and provides innovative and safe care to patient cohorts with evidence-based medicine resulting in better outcomes.
- ⚡ **Translational Research** - Translational research is a way of thinking about and conducting scientific research to make the results of research applicable to the population under study and is practiced in the natural and biological, behavioral, and social sciences. In the field of medicine, for example, it is used to translate the findings in basic research more quickly and efficiently into medical practice, thus providing meaningful health outcomes.
- ⚡ **Comparative Effectiveness Research** - Comparative effectiveness research (CER) is the direct comparison of existing health care interventions to determine which work best for which patients and which pose the greatest benefits and harms. The core questions of comparative effectiveness research are which treatment works best, for whom, and under what circumstances.
- ⚡ **Academic Research and Institutes Collaboration** - Work with academic and medical research and institute collaborators and partner with them for basic, clinical, personalized, translational and comparative effectiveness research activities.

Building World Class Quality Healthcare Brand Value

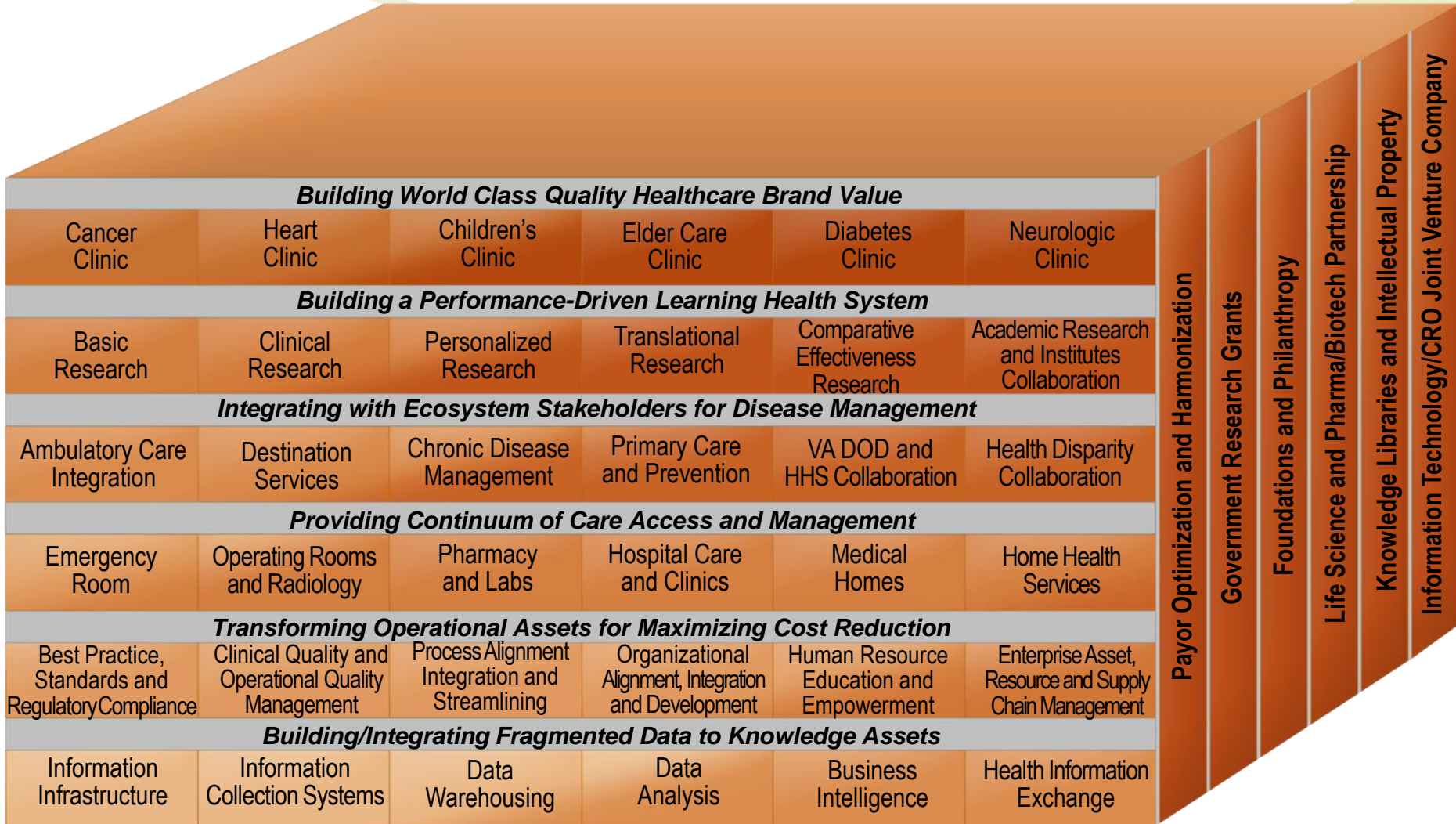


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A total healthcare system to provide a total Cancer, Heart, Children's, Elder Care, Diabetes and Neurologic program beginning with public health and education awareness, prevention and early diagnosis, basic and clinical research, clinical care management and a complete program that includes family, registry and utilization of information systems for biological/genomics, clinical/medical, lifestyle/behavior, social/cultural, and administrative/financial patient-specific data.

Revenue Growth



Revenue Growth



⚡ **Payor Optimization and Harmonization** - Utilization of information technology, resource training and process streamlining leads to better coding and documentation improving collection and reimbursement for patient care.

⚡ **Government and Foundation Research Grants** - Combination of information technology and strategic programs in translation research, personalized medicine, chronic disease management and clinical research. Appropriately identified cohorts of patient population in demonstration projects will lead to grants from government, foundations, and research organizations.

- ⚡ **Foundations and Philanthropy** - A learning health system as it matures will be able to qualify for Foundation and Philanthropic grants.
- ⚡ **Life Science and Pharma/Biotech Partnership** - Mature patient cohorts and associated registries with proven demonstration projects will lead to partnerships with life science and pharma/biotech organizations to act as clinical research sites in the form of virtual contract research organizations (vCRO).
- ⚡ **Knowledge Libraries and Intellectual Property** - Mature information applications with integrated data sets (biological, clinical, laboratory, financial, operational, regulatory) will provide reusable knowledge libraries to be marketed for clinical and epidemiology studies with other community health system partners.
- ⚡ **Information Technology/CRO Joint Venture Company** – The learning health system, as it has built the knowledge, assets and libraries, will be in position to partner with information technology companies and contract research organizations will reuse their technology and increase revenue.

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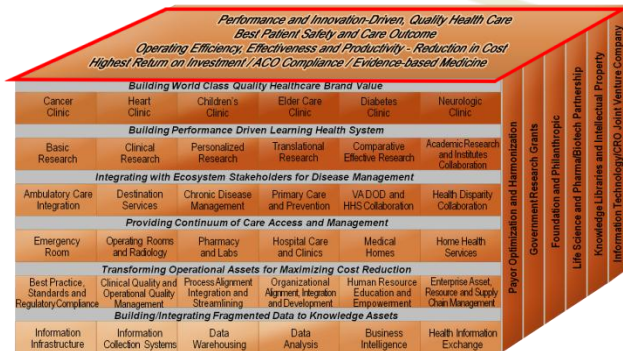
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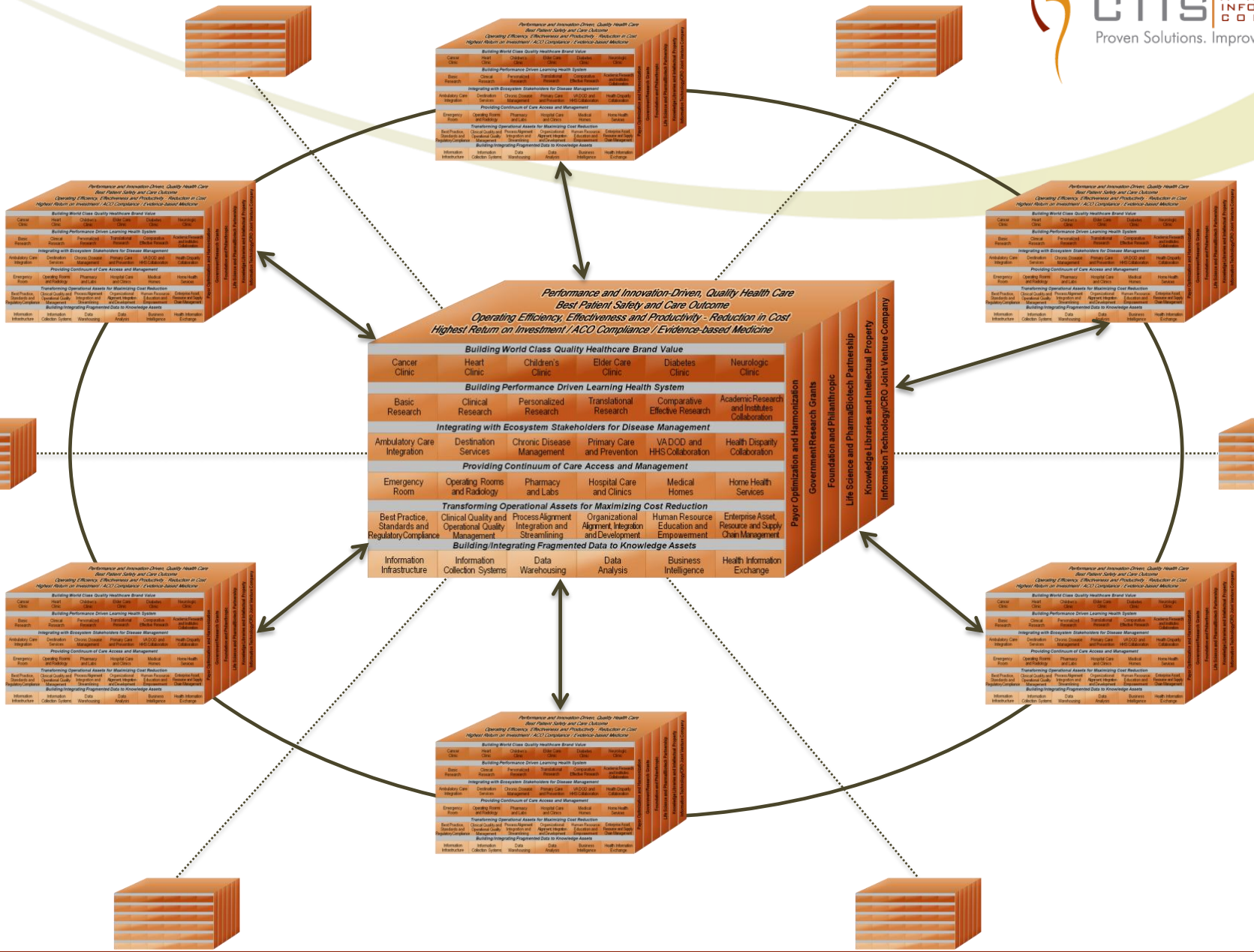
Information Technology/CRO Joint Venture Company

Performance and Innovation-Driven Quality Healthcare



A proven mature learning health system will have performance and innovation-driven, quality healthcare that provides best patient safety and care outcome which increases operating efficiency, effectiveness and productivity and reduces the cost while providing highest return on investment, ACO compliance and evidence-based medicine which in turn will become a sustainable organization.

- Development of key performance indicators across laboratory, clinical, quality, financial, operational, regulatory and workforce domains.
- Measurement, monitoring and management of the overall care process contributing to higher quality of care, reduction in cost and qualification as an Accountable and Affordable Care Organization (ACO).



THANK YOU