IAA- IIW Introduction and Models

Igor Gonchar
Executive IT Architect
Information Platform and Solutions
IBM Software Group WW Sales
e-mail: igonchar@us.ibm.com
Agenda

- **Introduction**
- What is IAA/IIW?
- IAA/IIW Solution Components
  - Architecture
  - Business Requirements
  - Business Data Model
  - Data warehouse and Data Mart Design Models
  - Development Environment and Tools
  - Implementation Roadmap
- IAA/IIW Demonstration
IBM continuous investment in insurance industry solutions, in partnership with major insurers globally

IBM Industry Models and Assets Lab

IAA & IIW Editions

- Project Commence (1990)
- IAA 2000
- IAA 2001
- IAA 2002
- IIW 2002
- IAA 2003
- IIW 2003
- IAA 2004
- IIW 2004
- IAA 2005
- IIW 2005
- IIW 2006
- IAA 7.1
- IIW 7.1

40 Original Companies
- Life
- Health
- P&C
- Reinsurance
- Service Providers

IBM Insurance Projects Experience

IAA User Group Community & Steering Committee

IAA Licencees (140+ Companies, 20+ ISV’s)

IIW Licencees (50+ Companies)
What is Insurance Application Architecture (IAA)?

- A set of standards for the insurance industry
  - Common processes
  - Common business terms
  - Common communications between applications
  - Common application ‘components’

- A blueprint for application & data warehouse development

- Both business and technical models

- The IT equivalent of architectural drawings and standards
IAA/IIW Worldwide License Base as of 2005

14 of the World’s 20 Largest Insurers

Americas
IAA/IIW 70

Europe
IAA/IIW 65

Africa
IAA/IIW 5

Worldwide Totals
IAA/IIW 185

AP
IAA/IIW 35
IBM’s Value Proposition

- Proven insurance industry model
- Business Solution Templates (BSTs) that enable fast deployment of insurance business applications
- Sound Metadata Management tools
  - IIW Hyperlinks, Rational Data Architect and Multi Model Mapper (MMM)
- Performant and scalable enterprise-wide DW solution
- Implementation Roadmap and Project Management capabilities, supported by Accelerators and Risk Reducers
- Significant cost savings (up to 75% in analysis and design)
Agenda

- Introduction

- **What is IAA?**

- IAA/IIW Solution Components
  - Architecture
  - Business Requirements
  - Business Data Model
  - Data warehouse and Data Mart Design Models
  - Development Environment and Tools
  - Implementation Roadmap

- IAA/IIW Demonstration
IAA and Assets

IAA is a set of inter-related business models describing different aspects of the analysis and design required to support Insurance business. The models that make up IAA can be grouped according to their major purpose.

FOUNDATION MODELS
Enterprise Insurance Concepts Definition for Communication and Standardization

PROCESS MODELS
Enterprise Insurance Processes Definition for business process modelling, simulation, and execution

DATA MODELS
Insurance data content for an enterprise-wide view of information and data rationalization

SERVICE MODELS
Enterprise Insurance Services Definition for component based development and Service Oriented Architecture Product Models for accelerating insurance product design
Foundation Models - Business Terms

- Catalogue of insurance business terms used to define data requirements.
- Mapped to the business model
- Aliasing to let clients choose the most appropriate terms in their context
Foundation Models - Business Model (BM)

- Unambiguous definition of business concepts and their relationships to insure communication across different IT projects and between the business users and the IT.
- Conceptual view of the enterprise data with generic definitions to maximize applicability, flexibility, and reusability.
- Available in 2 formats: Entity Relationship form for Data models or UML for Service models.
Foundation Models - Business Activity Model

- Functional decomposition of over 700 business activities.
- Definition based on standard terms and verbs, including activity information requirements (Business Items).
- Promotes reuse, basis for project scoping.
Process Models - Analysis Process Model (APM)

- Over 200 insurance processes describing the flow of reusable business activities
- Enterprise-wide perspective
- Linkage to component services
Service Models - Business Object Model (BOM)

- Common reference of business concepts in UML format with properties and relationships
- Common reference of enterprise service candidates with inputs and outputs messages formalized with Business Model concepts
SERVICE MODELS

- Common reference of reusable and flexible business components
- Defines the boundaries of deployable IT Components
- Describes the components at 2 level of details: analysis and design
- Used for portfolio assessment

Utility Components:
- Security
- Task Manager
- Event Scheduler
- Calendar
- Currency
- Diary
- Error Handler
- Help
- Reporting
- Process Mgmt & Control

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IDM takes the analysis contained within BOM into a design domain, structuring detailed service definitions and collaborations between services to meet business needs.
Service Models – Product Model

- Representative set of insurance products described with
  - Product Structure
  - Life cycle
  - Rules and calculation
  - Data Requirement
- Life insurance, property and casualty insurance, and health insurance products
- Build flexible solutions that EXTERNALIZE product specific requirements
Service Models – Product Specification Diagram example

Automobile insured

- Product: Automobile insured
- Constraints:
  - Agreement place limitation
    - Covered place
- Validity rule: A named driver must be the primary driver
- External request:
  - End coverage at renewal
- Product:
  - First party and passenger
  - Automobile owner physical damage options
  - Automobile liability coverage
- Relationships:
  - 1:1
  - 0..1
  - 0..n
Service Models – Specification Framework

- Design framework for building flexible product engines and administration systems to support those products.
Data Models – Business Solution Templates (BSTs)

- Describe reporting structures needed to access key information
- Include key performance indicators grouped by functional reporting
- Basis for rapid customization and prototyping of reporting requirements
Business Solution Template Exemple for *Policy Persistency Analysis*

**Persistence trend analysis** to improve the way the company runs the business on a daily basis.

**Dimensions:**
- Time
- Intermediary
- Product
- Party profile
- Organisation
- Policy

**In View:**
- Focus Area FAB0003 Customer management
- Focus Area FAB0004 Customer retention
- Focus Area FAB0005 Product management
- Focus Area FAB0002 Segmentation discovery and management

**Associations:**
- RL1B128 policy persistency analysis has for dimension intermediary CSB0013 Intermediary
- RL1B125 policy persistency analysis has for dimension organisation CSB0043 Organisat
- RL1B129 policy persistency analysis has for dimension party profile CSB0028 Party profile
- RL1B127 policy persistency analysis has for dimension policy CSB0119 Policy
- RL1B126 policy persistency analysis has for dimension product CSB0015 Product
- RL1B121 policy persistency analysis has for dimension time CSB0009 Time

**Used as Source for:**
- Enterprise Model END0401 Policy persistency Fact
- Requirements Model BAB0689 Analyse persistency experience (Navigation: Output Criterion)
- Requirements Model BAB0974 Analyse policy management process performance (Navigation: Input Criterion)

**Policy event analysis**

**Policy persistency analysis**

**Measures:**
- Death rate
  - (A) Number of deaths
  - (B) Average number of policies in-force
- Lapse rate
  - (A) Number of lapses
  - (B) Average number of policies in-force
- Maturity rate
  - (A) Number of policies at maturity
  - (B) Average number of policies in-force
- Number of renewals
- Number of terminated contracts
- Number of terminated coverages
- Persistency rate
  - (A) Number of lapses
  - (B) Number of contracts affected by surrender events
  - (C) Number of policies in-force
- Surrender rate
  - (A) Number of surrenders
  - (B) Average number of policies in-force
  - (A) Number of policies in-force

**Policyholder behaviour analysis**
### Analytical CRM
- Campaign answer analysis
- Campaign communication analysis
- Campaign contact analysis
- Campaign cost analysis
- Campaign installment analysis
- Campaign profitability analysis
- Campaign sales analysis
- Campaign analysis by customer
- CRM event analysis
- Cross-sell strategy analysis
- Cross-selling forecasting analysis
- Policyholder behaviour analysis
- Household value analysis
- Customer persistency analysis
- Customer profitability analysis
- Customer prospect optimization analysis
- Customer satisfaction analysis
- Customer risk analysis

### Profitability
- Claim handling performance analysis
- Claim incoming recovery payments analysis
- Claims audit analysis
- Claims monthly close off analysis
- Claims statistical analysis
- Claims value variation analysis
- Late claims analysis
- Loss event analysis
- Year-to-date claims comparison analysis

### Intermediary Performance
- Agency continuous professional development
- Agent performance based on competency
- Agent training analysis
- Customer feedback on intermediaries analysis
- Intermediary compensation analysis
- Intermediary persistency analysis
- Intermediary production analysis
- Intermediary sales performance analysis
- Policy delivery analysis

### Business Performance
- Advance analysis
- Business volume analysis
- New business volume analysis
- Policy event analysis
- Policy persistency analysis
- Surrender analysis
- Switching analysis
- Underwriting Analysis

### Risk & Compliance
- Liabilities analysis for P&C insurance
- P&C Claims, expenses and technical provisions Analysis
- Expenses for Long Term Insurance
- Premiums for Long Term Insurance
- Liabilities & margins analysis for Long Term Insurance
- Admissible Asset Analysis
- Net Asset Analysis
- Profit & Loss Analysis
- Summary of Premiums & Claims for P&C
- Solvency Analysis for P&C
- Solvency Analysis for Long Term Insurance
- Statement of Solvency
- Solvency II
- Sarbanes-Oxley Act
- IAS

### Claims Efficiency
- Claims Efficiency

### Intermediary Performance
- Intermediary Performance

### Business Performance
- Business Performance

### Risk & Compliance
- Risk & Compliance

### Solvency II
- Solvency II

### Sarbanes-Oxley Act
- Sarbanes-Oxley Act

### IAS
- IAS

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Data Models – Enterprise Model

- Design level model built from the Business Model and the BSTs
- Logical model of a central datawarehouse database structure

Core Data with full history

Conformed facts and dimensions

Consistency between data marts
Data Models – Data Marts

- Specialized models to support a set of business applications
- Provide a summary of the enterprise data warehouse details as requested by business users
- Populated from the Enterprise data warehouse for consistency between data marts

Data Marts

- Risk Pricing Analysis
- Sales Forecast Analysis
- Claims Efficiency Analysis
- Campaign Management Quick Start
- Customer Prospect Optimizer
- Underwriting Profitability Analysis
- Segmentation Discovery and Management
- Profitability Analysis for Motorcycle
- Financial Reporting
- Intermediary Performance Analysis
- Overall Profitability Analysis
- Health Profitability Management
Tracability with hyperlinks
**Summary of Type of Projects**

<table>
<thead>
<tr>
<th>Enterprise Architecture (EA)</th>
<th>Business Process Management (BPM)</th>
<th>Application Portfolio Rationalization (APR)</th>
<th>Enterprise Application Integration (EAI)</th>
<th>Services Oriented Architecture (SOA) Deployment</th>
<th>Product Development and Product Innovation (PDI)</th>
<th>Business Intelligence (BI) &amp; Data Warehouse (DW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA</td>
<td>BPM</td>
<td>APR</td>
<td>EAI</td>
<td>SOA</td>
<td>PDI</td>
<td>DW/BI</td>
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<td>- Definition of Standards</td>
<td>- BPR</td>
<td>- Legacy Diagnostic</td>
<td>- Hub &amp; Spoke Architecture</td>
<td>- Services Identification</td>
<td>- Product Catalogue</td>
<td>- EDW</td>
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<tr>
<td>- Business Architecture</td>
<td>- BPO</td>
<td>- Portfolio Assessment</td>
<td>- B2B (eg. ACORD)</td>
<td>- Services Identification</td>
<td>- Product Portfolio Rationalization</td>
<td>- Data mart</td>
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<tr>
<td>- Application Architecture</td>
<td>- Six-Sigma</td>
<td>- System Assessment</td>
<td>- Web-enablement</td>
<td>- Product Portfolio Rationalization</td>
<td>- Flexible Product-rule engine</td>
<td>- ODS</td>
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<td>- …</td>
<td>- Workflow Management</td>
<td>- Portfolio Transformation</td>
<td>- Services Identification</td>
<td>- Flexible Product-rule engine</td>
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<td>- BI application (eg, Risk &amp; Compliance)</td>
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<td></td>
<td></td>
<td>- Component Based Development (CBD)</td>
<td>- Services Identification</td>
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<tr>
<td></td>
<td></td>
<td>- Package Selection &amp; Implementation</td>
<td>- Services Identification</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>- Application Renovation</td>
<td>- Services Identification</td>
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</tr>
</tbody>
</table>

**Note:** This is one example of categorization of projects
Value of IAA models in different Types of Projects

Illustrative

Component Business Model (CBM)
- Map view
- Category view
- Level view
- Components

Insurance Application Architecture (IAA)

IAA Foundation Models
- Business Terms
- Business Model
- Business Activity Model

IAA Information Models
- Enterprise Solution Template
- Enterprise Model
- Operational Data Store
- Interface Design Model

IAA Process & Integration
- Enterprise Component Element
- Critical Business Process

IAA Insurance Products
- Product Model
- Specification Framework

CBM Component Business Modeling
BPM Business Process Management
EA Enterprise Architecture
DW/BI Data Warehouse & Business Intelligence
APR Application Portfolio Rationalization
EAI Enterprise Application Integration
SOA Service Oriented Architecture
PDI Product Development & Innovation

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Example of a CBM Project

Illustration of a Component Heat Map

Illustration: Component Heat map

<table>
<thead>
<tr>
<th>Direct</th>
<th>Business strategy</th>
<th>Investment strategy</th>
<th>Treasury planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business strategy</td>
<td>Concept selling strategy</td>
<td>Client retention strategy</td>
<td>Market and promotion planning</td>
</tr>
<tr>
<td>Product planning</td>
<td>Distribution / compensation strategy</td>
<td>Provider relationship strategy</td>
<td></td>
</tr>
<tr>
<td>Product portfolio strategy</td>
<td>Customer relationship strategy</td>
<td>Underwriting management</td>
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<tr>
<td>Product value proposition strategy</td>
<td>Catastrophe planning</td>
<td>Reinsurance management</td>
<td></td>
</tr>
<tr>
<td>Financial administration &amp; management</td>
<td>Risk, compliance, legal management</td>
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<td></td>
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<tr>
<td>Operations management and planning</td>
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<tr>
<td>Medical management strategy</td>
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<tr>
<td>Claims strategy</td>
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<tr>
<td>Miscellaneous payments strategy</td>
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<td>Group strategy</td>
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</table>

<table>
<thead>
<tr>
<th>Control</th>
<th>Asset management</th>
<th>Business process management</th>
<th>Procurement / vendor management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset management</td>
<td>Actuarial / pricing analysis</td>
<td>Marketing management</td>
<td>Channel management</td>
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<tr>
<td>Business process management</td>
<td>Market research / segmentation analysis</td>
<td>Contact management</td>
<td>Customer profitability analysis</td>
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<tr>
<td>Procurement / vendor management</td>
<td>Product management internal / external</td>
<td>Correspondence management</td>
<td>Establish and monitor loss reserves</td>
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<tr>
<td>Investments / Capital management</td>
<td>Producer portfolio management</td>
<td>Consumer sales and services</td>
<td>Risk, compliance legal monitoring</td>
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<tr>
<td>Procurement / vendor management</td>
<td>Promotion management</td>
<td>Provider relations management</td>
<td>Underwriting management</td>
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<tr>
<td>Achieve and manage controls</td>
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<tr>
<td>Operations management and controls</td>
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<td>Network management</td>
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<tr>
<td>Pharmacy benefits and vendor management</td>
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<tr>
<td>Claims management component</td>
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<tr>
<td>Fraud management</td>
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<td>Account installation</td>
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<td>Account management</td>
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</table>

<table>
<thead>
<tr>
<th>Execute</th>
<th>Accounts receivable accounts payable / general ledger</th>
<th>Audit</th>
<th>Facility management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounts receivable accounts payable / general ledger</td>
<td>Financial advisory tools</td>
<td>New business development</td>
<td>Channel / claim management and reporting</td>
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<td>Audit</td>
<td>Communications</td>
<td>Consumer / provider高新</td>
<td>Regulatory and compliance reporting</td>
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<td>Cash management</td>
<td>Review and reporting</td>
<td>Provider / third party information</td>
<td>Reinsurance and claims management</td>
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<td>Quoting</td>
<td>Policy coverage</td>
<td>Billing and collections</td>
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<td>Facility management</td>
<td>Renewals</td>
<td>Policy changes</td>
<td>Business to business marketing (group plans)</td>
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<td>Sales support</td>
<td>Third party collections</td>
<td>Enrolment and eligibility</td>
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<td>Security services</td>
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<td>Case management</td>
<td>Benefits administration</td>
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<td>Sales support</td>
<td>Eligibility authorization and precertification</td>
<td>Billing and collections</td>
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<tr>
<td>Technology management</td>
<td>Sales support</td>
<td>Group benefit maintenance</td>
<td>Group benefit maintenance</td>
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Example of a CBM Project

Components contain processes and activities

<table>
<thead>
<tr>
<th>CBM Category / CBM Level</th>
<th>Business management</th>
<th>Relationship management</th>
<th>Relationship management</th>
<th>Product portfolio</th>
<th>Processing &amp; management</th>
<th>Claims management</th>
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<tbody>
<tr>
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<td>Building and facilities management</td>
<td>Business planning and budgetting</td>
<td>Investment planning</td>
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<td>Catastrophe planning</td>
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<td>Auditing</td>
<td>Brand tracking</td>
<td>Building and facilities tracking</td>
<td>Bulk reserves</td>
<td>Investment management</td>
<td>Claims management planning</td>
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<td>Execute</td>
<td>Accounts receivable / accounts payable / general ledger</td>
<td>Building and facility</td>
<td>Compliance</td>
<td>General ledger</td>
<td>HRM administration</td>
<td>Fraud program</td>
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<td>Human resources administration</td>
<td>Information technology</td>
<td>Trade execution</td>
<td>Correspondence distribution</td>
<td>Customer information acquisition</td>
<td>Collection and returns</td>
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</table>

CBM Component CCB0163 - Claims processing

- Business Activity BAB0242 Close claim
- Business Activity BAB0244 Enquire claims details
- Business Activity BAB0243 Issue loss summary
- Business Activity BAB0453 Receive claim communication
- Business Activity BAB0282 Record benefit prepayment request
- Business Activity BAB0016 Record claim details
- Business Activity BAB0451 Request loss documentation
- Business Activity BAB0455 Select claim cost
- Business Process BPB0131 Administer claim
- Business Process BPB0168 Administer claim for medical expense
- Business Process BPB0103 Record claim
- Business Process BPB0102 Record first notice of loss in auto insurance
The IM&A models provide function and process templates which facilitate cross-enterprise simplification and improvement of business processes.

After having used CBM, the IAA high level business processes are the starting point. For beneficiary modification, the process „Modify Policy – Modify Beneficiary“ applies.
Example of a Business Process Management Project
The processes in scope are customized as needed.

Original IAA “Modify beneficiary” process

IAA business processes are documented using activity diagrams, including sequence, conditions and roles.

Customised “Modify beneficiary” process – result of workshop
### Example of a Portfolio Assessment Project

#### Description Item

<table>
<thead>
<tr>
<th>Description Item</th>
<th>Universal Life - Unit Link</th>
<th>Classic Life</th>
<th>Health</th>
<th>Non-Life</th>
<th>Claim</th>
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</table>

**Note:** ECB highlighted in the table.
Enterprise Architecture projects

Today IT Jungle
Applications

Financial system
Individual Life
CRM
Commission System
Master Customer Data File
Claims System
Payroll System

IAA Data,
Product and
Interface Models

Party
Insurance Agreement
Account and Fund
Claim
Contact Point and Preferences
Financial Transaction

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Agenda

- Introduction

- **What is IIW?**
  - IIW Solution Components
    - Architecture
    - Business Requirements
    - Business Data Model
    - Data warehouse and Data Mart Design Models
    - Development Environment and Tools
    - Implementation Roadmap
  - IIW Demonstration
  - IIW Solution – Value Proposition
  - Customer References
What is IIW?

IIW is an IAA-based enterprise-wide data warehousing solution for the insurance industry.

IIW is engineered to consolidate data from disparate systems, helping insurers to build a comprehensive and accurate picture of the customer and the business.
IIW provides analytical capabilities across critical insurance subject areas

| **Business Profitability** | ▪ Underwriting Analysis  
  ▪ Claims Analysis  
  ▪ Intermediary Performance Analysis  
  ▪ Persistency analysis  
  ▪ Predictive modeling (fraud detection, lapses, …) |
|---------------------------|--------------------------------------------------|
| **Analytical CRM**        | ▪ Customer Segmentation  
  ▪ Lifetime value Analysis  
  ▪ Campaign Management and Performance analysis |
| **Financial Reporting & Compliance** | ▪ MIS (Dashboard)  
  ▪ Regulatory reporting (emerging Solvency II, IAS)  
  ▪ Cost & Performance Management |
| **Risk Management**       | ▪ Risk Analysis  
  ▪ Risk Monitoring  
  ▪ Stochastics Modelling  
  ▪ Asset Liability Management (ALM) |
Agenda

- Introduction
- What is IIW?

**IIW Solution Components**

- Architecture
- Business Requirements
- Business Data Model
- Data warehouse and Data Mart Design Models
- Development Environment and Tools
- Implementation Roadmap

- IIW Demonstration
IIW Architecture

Analytical Data Requirements
Structured along Requirements Model

Meta-data

Source Logical Models
Business Data Model
Enterprise Logical Model
Data Marts Logical Models

Traceability

Source
Internal Sources
External Sources

Population
Staging Area

Business Data Warehouse
Enterprise Data Warehouse
Atomic
Analytical
Classified Sources
Informational Feedback

Distribution
Staging Area

Business Information Warehouse
Data Marts

Client
IIW Requirements Model Business Terms

What it is

- A list and definitions of financial services concepts where data elements
  - represent the data requirements of an insurance company
  - expressed in plain business language
  - organized by subject areas

How does it help?

- While business people can describe in their own language the concepts they use every day, clearly defining business terms helps standardization within a company.

- The mapping to the Business Model makes it possible to create

- | DEB2694 | Abandoned | CSB1619 | Claim recovery |
- | DEB2695 | Abandoning reason | CSB1619 | Claim recovery |
- | DEB2849 | Abbreviation | CSB0027 | Geographic area |
- | DEB3035 | Able bodied seaman | CSB1782 | Skipper |
- | DEB2758 | Acceptance reason | CSB0193 | Acceptance |
- | DEB1247 | Accident cause | CSB0173 | Accident |
- | DEB0599 | Accident fault | CSB0119 | Policy |
- | DEB00192 | Accident incurred date | CSB0018 | Claim |
- | DEB0193 | Accident incurred location | CSB0018 | Claim |
- | DEB2372 | Accident location | CSB0173 | Accident |
- | DEB1874 | Account balance amount | CSB1399 | Account |
- | DEB1875 | Account balance effective date and time | CSB1399 | Account |
- | DEB1876 | Account balance expiration date and time | CSB1399 | Account |
- | DEB1873 | Account balance type | CSB1399 | Account |
- | DEB2746 | Account description | CSB1399 | Account |
- | DEB2601 | Accounting period | CSB1399 | Account |
- | DEB0002 | Acquisition date | CSB0045 | Car |
- | DEB2989 | Acquisition date | CSB1688 | Ship |
- | DEB2053 | Actively at work | CSB1484 | Group contract |
- | DEB3168 | Actual revenue period | CSB1742 | Insured blanket construction activity |
- | DEB2586 | Additional coverage | CSB0098 | Coverage |
IIW Requirements Model Business Solution Templates (BSTs)

Identify measures that are analyzed and structured into

which are then transformed into

Conceptual outline of how OLAP tables or reports can be structured to meet informational and regulatory reporting requirements

Business Solution Templates

EM Analytical Subject Areas

Data Marts Design
IIW Business Data Model

- Conceptual
- Normalised (3NF)
- Flexible
IIW Enterprise (Warehouse) Model and Data Marts

Informational View

Enterprise Model

Core Atomic Data

Facts and Dimensions

Refinement

Denormalization

Derviation

Specialisation

Data Marts

Risk Pricing Analysis
Sales Forecast Analysis
Claims Efficiency Analysis
Campaign Management Quick Start
Customer Prospect Optimizer
Underwriting Profitability Analysis
Segmentation Discovery and Management
Profitability Analysis for Motorcycle
Financial Reporting
Intermediary Performance Analysis
Overall Profitability Analysis
Health Profitability Management
Examples of pre-defined fact tables from SAD0069 – Underwriting Analysis
Development process supported by MMM

ERWin Model | ERWin Model | ERWin Model(s)
--- | --- | ---
Business Data Model | Enterprise Model | Data Mart Model(s)
Conceptual | Logical | Logical
Physical | Physical

Metadata catalogs
DDL for database generation

Extraction tools

Data Marts
OLAP Tools

Manuals and QA reports

Hyperlinks

IBM Information Platform and Solutions Architecture Team
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Traceability

Operational - Sources

IAA Business Model

Enterprise Model

Data Mart Models

Customisation

Transformation

Specialisation

Scoping
Two perspectives on traceability

Tracing Modeling steps
- Bus. Data Model
- Enterprise
- Data Marts
- Bus. Requirements

Tracing Population steps
- Operational - Sources
- Enterprise
- Data Marts
Agenda

- Introduction
- What is IIW?
- IIW Solution Components
  - Architecture
  - Business Requirements
  - Business Data Model
  - Data warehouse and Data Mart Design Models
  - Development Environment and Tools
  - Implementation Roadmap
- IIW Demonstration
Summary

- IAA are a set of reference models that facilitates the communication between business and IT.
- IAA models accelerate the scoping, analysis and design of projects.
- IAA models defines Enterprise structured content for developing flexible, maintainable, and reusable IT components.
Appendix
IBM Insurance Industry Models

*Update for IAA SOA models v 8.0*

Industry Models
Insurance Analysis Process Model v8.0 – at a glance

The business analysts will customize each process to meet the specific needs of the organization.

- **27 new Business Processes**
- **157 new Business Activities**
- **28 new Business Items**
- **7 new human/system actors**
- **100 Business rules, 80 Calculation specifications**
- **460 KPI for business activity performance**
- **More than 2000 Risk related measures**
What’s new content in Insurance Analysis Process Model v8.0 – at a glance

- Risk Management
  - Definition of process flows to support Solvency II (3 pillars: risk measurement, supervisory control and public disclosures)
  - Sarbanes-Oxley (in particular section 404 – on internal control over financial reporting – but also sections 302, 409 and 802)
  - Anti-money laundering (AML) and Know Your Customer (KYC) requirements
  - Premium audits and internal audits.
  - Informational business activities reporting risk analysis and measures (from IIW)
  - Mapping to underlying data/services in service models
    - Use case
    - Service specification
    - Data specification
IAA Risk Management View

Risks are categorized according to the Risk management focus area.

- **Insurance Risk**: Fully covered by Underwriting processes
  - change in interest rate, financial instrument price, commodity price, foreign exchange rate, index of prices or rates, credit rating or credit index.
- **Financial Risk (including Interest Rate Risk & Liquidity Risk)**
  - Affected by the performance of the financial markets.
  - change in interest rate, financial instrument price, commodity price, foreign exchange rate, index of prices or rates, credit rating or credit index.
- **Market Risk**: Inadequate or failed internal processes, people and systems or from external events.
- **Operational Risk (including KYC & AML)**: Fully covered by Reinsurance processes
Risk Policy Management

Administer Claim Anticipation
Maintain Risk Management Policy
8 Business Activities

Maintain Risk Policy
3 Business Activities

Direct
Control
Mitigate
Assess
Report
Review

Insurance Risk & Reinsurance

Financial Risk

Operational Risk

Market Risk

Maintain Financial Risk Policy
19 Business Activities

Maintain Operational Risk Policy
Maintain Record Retention
Define Business Process Control
30 Business Activities

Maintain Market Risk Policy
4 Business Activities
Risk Mitigation and Assessment

- **Risk Mitigation and Assessment**
  - **Direct**
  - **Control**
  - **Mitigate**
  - **Assess**
  - **Report**
  - **Review**

- **Insurance Risk & Reinsurance**
  - **Underwrite**
    - For Death Risk
    - For Health Risk
    - For Physical Object Risk
    - For Investment Risk
    - Evaluate Intermediary Regulatory Compliance
    - Evaluate Investment Regulatory Compliance
    - Evaluate Product Regulatory Compliance
    - Evaluate Provider Regulatory Compliance
  - **Underwrite For Investment Risk**
  - **Evaluate Investment Regulatory Compliance**
  - **Evaluate Product Regulatory Compliance**
  - **Evaluate Provider Regulatory Compliance**

- **Financial Risk**
  - **Underwrite**
    - For Death Risk
    - For Health Risk
    - For Physical Object Risk
    - For Investment Risk
  - **Underwrite For Investment Risk**
  - **Evaluate Investment Regulatory Compliance**
  - **Evaluate Product Regulatory Compliance**
  - **Evaluate Provider Regulatory Compliance**

- **Operational Risk**
  - **Underwrite**
    - For Death Risk
    - For Health Risk
    - For Physical Object Risk
    - For Investment Risk
  - **Underwrite For Investment Risk**
  - **Evaluate Investment Regulatory Compliance**
  - **Evaluate Product Regulatory Compliance**
  - **Evaluate Provider Regulatory Compliance**

- **Market Risk**
  - **Underwrite**
    - For Death Risk
    - For Health Risk
    - For Physical Object Risk
    - For Investment Risk
  - **Underwrite For Investment Risk**
  - **Evaluate Investment Regulatory Compliance**
  - **Evaluate Product Regulatory Compliance**
  - **Evaluate Provider Regulatory Compliance**

- **Administer LOB Life Premium Audit**
- **Apply Financial Risk Policy**
- **Review Financial Risk Position**
  - 13 Business Activities

- **Administer Internal Audit**
- **Apply Anti-Money Laundering Policy**
- **Apply Know Your Customer Policy**
- **Apply KYC And AML Policy**
- **Apply Operational Risk Policy**
- **Generate Suspicious Activity Reporting**
- **Review Operational Risk Position**
  - 21 Business Activities

- **Administer Claim Anticipation**
- **Administer Loss Anticipation**

- **Manage Risk**
  - **Mitigate**
  - **Assess**
  - **Review**
  - **Report**
  - **Control**

- **Assess**
  - **Report**
  - **Review**
  - **Control**

- **Risk Mitigation and Assessment**
  - **Direct**
  - **Control**
  - **Mitigate**
  - **Assess**
  - **Report**
  - **Review**

- **Risk Mitigation and Assessment**
  - **Direct**
  - **Control**
  - **Mitigate**
  - **Assess**
  - **Report**
  - **Review**
Risk Reporting And Review

- Report Regulatory Requirements
- Report SOX Regulatory Requirements
- Report Solvency II
- Report Financial Statement By National GAAP

- Administer Asset Portfolio
- Administer Liability Portfolio
- Analyse Balance Sheet Position
- Determine Profitability
- Evaluate Assets And Liabilities
- Provide Risk Capital Allocation
- Review Asset Portfolio
- Review Capital Adequacy
- Review Financial Performance
- Review Liability Portfolio
- Review Liquidity

Direct
Control
Mitigate
Assess
Report
Review

Insurance Risk & Reinsurance

Financial Risk

Operational Risk

Market Risk

Report Financial Risk
Report Operational Risk
Report Market Risk
Informational Business Activity Reporting Business Measures

Informational Business Activities define more than 2000 risk related Business Measures mapped to Insurance Information Warehouse (IIW).

Risk & Regulatory Compliance Analysis and Measures in IIW

### Sarbanes-Oxley Act
- Consolidated Financial Statements Analysis
- Consolidated Statement Of Cash Flows Analysis
- Consolidated Statement Of Changes in Shareholders’ Equity Analysis
- Consolidated Balance Sheet Analysis
- Consolidated Statement Of Income Analysis
- Management’s Discussion And Analysis Of Financial Condition and Results Of Operations

### Solvency II
- Liabilities analysis for P&C insurance
- P&C Claims, expenses and technical provisions Analysis
- Expenses for Long Term Insurance
- Premiums for Long Term Insurance
- Liabilities and margins analysis for Long Term Insurance
- Admissible Asset Analysis
- Net Asset Analysis
- Profit & Loss Analysis – Technical and Non-technical accounts
- Summary of Premiums & Claims for P&C
- Solvency Analysis for P&C
- Solvency Analysis for Long Term Insurance
- Statement of Solvency for all lines of business
- Solvency II Cost of Capital Risk Margin
- Solvency II Eligible Capital
- Solvency II Minimum Capital Requirement - Standard Formula (MCR)
- Solvency II Solvency Capital Requirement - Standard Formula (SCR)

### IAS / IFRS
- Balance sheet classified approach analysis
- Balance sheet net assets approach analysis
- Balance sheet order of liquidity approach analysis
- Balance sheet portfolio basis approach analysis
- Cash flow direct analysis
- Cash flow direct financial institution analysis
- Cash flow indirect analysis
- Cash flow indirect financial institution analysis
- Income statement by function analysis
- Income statement by nature analysis
- Income statement financial institution approach analysis
- Statement of changes in equity analysis

IAA Analysis Process Model

Minimum Capital Requirement (MCR)

Minimum Capital Requirement (MCR)
IAA Business Object Model v8.0 – at a glance

IT department will identify service to support each business activity to meet the specific needs of the organization.

- **Process Analysis**
  - Service Candidate Identification
  - Data Requirement
  - Object Analysis
  - Detailed Use Case

**Rational Software Modeler**

- **BOM.ras**

**Analysis Process Model**

- **+10%**
  - Service Candidate Use Cases
  - Analysis Class Model

**Key Metrics**

- **53 new Service Use Cases**
- **4 new Boundary of Types (BOT) (Reusable Messages)**
- **30 new Types of Risk Agreement related**

**Rational Software Modeler**

- **BOM.ras**

**Analysis Process Model**

- **+10%**
  - Service Candidate Use Cases
  - Analysis Class Model

**Key Metrics**

- **53 new Service Use Cases**
- **4 new Boundary of Types (BOT) (Reusable Messages)**
- **30 new Types of Risk Agreement related**
What’s new content in Insurance Business Model v8.0 – at a glance

- Based on IAA APM v8 Risk Management extensions,
  - 30 new types to model risk agreements and their specifications and risk exposures and their assessments
  - Using the same categorization as in Requirements Model (APM)
  - Common basis for
    - IIW models
    - IAA service models
Risk Agreement Related Types in BOM

30 new Types of Risk Agreement related have been introduced under Assessment and condition package.

Worked Example  WEC0076 - Life Insurance Volatility Risk
30 new Types of Risk Agreement related have been introduced under Assessment and condition package.
Insurance Service Model v8.0 – at a glance

IT department will translate the service candidates into Operations on Interfaces of Components in the IDM.
What’s new content in Insurance Service Model v8.0 – at a glance

- Based on IAA APM v8 Risk Management extensions, in line with Industry Models SOA Roadmap, identification of service candidates underlying automatable non-interruptible Business Activities
  - Functional organization similar to APM, along 2 axes:
    - New risk type:
      - Financial Risk
      - Operational Risk
      - Market Risk
    - Business Function
      - Risk Policy Management
      - Risk Assessment and Mitigation
      - Risk Reporting and Review
IAA IDM v8.0 Risk Related Components

- 2 new components to handle Risk Management
  - Enterprise Risk Management Transactional Component
    - The Enterprise Risk Management component identifies the business services needed in the context of corporate risk management.
    - This includes support for risk policy design, update, enactment of risk management and mitigation activities, assessment of risk exposures and risk reporting.
    - The services provided by this component shall assist the company in setting up efficient and effective risk management procedures and comply with regulatory requirements.
  - Enterprise Risk Structural Component
    - Provides services to manage corporate risk including recording risk reports and assessments, creating and managing risk policies.
Improved WSDL/XSD generators

- Namespace fields (prefix + suffix)
  - No need to post-process files anymore
- Type name suffix
  - Similar to DTO functionality in IDM2JDM
- Enumeration values:
  - No conversion to CamelCase anymore
- WS-I compliance
  - Element added for "ErrorInfo" to the static files
  - Generated "ErrorInfo" message updated
Improved WSDL/XSD generators – cont.

- Mapping from IM Datatypes to XSD datatypes is customizable (in a txt file)
  - makes it possible to map to customer-specific datatypes (post-processing needed for imports)
- Name abbreviations
  - Makes it possible to align names with those produced by IDM2JDM
- Implied Realization
  - “best implements” implies “realizes”
- Miscellaneous
  - Better validation of component dependencies
  - Last message box shows location of error log
  - Selects by default the previously used target folder
v8.0 Tooling Update

New set of bridges v3.0.0.0 is available.

- Industry Models RSA support package provides the IMA profile (no need to load it as a project).
- RSA 7 improvements, such as creating Object Diagrams.
Agenda

- IAA SOA v8.0 Model: What is the current regulatory compliance challenge facing Insurers?

- What's new in Insurance Analysis Process Model?

- What's new in Insurance Business & Service Model?
  - How to improve integration with IBM Master Data Management products?
IBM Master Data Management Customer Data Integration (CDI) Overview

- Customer Data Integration (CDI) manages the complete master record for operational customer.
- Capable of being the system of record – full transaction processing and business logic capabilities.
- Provides accurate and complete customer data to all operational business processes that require customer data:
  - Improved and differentiated customer service.
  - Increased revenue via improved cross-selling and event management.
  - Ability to persist ‘new’ customer data such as privacy preferences, events, and multi-channel interactions.
  - Regulatory compliance.
IBM Master Data Management Customer Data Integration (CDI) Overview – cont.

- IBM MDM CDI is the most comprehensive service-oriented business application for CDI
  - Significant out of the box functionality
  - 480+ business services
  - Packaged business logic components with pre-configured business rules/logic
  - Contains business applications to manage CDI processes – such as data stewardship and batch file processing

- MDM CDI has the most comprehensive integration capabilities of any CDI solution and is able to integrate with your existing systems and interfaces
IBM MDM CDI – IAA Integration

- MDM CDI acting as source system (System Of Record) for Party domain for IIW-based datawarehouse
  - BOM extended to include information from MDM CDI
    - Minor extensions around Party and Contact Preferences (Addresses, Electronic Addresses, etc)

- MDM CDI acting as back-end system implementing IAA services
  - IAA APM, BOM and IDM extended to include “Duplicate Suspect Processing” services:
  - Data quality processes related to the detection and resolution of “duplicate” records in the Party area
    - Data cleansing
    - Data stewardship
    - Data survivorship
IBM MDM CDI – IAA Integration – at a glance

Service signature aligned with MDM CDI services to accelerate integration.
Summary - Benefits provided by IBM Insurance Analysis Process Model

- The process analysis is performed from an enterprise-wide perspective. The resulting processes are not biased by the concerns of a particular product, organisation unit, delivery channel, or development effort.
- The analysis time for a given process is dramatically reduced.
- The models support a complete path from requirements gathering, through detailed object analysis, to the design of services architecture.
- The 284 re-usable business process flows as input for process analysis.
- The 964 re-usable business activities lead to greater levels of identification of reuse.
- The structure, naming, and approach are defined consistently to support communication and more efficient development.