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## IBM Industry Data Models in the Enterprise

Customer Research Report  
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# IBM Industry Data Models in the Enterprise

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## THE VALUE AND LEVERAGE OF DATA MODELS IN THE ENTERPRISE

Enterprise data warehouse (EDW) and business intelligence (BI) practices have been developing rapidly over the past couple of decades. Database design, data modeling and analysis go back even further. Along the way, vendors have developed different ways to give organizations an alternative to “starting from scratch.” Packaged BI and reporting templates are examples of pre-built, pre-designed tools that a company can adopt to move their analytic train down the line quicker and easier.

Also, many industries have become highly specified, even commoditized. Either due to government regulations or the nature of the business, industries like banking, healthcare, insurance and retail have developed models, processes and services that are very similar. When you visit a bank, you will probably know what to expect, because it is highly likely this bank operates in a similar fashion to the last bank you visited. Certainly, banks differentiate themselves competitively by improving customer interaction (integration and automation of the customer experience without losing a human touch), community involvement, product innovations and removing consumer barriers, but at the end of the day, you make a deposit, you cash a check, you open an account, you take out a loan, et cetera.

Over the past two decades, IBM has worked with hundreds of companies across a number of industries on data warehouse engagements. Based on the experiences of these engagements, IBM synthesized its knowledge and expertise of the information needs specific to several industries. The result was the development of a set of Industry Data Models that leverage their expertise and best practices.

An IBM Industry Data Model is a pre-built model specifically designed for an industry’s data needs. IBM Industry Data Models can jumpstart an organization down the path towards a comprehensive analytics environment by applying proven best practices in data modeling to self-contained units of business functionality.

The objective of this whitepaper is to give information technology leaders an understanding of IBM Industry Data Models, their components, their usage and how they fit in the overall information ecosystem of an organization. Important considerations, such as benefits, trade-offs, customization of the models, are examined. With

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the information presented in this paper, technology decision makers will gain the knowledge needed to make an actionable decision on whether an IBM Industry model is a good fit for a situation and how best to lead a successful implementation. Finally, the paper concludes with an overview of models specific to each industry and a case study interview with an Enterprise Data Architect of a major financial institution that uses an IBM Industry Data Model.

## **What is an IBM Industry Data Model?**

An IBM Industry Data Model is a set of business and technical data models that are pre-designed to meet the needs of a particular industry. Just like every hamburger-focused fast food restaurant will sell you French fries, every healthcare provider will maintain patient records. The difference is that while each fast food chain has their own take on French fries, the healthcare industry is required to maintain their records in a certain way, due to ICD-10, Medicare, HIPAA and other factors. Both scenarios, at some level, can effectively utilize a pre-designed, industry-specific data model.

An IBM Industry Data Model is a blueprint that provides common elements derived from best practices, government regulations, and the complex data and analytic needs of an industry-specific organization. Within the schematics of an IBM Industry Data Model are data warehouse design models, business terminology and BI/analysis templates. The models provide organizations within a specific industry a pre-designed, out-of-the-box framework to help accelerate the development of business intelligence applications. The models can serve as a foundation for an information management infrastructure where key data have already been identified and made available to the enterprise for decision making at any level.

IBM Industry Data Models also work hand-in-hand with IBM Process and Service Models. Process and Service Models are specifications of processes and services common among organizations in a particular industry. These models represent best practice business process models with supportive service definitions for development of a fluid, service-oriented environment. Many organizations choose to complement their IBM Industry Data Model together with IBM Process and Service Models.

## **Organizations That Use Data Models**

IBM Industry Data Models are commonly used by a number of organizations. Primarily, this includes organizations in industries with processes and services defined by best practices or regulations, such as: banking, finance, healthcare, insurance, retail and telecommunications. Companies in these industries are motivated to adopt an IBM Industry Data Model for a number of reasons. Some large organizations have silos in their information technology environments. This segmentation has made consolidated and enterprise-wide BI and analytics very difficult. IBM Industry Data Models offer an opportunity to resolve this issue by unifying data in a consistent enterprise-wide framework.

Companies who are party to a merger or acquisition and want to consolidate their data assets also adopt IBM Industry Data Models. For example, one bank acquires another. The formerly independent parties will certainly not be in agreement between their information assets prior to the merger. The needs and demands for consolidated reporting and analysis will be highly important to the ongoing entity. IBM Industry Data Models help get a quicker start in resolving data incongruences in their two disparate

banking systems by giving the merging companies an equal footing based on industry standards and best practices. With one centrally agreed-upon data model for BI and reporting, merging or acquired companies can begin to resolve their once separated information infrastructures.

Also companies in an already mature domain who want to quickly leap into an emerging market find IBM Industry Data Models give them a leg up in rapidly deploying best practices. For example, a new insurance company might begin operations in a developing country. The company can use a pre-built model to launch from a best practice platform to address its analytic and reporting needs from the get-go.

Finally, organizations that must adapt quickly to legal, regulatory or governance changes often turn to IBM Industry Data Models to help them. IBM's models are updated to adjust to the market and regulatory environments of different industries. For instance, banks who find themselves out of compliance often choose the IBM Banking Data Warehouse to quickly get their data back on track. As another example, healthcare providers are challenged to face rapid changes in the industry, such as the Affordable Care Act. Providers can leverage the IBM Health Care Provider Data Model that is regularly updated by a vendor to address changing regulatory environments.

### **Components and Terminology**

An IBM Industry Data Model is a business-driven data model. This model is a specification that brings the various business requirements together in one schema. The model describes relationships between different entities and informational aspects of the business domain. The model is specific to a particular industry and the typical relationships among its entities, aspects and processes.

Supertype-subtype relationships one might expect in a given industry domain are present. For example, a patient is a person and a physician is also a person. A comprehensive industry data model should account for both the common and distinct attributes among supertypes and subtypes as well.

IBM Industry Data Models contain a number of pre-designed, pre-built components. These components include:

- Data models
- Business terminology
- Analytic requirements
- Supportive content

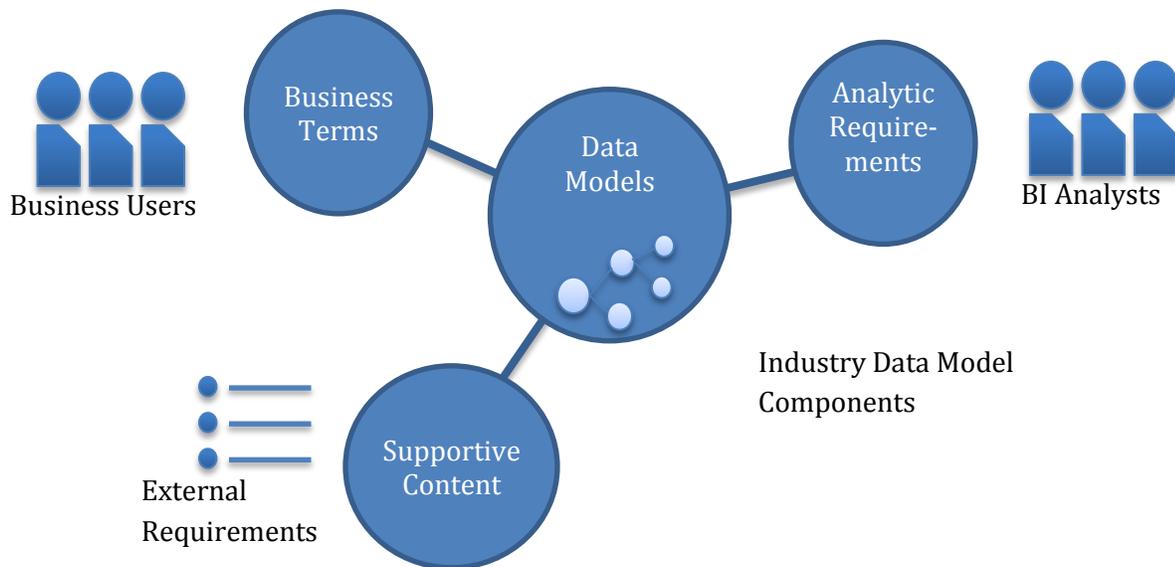
The data models can be the schematics for data warehouses and relational models covering the multiple functional areas central to industry-specific businesses. The data models are designed and validated by best practices in the industry, including industry standards, common processes and service delivery methods, and current regulatory requirements. The data models also merge requirements from multiple verticals to eliminate segmentation, overlap and redundancy of information. They are designed to provide stability, flexibility and reusability.

Second, the business terminology contained within an IBM Industry Data Model defines concepts specific to the industry in business, non-technical terms. This key element helps ensure the technical aspect of the model is driven by the business—creating a bridge between the information used in business operations and the technical components. Business terminology should only include verbiage that is meaningful to a

businessperson. Business terms do not model data, but present the data requirements in a simple, easy-to-understand way. Business terms are also organized by categories in an applicable way to the industry.

Third, IBM Industry Data Models contain predefined analytic requirements to support rapid development of commonly requested reports and analytics.

Finally, supportive content is often present as a means to relate the models to external business terms and requirements. For example, supportive content can bridge from banking data models and internal business terms to the requirements of the Basel Framework or the FATCA regulatory data items specified by the IRS.



All in all, an IBM Industry Data Model is designed to fulfill the majority of requirements in industries well suited for pre-designed structures. The right organizations can benefit greatly from these models, but first one must understand the trade-offs, when and how to customize the models, and how to ensure their successful implementation.

### How They Are Formed

IBM Industry Data Models use a classification model that goes from the most abstract to the most specific. In their most generic form, models define data widely applicable to the industry-specific organization. The data model is also formed independent of any organizational structure and validated by multiple sources within the industry. Furthermore, an IBM Industry Data Model merges the requirements of existing models common to the particular industries they serve. They are designed with stability, flexibility and reusability in mind.

From a technical standpoint, IBM Industry Data Models incorporate the classification inheritance and object state behavior developers are used to seeing in object-oriented designs. IBM's models are fundamentally data-centered. Thus, they serve as a useful blueprint for database and application development. Practitioners also find the models work as tools for understanding and communicating enterprise information resources across teams.

## Reported Benefits

Organizations who have employed pre-built models have reported many tangible benefits. Reports of increased ease in deployment, acceleration of projects, and reduction of risk are the main advantages to an IBM Industry Data Model over a start-from-scratch data model. The idea is to focus development effort on addressing data requirements and delivering insights rather than devoting time to the labor-intensive process of developing a data model from the ground up.

Clearly, there are some tangible value-, cost-, time- and effort-based benefits realized when employing a pre-built model. While the exact return on investment (ROI) will vary from case to case, there are other intangible benefits to the models as well. Models can elevate information management practice, architecture, and integration within an organization.

### Agility

Our clients who have reported the most success with industry models, with clear benefits over bespoke modeling, cite agility as the most important category of benefit. Whether the model constructs are implemented exactly as provided is not nearly the point as one may think. The industry model brings out the conversation about aspects of the business that must be considered before any model can be implemented. They also provide the probable way forward for handling the situation.

This is highly valuable and allows the engagement between the implementation team and the user team to happen at a level more progressive to implementation and benefits.

Without a pre-built model, joint design sessions to create a model (or retrofit an existing model) could take weeks or months. With a working model in-hand on day 1, the sessions are jumpstarted. IBM Industry Data Model customers report an easier time working with the IBM models than custom-built fragments modeled by IT.

### Best Practices

IBM Industry Data Models represent a marriage of best practices between industry and information management (IM). They are built on years of experience within the industry. This provides a lens of industry practice lens for the IM arm of the organization. IT/IM departments are given a jumpstart understanding data requirements of the business in a language both business and technical teams understand.

### Enterprise Architecture

Architecturally, IBM Industry Data Models further develop a service-oriented architecture (SOA) by serving as a self-contained unit of functionality for a host of other functions—particularly when teamed with complementary IBM Process and Service Models. The models can be a foundational piece for enterprise-wide information architecture. Many IM and BI efforts are departmentally focused and do not leverage enterprise-wide insights. The data warehouse design models, business terminology models and analytic templates come “enterprise aware” right out of the box.

## Flexibility

Even though the models are highly structured, they are not rigid. IBM Industry Data Models are extensible and scalable to fit the complexities inherent within a particular environment. IM and BI needs are complex and fluidly dynamic. They are also a heterogeneous mix of data from operations, finance, human resources, and other business areas. Thus, the IBM models provide a robust and flexible response to the organization's information needs, while maintaining a surefooted foundation of a trusted information management platform.

## Integration

For integration efforts, IBM Industry Data Models provide structure and consistency. Models offer a framework for consolidation of data assets. Models create a starting point to integrate data and processes. The models continue to add structure through common definitions for improved data consistency and a rigorous specification of data requirements, reducing redundancy of information across the enterprise. Thus, models often serve as catalyst to consolidate reporting and measurements across the enterprise by resolving previously conflicting requirements, data models, processes, and structures from different parts of the business.

The following table summarizes the benefits of implementing an IBM Industry Data Model:

Modeling Benefits	Development Benefits	Overall Project Benefits
<ul style="list-style-type: none"><li>✓ Jumpstarts collaborative and agile data modeling</li><li>✓ Eliminates “start from scratch” effort – much quicker than bespoke modeling</li><li>✓ Brings disparate business units and functional areas together (operations, finance, HR, etc.)</li></ul>	<ul style="list-style-type: none"><li>✓ Accelerates BI application development</li><li>✓ Persists a structured and consistent model into the organization</li><li>✓ Provides a framework to consolidate data assets and reporting</li><li>✓ Easier to use than in-house built models</li></ul>	<ul style="list-style-type: none"><li>✓ Shortens time-to-value for analytical projects</li><li>✓ Increases ROI through time and effort savings</li><li>✓ Promotes a service-oriented architecture</li><li>✓ Promotes best practice – built on 2 decades of IBM experience</li></ul>

## WHY DO I NEED AN INDUSTRY MODEL?

With rapid changes in all industries, the difference between being the laggard or leader is the ability to adapt to change. Organizations need to consider ways to streamline process and shorten system development cycles. To achieve this, IBM Industry Data Models are an attractive alternative to bespoke in-house data modeling. Both approaches have trade-offs.

## Trade-offs to consider

Determining whether to employ an IBM Industry Data Model or build a custom, in-house data model is a classic “build-versus-buy” question. One should ask themselves the following questions:

- How many people do we have on staff that can focus 100% of their time on data model development and support?
- What does the data modeling resource pool look like at our company? Are any individuals at risk of retiring or leaving?
- How will the team keep up to date on industry changes and adapt the data model accordingly?
- How will we “charge-back” cost of development and support of a custom data model development?
- What will our total costs of building a bespoke model versus industry data model ownership over the entire lifecycle?
- Will we be reinventing the wheel? Does the industry data model already meet enough of our needs? Can the model be customized to meet our own unique requirements?
- Will it be most expedient to make changes in your business practice to fit the industry data model? Would your organization’s culture be receptive to these changes?



## Time Savings

Possibly the ultimate trade-off, however, is the precious commodity of time. At all levels of most any organization, every associate is being asked to do more with fewer resources. While information professionals may be skilled with data modeling, it is a time consuming undertaking that can be alleviated (not eliminated) by the use of commercially available industry models.

There is benefit from an IBM Industry Data Model at getting to a shallow modeling depth quicker. “Shallow” in this context represents the nature of the bespoke modeling effort. In our experience, bespoke modeling can satisfy immediate needs, but scaling them out to a second, third, and to enterprise, needs is a daunting task. Often this results in many redundant and inconsistent models. This practice is perilous to the total cost of ownership of data models in the enterprise. This point, usually encountered in mere months after beginning a bespoke modeling effort, is an obvious point at which time savings accrue to an industry model.

Less obvious, but also reported and prevalent, is the time savings in the short term for using an industry model. This more important time savings aspect to IBM Industry Data Models is the immediate representation of entities and elements that would take deep analysis, and time, to unearth.

To be sure, industry data models are no panacea for bad practices. The implementation team needs to adjust its approach as well to be maximally successful. It cannot be overwhelmed with the entities, attributes and relationships. It must learn to implement (i.e., refine, populate and use) the model in an agile fashion – as needed. In our experience, shops “pick up the pace” over time in filling out a robust, comprehensive model driving gains in many areas of the business.

The advice of numerous business leaders is to “do only what you do best in-house, and outsource the rest.” Employing an IBM Industry Data Model is an opportunity to shave time off the data modeling and development process. The resulting time savings will help a data warehouse and BI project move forward at a quicker pace.

## INDUSTRY MODELS IN THE ENTERPRISE

IBM Industry Data Models can be primarily used to serve several information management needs: enterprise data warehouses, analytics, and master data management, to name a few.

### Enterprise Data Warehouse Use Case

An IBM Industry Data Model contains predefined schemas for different types of data warehouses. These schematics will include atomic and dimensional models to serve different needs.

IBM Industry Data Models contain atomic warehouse models where the measurements of a business process are at the finest level of granularity available. The advantage is atomic warehouses can hold long-term histories from across the entire enterprise. Atomic structures are formed independent of specific analytic needs giving them the flexibility to meet new requirements. They also support near real-time data loading. Atomic warehouses are more disaggregated than warehouses where measurements and totals are counted and summed up by broader categories and dimensions.

Comprehensive dimensional data models contain predefined data warehouse structures to store data in an efficient layout when data needs to be laid out for easier reporting and analytics. Dimensional models are easy to understand and use. Although they are initially designed for certain analytic needs, they can be extended to meet new requirements while old queries continue to run without change. A good example of this is the patient readmission prediction template in the IBM Healthcare Provider Data Model. The data elements in this structure capture common readmission metrics and dimensionality but can also be customized for different exclusions.

## Analytic Use Case

Analytic requirements are where organizations may realize the value of an IBM Industry Data Model. These requirements are made up of the most common queries, reports and analysis in a given industry. They typically support business performance measurement, decision support and ad-hoc reporting. Well-specified analytic requirements will also allow the rapid building of subject-defined data marts. Analytic requirements give IBM Industry Data Model users the advantage of reducing the time it takes to gain analytic value from their BI efforts.

The data for analytics can reside in a number of sources, including:

- The industry data model defined data warehouses
- The industry data model defined business terminology and relational models
- Pre-existing analytic and operational stores within the organization
- Previously untapped data sources, e.g., big data
- A combination of any of the above sources

Reporting requirements provide subject-oriented definitions of the reporting and analysis requirements of an organization. IBM Industry Data Models go well beyond basic and generic requirement. For example, the IBM Telecommunications Data Warehouse supports predictive capabilities on key customer analytics, such as churn propensity, i.e., the tendency and estimated likelihood of customers to leave the provider for the products and services of a competitor. In all, the IBM models contain over 100 predefined business report templates addressing the common business reporting and analysis requests from risk, finance, compliance, HR and CRM end users.

## Master Data Management Use Case

IBM Industry Data Models also serve as a foundation for Master Data Management (MDM) by pre-identifying the critical data elements for common processes within a given industry. The models address master data at the onset of implementation—particularly in cases when disparate data systems are being integrated into one. The industry model creates a shared definition of master data. Duplication due to enterprise segmentation can then be resolved. Also, the model offers a consistent framework for distributing master data back out into the operational data stores and systems.

For example, the IBM Insurance Information Warehouse Model goes beyond basic customer master data of contact information in the general sense, but also account for preferences of how customers want to be contacted (timing, name to use in communication, person by whom they prefer to be contacted, and so on).

## CUSTOMIZATION AND MAINTENANCE OF THE INDUSTRY MODEL

Certainly, IBM Industry Data Models provide the framework for many common analysis needs in a given industry. However, what about custom needs not met by the base model? IBM Industry Data Models are not

designed in a “one-size-fits-all” manner. A rigid structure that assumes all possible business analysis scenarios are covered would be shortsighted.

Instead, IBM Industry Data Models are designed to enable customization. First, the granular detail of the models gives the user a vast number of ways to line up data from across the enterprise. Second, the models allow for segmentation. Individual pieces of the model may be implemented without undermining the overall design. Third, custom in-house data models can be coupled to the industry models to fulfill a unique requirement uncommon among other organizations in their industry.

We’ve had clients do all of the above, including ultimately using “half” of the industry model with the other half of the enterprise model needs coming from already existing bespoke models. They planned it this way going into the implementation and that’s how it worked out.

The question is not whether a shop can use “all” of the industry data model. The answer to that is probably no. The question is whether those parts of the industry data model that will be implemented are worth the cost. It may be surprising, but even at low levels of adoption, the industry data model can be worth it due to all the benefits cited in this paper.

## Bespoke Maintenance Versus Change Control With Vendor

Another consideration is maintenance. Organizations that deploy an industry data model need to decide the best way to maintain and update their data models. Some organizations choose to work with the vendor, while others maintain the model in-house. To help an organization decide, one should ask the industry data model vendor the following questions:

- How often do you update your models?
- How do you distribute updates to customers?
- How much customization do your customers typically request from you?
- How many of your customers maintain their own models in-house?
- How can in-house customizations be made without interfering with future updates?

In addition, consider the ways that the industry data model can be customized. These include the following areas of potential customization:

**The data model.** There may be cases when you cannot populate the model with the source data you have—either it is missing or does not fit. For example, the level of granularity in transactions expected by the industry data model may differ from the source system.

**Data transformation rules.** As an alternative to modifying the logical model, some industry data model adopters may deal with source-to-model data discrepancies in the extract-transform-load (ETL) process. An industry data model could be rejected by the business if the data it needs is inconsistent or missing. Having custom transformation rules can mitigate this risk.

**Architectural layering.** Often simply adding an industry data model on top of the operational environment is insufficient for an organization's needs. Many organizations will add additional layers to their BI environment, such as a staging layer to offset load-processing times from access times or a data mart layer to customize usage needs of end users.

**Ad hoc data needs.** It won't be long after an industry data model implementation that ad hoc needs are required. Plan for requests or requirements that the industry data model does not address and extend the environment in a way that meets these needs but does not compromise the integrity of the core model.

## WHAT TO LOOK FOR IN AN INDUSTRY MODEL

Not all industry models are created equal. Evaluating models for the same industry from different vendors can be painstaking. One could easily get lost in the weeds. Focus instead on the following key acceptance criteria for a model you may be considering:

**Is the model business-focused?** The best way to tell how business-focused a data model is to assess the quantity and quality of business content. If the amount of technical content far outweighs the business content, then the model may not be business-focused enough. Business content is much more valuable than technical content and an abstract model.

**Does the model adequately represent business processes?** Look for complete process cycles within the model. If there are significant gaps between the model and real-life scenarios, the model may not be compatible enough with your business.

**Is the model robust enough to anticipate and reflect business process changes?** Business processes change and change often. An industry model must be adaptable. Look for a vendor who proactively updates their model to anticipate industry-wide business process and regulatory changes based on current engagements with customers in the industry.

**Does the model promote standards of excellence?** An industry model should be the embodiment of best practice within both the enterprise and the industry.

**Does the model identify master data?** As demonstrated earlier, improved master data is a key benefit to employing an industry model. Make sure the industry model you select will allow you to reap those benefits.

**Does the model support all kinds of data?** Ensure the model has accounted for operational, transactional, master, highly volatile, slowly changing, semi-structured and unstructured data. Effective business intelligence brings all relevant data into the picture. Make sure your industry model does not hamper your ability to leverage data of all classes and types.

## SUCCESS FACTORS IN USING IBM INDUSTRY DATA MODELS

Like any out-of-the-box solution, IBM Industry Data Models are not turnkey. An organization rolling out a model needs the right skills, mindset and practices in place to make it a successful implementation. This includes having personnel with data modeling skills, adoption of an agile approach, a deep understanding of the adopted model, and developing or mature data management and governance practices.

### Modeling Skills

To successfully implement an IBM Industry Data Model, it is imperative to have data modeling skills on your team. These individuals need certain core competencies in data modeling. This includes the ability to:

- Scope new initiatives or applications
- Carry out impact analyses
- Manage enterprise data resources
- Manage components within the enterprise architecture
- Derive logical specifications from business requirements
- Structure data warehouse designs around business concepts

### Agile Approaches

IBM Industry Data Models may be based on best practices, but this does not replace the internal development process within your organization. Good methodology is a critical success factor for an industry data model deployment.

One possible approach to consider is using agile methods during the industry data model deployment. IBM Industry Data Models are conducive to agile development methods. In a way, industry models and agile methods were both developed as a reaction to lengthy and tedious development practices.

Agile depends on face-to-face (or virtual) communication to co-develop effectively. In the development of data-oriented applications (such as BI), agile practitioners typically begin with the data model. Agile data models are often customized live, in front of an audience of developers and business users. In this way, business users understand the model, because it is explained as it is being tailored and accepted. Their adoption of the model is much quicker, because they see a clear reflection of business goals going into the model. The pre-designed models, supplemented by the business terminology components, serve as a conversation centerpiece for your data/BI team and business users. The difference is you don't have to start from scratch.

### In-depth Understanding of the Model

Purchasing a pre-designed data model, or any tool or resource, does not excuse one from acquiring an in-depth knowledge of the model and how it brings the schema together. There needs to be data champions

on the IT and business sides that will deeply dive into the model with fervor, understanding its intricacies and how to best harness its fullest capabilities.

It is recommended that team members from IT and the business involved in implementing an industry data model take a deep dive into the following components:

- The logical schema of the data warehouse and relational tables included with the industry data model
- The business terminology and how it compares to the internal terminology within their organization
- The included analytic requirements and how it compares to the list of known internal analytic requirements of the business
- The logical schema of the source systems and how the data will be mapped, transformed and flow into the industry data model
- The master data identified by the industry data model and how it compares to the master data the organization desires to maintain

## Data Quality

A data model, even if pre-built on best practices, will only be as good as the quality of the data it contains. It may be the very best representation of industry excellence as a model, but if the data it contains is intolerable for use, the model will be rendered useless. Adherence to good data management principles will help promote data quality. A few data quality principles in relation to industry data models include:

- Data should be fit for the intended use within the model.
- Data must still stand up to rigorous requirements of completeness, consistency and accuracy.
- Data quality should be addressed before it enters the industry data modeled databases as close to the original source as possible.

Ensuring the reliability, availability, or timeliness of data within the industry model will cause value of your company's data assets to rise markedly.

## Data Governance

An IBM Industry Data Model offers a solid footing for data governance by standardizing for excellence many of the data decisions that need to be made. However, employing an industry model does not complete the data governance requirements of an organization. The organization can build governance on the model, but it still must put forth the effort towards good governance practice.

A governance program is a key enabler of all modeling activity in an organization, including bringing in an industry model. Data governance is actually the best vehicle for driving model edits, updates and adoption.

Good data governance programs for industry data models:

- Develop a conceptual data model for the enterprise
- Manage all company data
- Line up executive support for data's importance
- Assign data ownership to business SMEs and line up their involvement
- Train the organization in the roles needs for data success
- Improve the data quality of the organization
- Minimize the data risk to the organization
- Support projects that need data
- Contribute to data architecture utilizing principles of foresight, ROI and TCO
- Bring ideas to the enterprise for using the model for business gain
- Utilize organizational change management techniques to drive adoption

## SPECIFIC IBM INDUSTRY DATA MODELS

IBM is a leader in industry-specific data models. Their strength in the market comes from over 20 years experience working with over 500 clients in financial, insurance, healthcare and retail sectors. IBM derives and updates their models based on experience yielded from engagements building data warehouse and BI environments with clients. IBM's models have numerous demonstrated use-cases, including: data warehouse, BI application developments, master data management, data governance, data analytics, business process change management and service-oriented architecture developments.

IBM Industry Data Models boast a thorough business vocabulary and library of business solution templates (BSTs). Their BSTs are geared toward the rapid development of data marts for key performance indicators and common business-focused reporting requirements.

Their models align well with their other data integration and warehouse platforms and tools. Many industry model customers choose to deploy the models with a PureData™ System for Analytics (PDA) on Netezza appliance or on DB2. However, IBM models can be deployed on an existing customer data warehouse engine and appliance.

Customers also sometimes choose to pair IBM Industry Data Models with IBM Process and Service models as a comprehensive full stack solution.

IBM offers the following industry models:

Industry		Data Models	Process & Service Models
Financial	Banking	✓	✓
	Financial Markets	✓	✓
Healthcare		✓	
Insurance		✓	✓
Retail		✓	
Telecommunications		✓	

Some anecdotes from practice about each of the models follow.

### Financial

The IBM Banking and Financial Markets Data Warehouses models are important for many reasons, not the least of which is to help a financial organization keep up with the acceleration in regulatory compliance issues. These issues tend to be complex, require specific reporting and can appear quickly to an organization, requiring a quick reaction. With the requirements often coming from outside an organization, the detail from the IBM Banking and Financial Market Data Warehouses has a very high acceptance rate.

IBM Banking and Financial Market Data Models have the following key focus areas:

- Asset and liability management
- Investment management
- Profitability
- Regulatory compliance (Basel, Dodd Frank, SEC, etc.)
- Relationship marketing
- Risk management
- Wealth management

### Insurance

Insurance has a complex array of roles and relationships between those roles. Consider these entities and roles modeled within the IBM Insurance Information Warehouse:

- Insurance company
- Insurance provider
- Insurance agent
- Insurance agency
- Employee
- Payor
- Claims Adjustor
- Suspect
- Beneficiary
- Insured party
- Insurance administrator
- Regulatory body

These are required roles for all insurance companies. It is much easier to react to the way the IBM Insurance Information Warehouse models these roles than to build from scratch or an existing underperforming system.

## Healthcare

Healthcare has a similar amount of roles as Insurance, as well as a complex business model. The big picture is required regardless of the specialization. A healthcare company could easily spend an inordinate amount of time modeling due to a lack of understanding or availability of the resources across the spectrum of need. IBM Healthcare Data Models are designed to offer a complete understanding of patients, practitioners, assets, facilities and payers regardless of the specialization. Focus areas of the healthcare models include:

- Clinical analysis
- Operational performance
- Disease management
- Regulatory reporting
- Financial performance
- Care effectiveness
- Marketing and campaign analysis
- Claims processing
- Member/patient services
- Personal health record
- Pharmacy

## Retail

Today in retail, it is all about engagement with the customer. This means having complete information. The IBM Retail Data Warehouse model, through its entities and attributes, provides a substantial number of ideas for organizations to achieve deep engagement and an analytics strategy.

The IBM Retail Data Warehouse model focuses on several key areas important to the industry:

- Customer
- Merchandising
- Store operations management
- Corporate finance management
- Supply chain
- Multiple channel sales
- Regulatory compliance

## Telecommunications

The telecommunications/communications service provider industry has undergone a dramatic shift in recent years. The traditional business model of competing on subscription plans is no longer an adequate business strategy. Since most data models were built with this business model in mind, these data models are struggling to keep up with the changes.

Key benefits of using the IBM Telecommunications Data Warehouse model has included more accurate CAPEX planning, the creation of new revenue sources, a reduction in OPEX, and more precise marketing, upsell, and resell opportunities and the ability to improve the customer experience.

The IBM Telecommunications Data Warehouse model will bring actionable information together around the following categories:

- Service management
- Customer service
- Usage
- Marketing
- Profitability
- Finances

## CLOSING REMARKS

Companies considering an industry data model must keep business goals in view—to enable the business to increase revenue, attract new customers, and offer new products while controlling costs and expenses. Companies in process-intensive industries like finance, health, retail, and telecommunications must establish consistent, effective and repeatable processes across the enterprise and free up resources and capital for growth and innovation. An industry data model may be a means to achieve this by getting away from disconnected business-unit level data and moving towards enterprise-wide standards and reporting. Remember, however, the industry models are not a panacea by themselves. A company that employs a model should focus on long-term value with data quality and data governance.

## INDUSTRY MODELS – KEY BENEFITS

**Comprehensive:** An integrated model across clinical, operational and financial data to enable cross-functional analytics and insights that will drive more informed decisions

**Inclusive:** Incorporate existing in-house data models and evolve and innovate as needs expand

**Validated:** Validated industry data model establishes a working vocabulary to accelerate business intelligence design across clinical, financial and technical resources

**Portable:** A logical data model decoupled from specific technology, portable across data warehouse systems ensuring enterprise-wide adoption

**Intelligent:** Business Solution Templates address common analytical and reporting requirements such as operational performance and pharmacy utilization

**Collaborative:** Provides a gateway between the business language and technical data elements used to deliver your data warehouse, including integration with IBM InfoSphere Business Glossary

**Tailored:** Customizable and fully extensible using data modeling tools to tailor the model to your business' specific requirements

**Trusted:** 20+ years of IBM data model design experience supporting more than 500 clients representing large and complex data warehouse and analytic programs

**Reduced Risk:** Lower total cost of ownership of platform will minimize risk, project duration and rework

“IBM Banking & Financial Markets Model provided 80% - 90% coverage of data requirements, with an estimated ROI of over 70%

“BFMDW really helps us accelerate our projects with over 75% coverage of our data items. In the production environment the data is loading efficiently through the ETL layer into the ODS.”

“IBM Healthcare Provider Data Model saved us time when creating an enterprise view of our data, and we were able to deploy on Netezza with minimal customizations.”

“IBM was the only vendor that had a banking-specific data model. And IBM has a long history of successfully implementing its data model in the banking industry.”

## APPENDIX: CASE STUDY

I spoke with the Enterprise Data Architect of a major financial institution as part of the research for this paper. His company uses the IBM Financial Services industry model. I asked him about their journey to the model and the results of using the model. I'm sure many will find resonance with some of the points of the discussion, which I present here. They started working with the model 15 months ago.

The major attraction to the model was cost savings. The premise was "why design data structures when the model has already done it?". In their analysis, they also determined that not only did others, like IBM, already have complete data models, the models were also done quite well. They did a very thorough evaluation of industry models, spending a couple of months of intense sessions comparing it to their business and eventually deciding on the IBM Industry Model.

The target use of the industry model was for a data warehouse.

The company was innovative in its evaluation process, giving IBM specific tests from challenges they were facing and focusing, with IBM, on the parts of the model that satisfied the tests. Throughout the evaluation, the company continually updated the value proposition for the industry model.

He estimates 75% of the model in use has been kept as-is, unedited. So far, they have implemented 15% of the entire model. They expect the editing percentage to stay about the same as they continue to implement the model. It is unknown how much of the model they will ultimately use, but it will not be 100%. The model was cited as "huge", but the implementation percentage is less relevant as cited in the body of this paper. The aspect to focus on for them was the value proposition.

They are not only going wider with the model, they are also going deeper, extending the usage into more and more subsidiaries of the organization. They report remarkable progress with getting subsidiaries into the model. This is a stronger value proposition to engaging the subsidiaries right now than using more of the model.

As a modeler himself, he sometimes disagrees with the model and has actually made contributions to the model itself – contributions which future purchasers will see and use. He estimates that 75% of his edits to the model are not interesting enough to end up in the industry model. Physical modeling, like denormalizations, adding some specific standardizations and rollups and roll-downs fall into this category.

As a practice, the model is kept in internal data modeling tools, updated there and pushed to the database for implementation.

One of the biggest challenges with their industry model, as cited in the body of this paper, is managing vendor updates to the model. The process is "tedious" and he is working with IBM on improving the process.

Ultimately the key benefit they found for the industry model is the elimination of weeks of heated discussion on “what’s the definition of this or that”. The IBM Industry Model comes with standard, documented and usable definitions based on ISO022, FPML and other standards.

The modeling process sits in the organization as part of an emerging data governance program, something cited in this paper as a key to success.

I asked if the model exposed areas of the business that they were not thinking about before and the answer was yes. One example cited was the use of “accounting unit”. This is the aggregation of quantities and amounts on an instance by instance rather than consolidated within a super table. Examples of accounting units from the model were collateral accounting unit, position accounting unit, bankruptcy accounting unit.

Other than the updates, key challenges are in the area of explaining the model and its constructs to the business, though he was quick to point out that it was still less difficult than building the model originally.

Finally, I asked about his recommendation about what kind of financial company an industry model make sense for. The key is not company size or business challenges that the company is having but if the model fits the domain of the business. Also companies with very mature data warehouses without issues may not need an industry model, but all others should consider it.