IBM®

The Information Agenda Guide for Healthcare Organizations

Accelerate your Information-Led Transformation

Leaders from around the world are focused more than ever on the economic, social and environmental implications of vertical integration, where the Internet and globalization are making the world simultaneously smaller, flatter and smarter. The systems and processes that enable goods to be developed, manufactured, bought and sold, services that deliver everything from electricity, financial transactions and efficient healthcare systems to name a few, are driving us towards becoming a smarter planet.

What all of this means is that for the first time in history, almost anything can become digitally aware and interconnected; bringing major implications for the value that can be derived from such systems. With so much technology and networking abundantly available at such low cost, what wouldn't you put smart technology into? What service wouldn't you provide a customer, citizen, student or patient? What wouldn't you connect? What information wouldn't you mine for insight?

The foremost issues facing enterprises today are the waste, inaccuracy and volume of missed opportunities that stem from the single root cause of information raging out of control. This information explosion is creating challenges, but forward-thinking organizations are turning it into an opportunity. They are leveraging information to identify opportunities for profitable growth, cost take-out, and proactive risk management. They are pursuing an information-led transformation to help them make better informed, real-time decisions as they turn their information into a strategic driver to accelerate innovation, business optimization and sustained competitive differentiation.

When built on a foundation of trusted information that can be shared, re-used and applied as a strategic asset, an information-led transformation allows organizations to optimize every transaction, process and decision at the point of greatest impact. In doing so, they can move analysis from a back office operation limited to business analyst experts to an approach that enables everyone in optimize their decisions based on real-time, predictive analytics. It can deliver immediate and cumulative value with each step, resulting in sustainable practices and processes that create a smarter organization; one that can make better informed decisions ranging from everyday moves to major strategic bets.

And this thought is not lost on healthcare providers. Rising costs, limited access, high error rates, lack of coverage, poor response to chronic disease and the lengthy development cycle for new medicines—most of these could be improved if we could link diagnosis to drug discovery to healthcare providers to insurers to employers to patients and communities. Today, these components, processes and participants that comprise the vast healthcare system aren't connected. Duplication and handoffs are rampant. Deep wells of lifesaving information are inaccessible.

Trusted information is a strategic asset

There is unprecedented change taking place in the healthcare industry today. Consumer and regulatory pressures are driving more and more industry innovations, including consolidation and green energy initiatives. Healthcare providers are struggling with replacing an aging IT infrastructure, managing information from an aging workforce, increased regulatory oversight, concerns over cyber security, pressure to improve financial performance, all while satisfying an increasing demand for better healthcare services.

The key to managing these activities is successfully managing all of the information in your enterprise. Successful healthcare providers will be those that find a way to make their information work as a strategic resource. Those that don't have a plan will be frustrated and overwhelmed with increasing volumes of information.

Healthcare providers have been investing in point solutions to improve individual aspects of the business. However, new initiatives must go beyond efficiency improvements, focusing instead on better understanding of the business, optimizing assets, involving the patients, improving financial performance and managing regulatory interactions.

In a recent survey of CEOs from healthcare providers, it was recognized that significant change is inevitable, even desirable. CEOs were concerned, however, about their ability to manage that change. Having an Information Agenda™ creates an enterprise-wide vision that will allow them to execute and manage that change with the desired result in mind.

As a result, healthcare companies are launching new initiatives designed to drive new intelligence, business optimization and ongoing competitive advantage through real-time capture of patient data, interconnected medical records management and advanced research and diagnosis analytics – and these initiatives all depend on information.

Information is at the core of the healthcare industry

In the face of rising challenges and changing markets, the ability to transform information into a strategic asset is increasingly critical to a healthcare organization's ability to survive and thrive.

Most large healthcare organizations spend millions of dollars acquiring and implementing advanced information systems that collect incredible amounts of data. According to the 2008 Healthcare Information and Management Systems Society (HIMSS) Leadership Survey, 44 percent of organizations have a fully operational EMR system in place at one or more of their facilities. More complex functionality, such as computerized physician order entry (CPOE), physician notes or clinical documentation, is slowly being implemented and adopted.

But implementing new systems and collecting more data is just one piece of the puzzle. Healthcare organizations must now use these vast amounts of data and content to drive optimal clinical and business decision-making, innovation and business optimization.

Healthcare organizations' primary mission is to deliver top-quality patient care, but they are also under intense pressure to cover rapidly rising costs, boost profitability and improve operational efficiency. Furthermore, customer service is becoming more critical as patients expect easy access to information not just about their medical history, but also about the healthcare organizations and the clinicians providing their care.

Clinical staffing shortages challenge healthcare organizations as well. Ideally, hospitals and care centers would always have exactly the right staffing ratios to manage patient care. However, shortages of qualified medical professionals and a heavy reliance on contractors can make it difficult to ensure top-quality care without sacrificing profitability.

Quality of care is another top concern. Medical mistakes not only damage lives and reputations but expose healthcare organizations and clinicians to tremendous legal and financial risk. Healthcare organizations face growing regulatory requirements and pressure from employers, health benefits organizations, consumers, governments and regulatory agencies to publicly report and demonstrate compliance, quality and clinical outcomes, both in the U.S. and worldwide.

In response to the dynamics of a changing market, healthcare organizations and individual providers will need to:

- Efficiently report, trend and analyze key organizational, financial and clinical metrics to improve reporting compliance
- Competitively participate in pay-for-performance programs
- Use collected information to manage and report the progression and impact of chronic diseases within a system, region or market
- Predict high-risk populations early interventions
- View and analyze aggregated specific data sets by specific populations for cohort management, disease registries, clinical guidelines, patient safety and other outcomes
- Prepare for personalized medicine

Healthcare organizations have made significant investments in IT to improve core competencies and achieve business objectives. While these systems are designed to provide data quickly—one patient at a time—most are not designed for the cross-patient analysis required to answer complex questions. Several pieces are missing: clinical, financial and administrative and research analytic tools; capabilities and infrastructure that span the organization to support quality, outcomes, patient safety initiatives, pay-for-performance reporting and performance management; and mandatory regulatory reporting. In research organizations, genotypic and clinical care data could also be combined to advance personalized care and discover new treatments.

Today, much of this data remains in disparate systems built for speed and performance, not aggregation and analysis. Current strategies for reporting, analyzing and trending quality and cost data can provide valuable information, but the effort is labor-intensive and departmentalized, lacks timeliness and is often inefficient. Highly skilled resources often spend the majority of their time gathering and accessing data instead of analyzing that data. As a result, healthcare organizations find themselves stymied when trying to prove how these systems have affected outcomes and improved overall care and operations efficiency.

Simply dropping all available data into a database and providing access to it is not the answer. The real challenge is creating a comprehensive, holistic view from many individual databases supporting independent applications from myriad vendors. Data from those applications must be synchronized through careful planning and organization around a well-defined architecture supported by a robust infrastructure. Without this information infrastructure, the data will be difficult to access and thus ineffective for practical use—anyone running reports against unorganized, disparate databases will likely sift through piles of useless data before finding their answer.

The key is to take advantage of existing data to meet these looming challenges. Healthcare organizations that effectively use information have an opportunity to outperform their competitors and innovate quickly while maintaining high levels of patient care.

Information On Demand

Information On Demand is a comprehensive set of information management solutions that help companies establish and leverage trusted information to optimize business performance. Healthcare companies can optimize business performance through Information On Demand which results in improvements in operations, efficiency, reliability and service.

It is critical to be able to access, analyze and control information. Healthcare companies can use information to:

- Gain insight into their patients and providers
- Improve service and quality of care
- Better operate and maintain their assets
- Improve clinician productivity
- Introduce new services and procedures
- Improve regulatory compliance
- Improve operational efficiency and enable profitable growth

This level of challenge and coordination can only be achieved through a unified information management strategy.

Information On Demand in action: Opportunities for Healthcare Industry Optimization

Business Initiatives

- Leverage insight to set strategic innovation agenda
- Achieve cost improvement, quality improvement benchmarks
- Operational efficiency
- Avoid costly penalties for noncompliance with increasing regulatory requirements
- Grow new business in cost-effective manner
- Avoid losses due to fraudulent or denied claims
- Improve caregiver efficiency and quality of care
- Clinical automation improvements
- Improve effectiveness clinical decision making, make information more accessible
- Patient safety, error reduction
- Improve patient, clinician and employee satisfaction
- Increase ability to attract members, employers/ providers, patients

IT Initiatives

- Increase impact on business metrics
- Support solutions to provide information needed to measure performance
- Improve service levels to line-of-business and applications
- Support high-value business processes
- High availability of critical applications (99.9%)
- Scale up to meet customer needs, manage increasing volumes of data and customers
- Consolidation / Integration / Standardization
- Minimize duplicate records
- Implement and support solutions to uncover fraud

An Information Agenda

For organizations that want to get started on the path to an Information-Led Transformation and establish a foundation for new intelligence but do not know where to begin, an Information Agenda is needed. An Information Agenda is a comprehensive, enterprise-wide plan that explains how to take the information being generated across, and even outside of, the organization and put it to use to better run the business. In establishing an Information Agenda for the organization, the CIO, working with line of business colleagues, puts information to work to achieve both short-term and long-term strategic changes.

An effective Information Agenda helps organizations achieve several key objectives:

- Identify data and content that are vital to the organization
- Identify how, when and where information should be made available
- Determine data governance and management processes
- Identify and prioritize the information projects that have the most impact
- Align the use of information to match the organization's clinical and business strategy
- Create and deploy an information infrastructure that meets both immediate and future needs
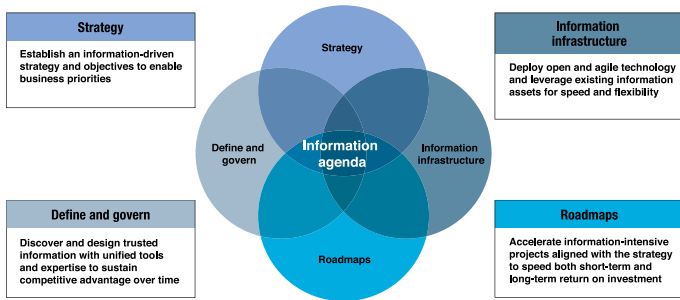
Figure 1: An effective Information Agenda provides a strategic vision and a phased plan that helps align the use of information with an organization's business strategy.

The Information Agenda Guide for Healthcare Organizations

IBM helps accelerate an information-led transformation through industry-specific Information Agenda Guides.

The IBM Information Agenda Guide for Healthcare Organizations is a practical, proven approach for turning a client's Information On Demand vision and strategy into reality.

CIOs, working with their line of business colleagues, can build a best-in-class information management vision for their organization and create a detailed roadmap. Healthcare organizations can unlock the value of information to optimize clinical and business performance.

The Information Agenda Guide for Healthcare Organizations can help direct organizations as they develop their own Information Agenda. The Information Agenda Guide for Healthcare Organizations addresses the four key components of an Information Agenda to facilitate the information-led transformation (see Figure 1).

- **Information strategy:** The vision that guides decisions and helps the organization determine how best to support business goals
- **Information infrastructure:** The technology components and capabilities needed to establish a common information framework
- **Information governance:** The policies and practices that facilitate the management, usage, improvement and protection of information across lines of business
- **Roadmap:** A phased execution plan for transforming the organization

As figure 1 indicates, the Information Agenda for Healthcare Organizations identifies crucial IT projects that establish the necessary information infrastructure and then leverage that infrastructure to help produce measurable business results identified by the business objective. Depending on an organization's existing information architecture, and the objectives that are of most importance to the business, an organization's final Information Agenda roadmap can contain some or all of these projects.
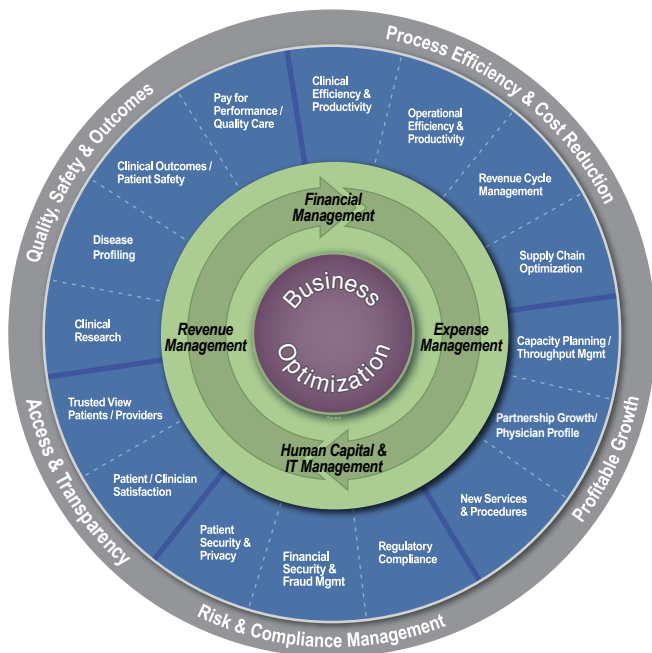
Figure 2: The IBM Information Agenda Guide for Healthcare Organizations is a proven approach for turning an Information On Demand vision and strategy into reality.

Information Strategy: Recognizing the big picture

At its highest level, the IBM Information Agenda Guide for Healthcare Organizations incorporates best industry practices to help identify the primary information-centric clinical and business imperatives that drive virtually every clinical and business decision. The outer ring of Figure 2 reflects the industry imperatives that healthcare organizations must take into consideration.

The middle ring details the specific clinical and business objectives associated with strategic industry imperatives. For example, effective capacity planning and throughput management can be critical factors in enabling profitable growth.

At the center of the Information Agenda Guide are a set of performance management activities and application areas that are common across all industries. These capabilities are required to run your business, but alone are not sufficient to drive competitive advantage in today's business environment.

The industry imperatives and business objectives are the foundational components used to help set the vision and strategy for a healthcare organization's Information Agenda. This approach ensures that you have a well-established bridge between IT objectives and overall organizational objectives. It also provides line of business, clinical and IT colleagues with a common language to communicate about all projects and plans.

Information Governance: Enhancing information quality, availability and integrity

As a crucial component of the IBM Information Agenda Guide, information governance assists healthcare organizations in establishing standards for data quality, management processes and accountability. These standards help to improve business performance via standard definitions and processes that establish a more disciplined approach to managing data and information across the enterprise.

The Information Agenda Guide for Healthcare Organizations applies best practices for creating information governance policies, based upon IBM's extensive experience in the healthcare industry. It leverages existing policies and procedures to create an environment that can consistently and confidently manage information, thereby obtaining maximum value from these assets to support strategic imperatives.
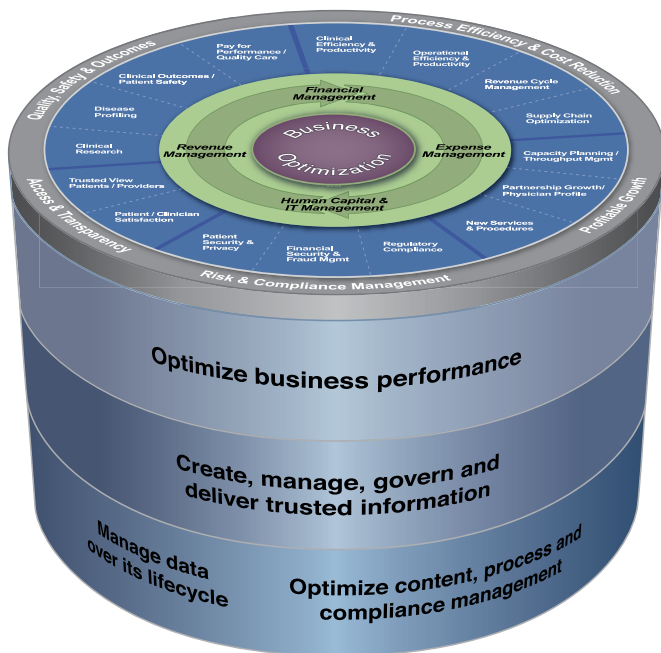
Figure 3: The IBM Information Agenda Guide for Healthcare Organizations addresses common key information requirements

Information infrastructure: Creating, managing and delivering trusted information

All imperatives and business optimization objectives depend upon a common information infrastructure that enables a healthcare organization to more effectively create, capture, manage and utilize information associated with patients, services, products and market strategy (see Figure 3).

An effective information infrastructure allows a healthcare organization to:

1. **Manage information over its lifetime** — Reducing the costs associated with managing information while controlling access and increasing compliance.

2. **Optimize content, process, and compliance management** — Better tuning system performance and improving decision-making by injecting timely, trusted information into business operations.

3. **Establish an accurate, trusted view of information over time** — A flexible architecture can leverage existing IT investments to produce accurate and trusted information that is consistent across sources, facilitating better analytics and sound business decisions.

4. **Plan, understand and optimize business performance** —Leveraging trusted information to build plans, understand how business is performing and focus on optimizing performance across the enterprise.

5. **Provide solutions that drive operational efficiency** — Information infrastructure solutions focus on information compliance, security, availability, and retention, providing an infrastructure environment that is highly scalable, standards-based, flexible and essential to handling today's most information intensive business challenges.

As the Information-Led Transformation journey evolves, guiding principles will be applied to leverage existing assets and IT purchase decisions with these key common information requirements in mind. The journey will include looking for opportunities to use existing IT assets as common components to be utilized for other projects, and will provide guidelines that help ensure new technology and software investments can accommodate both short- and long-term objectives.

Roadmap – bringing it all together with a step-by-step execution plan for creating an information agenda

The roadmap gives information management and integration efforts direction and cohesion. It spells out the priority, order and timeframe of IT projects necessary to achieve the organization's crucial information-enabled business optimization objectives. The first step in creating the roadmap is identifying and prioritizing the underlying IT projects— usually combinations of software and services—that can help achieve each business imperative.

IT projects for supporting profitable growth

As reimbursements shrink and selecting which healthcare organization to use is increasingly a joint decision by the patient and physician, sustainable growth has become an imperative for healthcare organizations that want to remain in business. But simply boosting the patient roster is not enough. Organizations must differentiate and innovate, keeping a close eye on the profitability of each initiative to ensure that they are offering an optimum mix of facilities, procedures and services.

Information is critical to evaluating and improving an organization's current growth plan. Healthcare organizations can aggregate information such as facility usage, procedure frequency, patient demographics and referral trends and patient throughput though technologies like data warehousing. This data can be cleansed to eliminate redundancies and
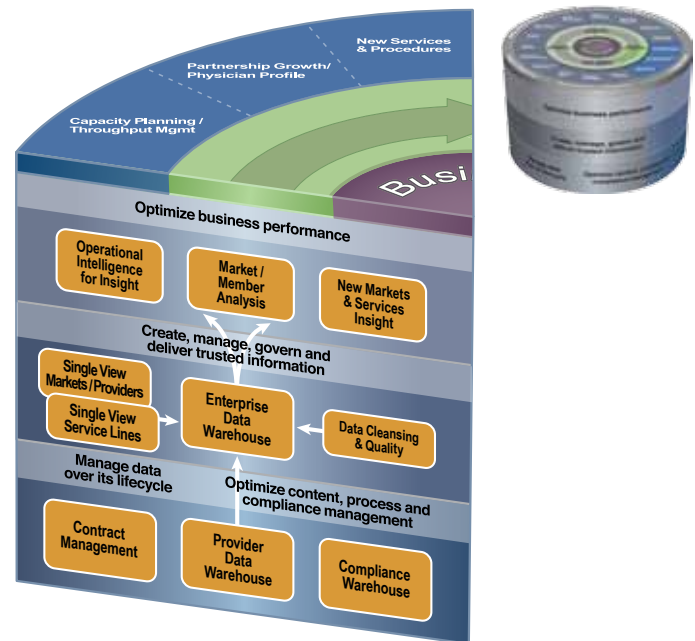

Figure 4: An example prescriptive roadmap of IT projects to facilitate profitable growth includes data warehousing and data cleansing.

inconsistencies, and then analyzed to generate detailed insight into care and operational efficiency and market trends (see Figure 4).

With a single, comprehensive view of each service area, healthcare organizations have actionable information to help them make better decisions about how to maximize profitability as they grow.
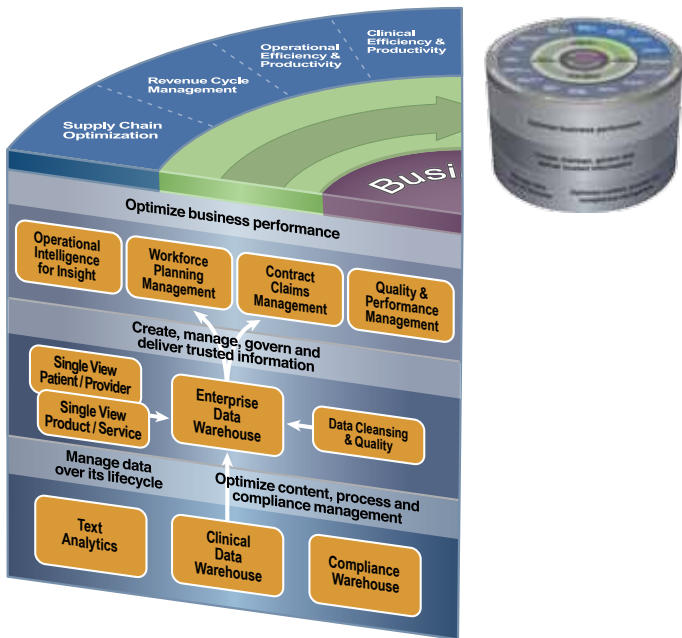
Figure 5: An example prescriptive roadmap of IT projects to promote process efficiency and cost reduction includes text analytics and quality and performance management

IT projects for promoting process efficiency and cost reduction

For maximum profitability, healthcare organizations must also manage costs and find ways to boost operational efficiency. Clinical and operational productivity are critical factors in accomplishing these goals, and strong revenue cycle management can help increase returns. Throughput and capacity management drive operational efficiency. In addition, supply chain optimization can help ensure that doctors, nurses and other employees have the right tools and equipment at the right time—and that healthcare organizations are not wasting money or space by stocking items that are not being used.

Data warehousing, enterprise content management and business intelligence platforms also play vital supporting roles in efficiency and cost reduction initiatives (see Figure 5). For

example, by creating a comprehensive "dashboard" display of a hospital's performance against industry-established quality indicators, the IBM Cognos® performance management solutions can help administrators make informed decisions about operational priorities.

IT projects for enhancing quality, safety and outcomes

Offering the best possible patient care has always been of utmost importance for healthcare organizations. Now, however, organizations are increasingly being held accountable for mistakes and customer service performance, and these performance ratings can significantly influence decisions about which healthcare organizations to use.

Healthcare organizations can implement technologies such as data warehousing and analytics to help improve quality, patient safety and positive outcomes (see Figure 6). Quality care measurement dashboards provide an organizational
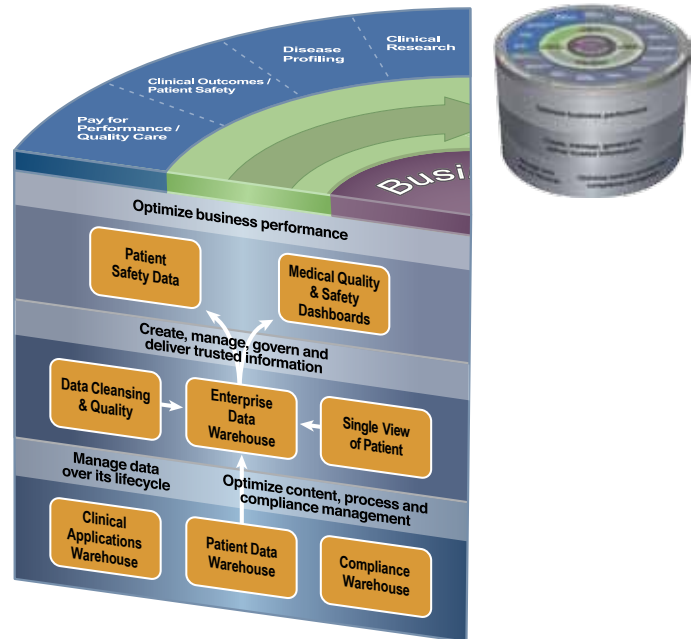

Figure 6: An example prescriptive roadmap of IT projects to enhance quality, safety and outcomes includes clinical applications warehousing and patient safety data.

view to track and trend key indicators for performance improvement. Patient safety analytic tools can provide models to predict populations at risk for adverse events, and disease profiles can be created for high-cost, high-volume diagnoses. Comprehensive physician profiles provide comparative information to identify opportunities for improvement, while data analytics and reporting tools help organizations develop predictive risk models designed to reduce the frequency of adverse events.

The Information Agenda guide for Healthcare Organizations accelerates roadmap creation with best practice templates for specific IT projects. They are pre-configured to accommodate industry-specific business optimization objectives and initiatives, allowing organizations to quickly organize and prioritize IT projects within the framework of their information agenda.

The Power of An Information Agenda Approach

With an Information Agenda for healthcare organizations in place, CIOs have many of the tools needed to make the essential transition from simply supporting the business to making a measurable, sustainable contribution to the business' bottom line. The Information Agenda Guide for Healthcare Organizations supplies the integrated vision needed to help achieve the business goals and objectives of a converged business model — and deliver better business outcomes. These outcomes can range from improving the availability of revenue producing services and assets, reducing costs, demonstrating compliance and improving patient and clinician satisfaction, to demonstrating leadership in corporate social responsibility programs.

With IBM analytics and performance management software, such as Cognos®, healthcare providers embark on a path toward information-led transformation. Trusted, accurate

and timely information available to the right operational and service line decision-makers at the right time allows healthcare providers to optimize operational performance and improve clinical care.

And with a single view of critical success factors, healthcare providers can optimize business performance by utilizing scorecarding and dashboards to monitor revenues and margin performance by service line, department and facility. They can measure performance against strategic institutional initiatives, monitor quality and carefully track financial goals while aligning performance metrics with strategic initiatives.

The benefits: Competitive advantage through clinical and business optimization

The Information Agenda Guide can help healthcare organizations:

- Improve quality of care
- Create a safer patient environment
- Increase revenue and markets
- Reduce costs and enhance operational efficiency
- Introduce new services quickly
- Improve clinician productivity and efficiency
- Meet compliance requirements and reduce risk exposure
- Increase compliance visibility
- Protect patient and financial data and mitigate fraud risks

Most important, consistently delivering trusted information to the right people at the right time gives organizations the ability to use that information – and the intelligence derived from it in entirely new ways, providing real competitive advantage for a smarter planet.
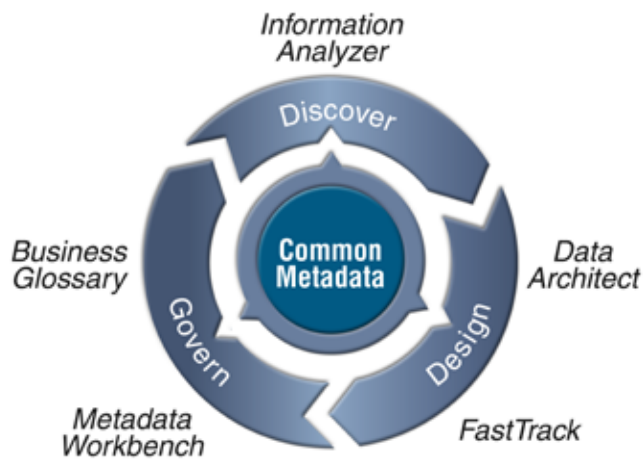
Why IBM is the right transformation partner

IBM's unparalleled combination of pure science, deep industry knowledge and technology expertise makes it uniquely qualified to help business discover a new kind of intelligence. Only IBM offers the industry accelerators, enabling technologies and deep expertise with a proven approach necessary to do so.

The IBM Information Agenda Guide for Healthcare Organizations is a practical, accelerated and proven approach developed by IBM after years of experience of working with leading global healthcare organizations. It is a cross-IBM program composed of a proven, prescriptive methodology and mature healthcare assets, delivered by IBM practitioners with deep healthcare industry expertise.

IBM Information On Demand and Information Infrastructure solutions offer end-to-end information infrastructure capabilities for executing your Information Agenda Guide. Information On Demand and Information Infrastructure offerings have been specifically designed to address virtually every aspect of an organization's trusted information needs. Based on open standards and reflecting an investment of more than US$10 billion in the last three years, Information On Demand and Information Infrastructure offerings are among the industry's most comprehensive.

IBM's Business Analytics and Optimization leverages the unique capabilities of IBM Research, which, when combined with our world-class software solutions, foundational business intelligence, performance management and advanced analytics, accelerate client time-to-value. Business Analytics and Optimization in concert with Information Agenda, provides comprehensive services and leading-edge healthcare industry solutions, enabling healthcare organizations to make and act upon critical decisions.

CIOs and senior IT managers ready to jump-start their organization's Information Agenda efforts should consider a hosted IBM Information Agenda workshop. This workshop leverages IBM's expertise to quickly guide CIOs, senior IT managers and LOB stakeholders through the process of building a cohesive information agenda with an actionable set of projects. A hosted workshop can result in faster execution and quicker realization of return on investment.

For more information

To learn more about the Information Agenda Guide for Healthcare Organizations and IBM Information On Demand solutions, contact your IBM sales representative or visit:

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