WCC Best Practice for Financial Services & Communication Industries

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IBM Software Group
IBM Information Solutions Positioning

Real-time/Near-Real-Time Connectivity Services (ESB, EAI, Web Services, MQ, etc.)

Batch Data Integration (ETL, etc)

Web
Phone
Call Center
Sales
Management
Business Partner

Web
IVR
CRM
SFA
Decision Support
Others

Info Server
Process Server

Content Management

Order/ New Business / Product
Billing/ Admin
Claims/ Benefits
Others

Customer Product Account
Customer Product Account
Customer Product Account

New Systems (e.g. SOA-based)

Security, HR, Mail, etc

External Data Providers (e.g. D&B, ACXIOM)

Data Warehouse/ Data Mart

MDM Solutions

Multi-form MDM Solutions

Insights (EAS & GNR)

Industry Process, Function & Data Model

Influence

Data Warehouse

Product
(WPC)

Customer
(WCC)

Customer Insights (EAS & GNR)

Industry Process, Function & Data Model

Influence

Data Warehouse

Product
(WPC)

Customer
(WCC)

Customer Insights (EAS & GNR)
WebSphere Customer Center (WCC) – High Level Overview

Central Transaction Server

- **Data Stewardship**
  - Data Inquiry Transactions
  - Data Update Transactions

- **Administration**
  - Operational Customer Data Update Transactions
  - Operational Customer Data Inquiry Transactions

- **Real time Transactions**
  - Composite Transactions & Business Processes

- **Batch Transactions**
  - Composite Transactions & Business Processes

- **Interface**
  - Data Stewardship
  - Administration
  - Real time Transactions
  - Batch Transactions

- **Action**
  - Point-in-time History Inquiries
  - Duplicate Suspect Processing
  - Authorization
  - Business Rules

- **Integrity**
  - Data Validation Engine
  - Standardization and Reference Data Adapters

- **Integration**
  - Integration Hooks
  - Standardized interfaces

- **Intelligence**
  - Event Management
  - Data Corruption Detection
  - Authorization
  - Business Rules

- **Performance**
  - Performance management
  - Logging and auditing
  - Performance enhancing deployment options

- **Inquiry & Search Framework**

- **Fast Track Transaction Server**

- **Knowledge**
  - Operational DB
  - History / Audit DB
Phase 1 Approaches for Implementing a Customer MDM Hub such as WCC

<table>
<thead>
<tr>
<th>Green Field</th>
<th>Full Panorama</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Release Example:</strong></td>
<td><strong>Initial Release Example:</strong></td>
</tr>
<tr>
<td>New Customer Administration</td>
<td>Full 360-degree view of existing customers</td>
</tr>
<tr>
<td><strong>Timeline:</strong></td>
<td><strong>Timeline:</strong></td>
</tr>
<tr>
<td>FAST/MEDIUM</td>
<td>MEDIUM/SLOW</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quick Step</th>
<th>Virtual Registry</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Release Example:</strong></td>
<td><strong>Initial Release Example:</strong></td>
</tr>
<tr>
<td>Prospect Management</td>
<td>Cross-reference lookup service for existing customers from multiple CDI instances</td>
</tr>
<tr>
<td>Privacy Preferences Administration</td>
<td></td>
</tr>
<tr>
<td><strong>Timeline:</strong></td>
<td><strong>Timeline:</strong></td>
</tr>
<tr>
<td>FAST</td>
<td>FAST/MEDIUM</td>
</tr>
</tbody>
</table>

**Timeline depends on:**
- Availability of data model and services
- Running de-duplication while loading or using “evergreening” approach
- Support real-time updates or read-only
- Implementation experience

- “Continuous Conversion”
- “Traditional ETL Load”

Amount of Data

“Fat”

“Thin”

Conversion Style
Samples of Phase 1 Approaches for Implementing WCC

- **Conversion Style**
  - "Continuous Conversion"
  - "Traditional ETL Load"

- **Amount of Data**
  - "Fat"
  - "Thin"

- **Companies**
  - Misys
  - MetLife
  - Bank of America
  - PZU
  - RACV
  - LTSB
  - Co-operators
  - Citi CBG
  - Honeywell
  - Unum provident
  - Citi GCG
  - Bell Canada
  - Citizens Bank
  - Nationwide
  - NAB
  - Morgan Stanley
  - SunTrust
  - Bank of America
  - RACV
  - PZU
  - Citi CBG
  - Honeywell
  - Unum provident
  - Citi GCG
  - Bell Canada
  - Citizens Bank
  - Nationwide
  - NAB
  - Morgan Stanley
  - SunTrust
Case Study 1: Tier-1 US-based Bank

<table>
<thead>
<tr>
<th>Business Problem</th>
<th>Become more customer centric was/is a difficult challenge due to the five different CIF systems due to M&amp;A. Years ago, attempted to implement single CIF (Know the Customer - KTC) using Siebel CRM data model years ago (first Siebel UCM implementation) but not successful.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>100+ million customers (account owners, etc)</td>
</tr>
<tr>
<td>Lines of Business</td>
<td>Online Banking, Checking accts, Savings and CD accounts, Debit and Credit Cards, Mortgages, Investment and Wealth Management offerings, Investment and Brokerage Services and Insurance related products.</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>WAS on p-Series, Fast Track Server on zSeries and DB2 on z-Series,</td>
</tr>
</tbody>
</table>
As a result of significant M & A activity, current state customer data environment was duplicative (5 CIFs), complex and costly to maintain.

Current Environment – Logical View

- Current environment supports multiple customer data stores with duplicative data
- Associated processes to synchronize data between legacy systems and customer data stores is complex
- Environments and infrastructures are tied to regional and product stovepipes
- There are multiple middleware approaches which are tied to channel and location specific customer data stores
- Cost of maintaining is high
# Case Study 2: Major Canadian Telco

<table>
<thead>
<tr>
<th>Business Problem</th>
<th>Account centric model across land line, wireless, cable and internet business.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>12 million customers (retail subscriber)</td>
</tr>
<tr>
<td>Lines of Business</td>
<td>Wireline, Mobility, Satellite TV, Internet</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>App server Sun SunFire, DB server Sun SunFire, WebLogic, WBI, Oracle 9i</td>
</tr>
<tr>
<td></td>
<td>Integrated with legacy EDW and Web based CSR application</td>
</tr>
</tbody>
</table>
Case Study 2: Major Canadian Telco

Overview of target architecture with WCC as Customer Master File (CMF)
## Case Study 3: Major Multi-line Insurance Company

| Business Problem          | No ability to get operational 360 degree view of customers across LOB’s.  
<table>
<thead>
<tr>
<th></th>
<th>No ability to manage privacy and preferences.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>16 million customers (insured, beneficiary, agent, claimant, etc.)</td>
</tr>
<tr>
<td>Lines of Business</td>
<td>Life, Property &amp; Casualty, Annuities</td>
</tr>
</tbody>
</table>
| Infrastructure            | App server p-Series, DB server z-Series, WAS, WBI, DB2  
|                          | Integrated with 4 legacy and CIIS |
Case Study 3: Major Multi-line Insurance Company

Operational Source Systems
- P&C Insurance
- Specialty Insurance
- Commercial Insurance
- Farmland Insurance
- Life Insurance
- Life Insurance
- Mortgage
- Investment Group

Customer Data Stores
- P&C CIF APIs
- Websphere
- P&C CIF
- WCC (TBD by LOB)

Campaign Manager
- Real-time service/sales
- Rule Base

Customer Information Broker
- WCC Knowledge Layer
- WCC Action Services
- WCC Integrity Services

Integration Hub
- Connect
- Transform
- Message

ETL Hub
- Extract
- Transform
- Load

Customer Data Access Services

Front Office Applications
- Internet
- Agency Desktop
- Call Center Desktop

Operational Source Systems

Customer Data Stores
## Case Study 4: Tier-1 US-based Bank

**Business Problem**
No ability to understand clients across multiple lines of business in consumer sector, causing revenue loss, credit risk and lost revenue opportunities.

**Volume**
200 million customers (account owners)

**Lines of Business**
Retail Bank, Credit Cards, Loans, Finance, Brokerage

**Infrastructure**
App server p-Series, DB2 server zSeries, WAS, TIBCO, DB2
Integrated with multiple systems, Acxiom, Cisco, SAS
Case Study 4: Tier-1 US-based Bank

Global Consumer Customer Vault

Customer Channels / Treatment Delivery
- Web
- IVR
- Branch
- Contact Center

Treatment
- Business Rules
- Consumer
- Treatment Engine
- Commercial
- Analytics Data Model
- MIS

Account Management
Line of Business Management
- Cards
- Retail Bank
- Finance
- Finance
- ...
Case Study 5: Tier-1 US-based Bank

<table>
<thead>
<tr>
<th><strong>Business Problem</strong></th>
<th>Multiple CIF’s across retail, commercial, securities, mortgage that didn’t communicate causing lost revenue opportunities and customer service challenges.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Volume</strong></td>
<td>16 million customers (account owners, etc)</td>
</tr>
<tr>
<td><strong>Lines of Business</strong></td>
<td>Retail Banking, Commercial, Securities, Mortgage</td>
</tr>
</tbody>
</table>
| **Infrastructure**   | App server p-Series, DB server z-Series, WAS, DB2  
                        Integrated with new ATM software/hardware from NCR  
                        Integrated to Plastic Cards legacy system                                                                                  |
Case Study 5: Tier-1 US-based Bank

Overview of Total Customer View (TCV) Target Architecture with WCC

Existing “Customer View” Silos and Channels (examples - a subset of our actual environments)

Marketing
- Sales Load
- Sales Data Mart

STOLI CallCenter
- Retail
- Avaya

PC
c

Commercial
- Internet Banking
- Bank (Ab)

Internet Banking
- eCare
- Web Tone
- Web ATM

Near Real Time

Messaging / Service Architecture

EAI Hub (WMQ1)
Publish / Subscribe

TCV Service Hub (WCC)
- Batch Framework
- MQ Adapter
- Customer Management Services
- DB2 Connect

Data Quality Hub (Code1)
- Rules Engine (ILOG JRules)
- Externalized Business Rules

p-Series

ETL (Ab Initio)

z-Series

WCC Operational Database

WCC History Database

Initial Load

On-going Updates Batch Load

HTML/SSIS/XML Customer Admin & 360-degree View
## Case Study 6: Major Multi-line Insurance Company

<table>
<thead>
<tr>
<th>Business Problem</th>
<th>Multiple CIF’s throughout multiple lines of business that didn’t communicate. Didn’t understand customers across portfolio.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Volume</strong></td>
<td>7 million customers initially going to 100 million (insured, beneficiary, etc.)</td>
</tr>
<tr>
<td><strong>Lines of Business</strong></td>
<td>Life, P&amp;C, Commercial</td>
</tr>
<tr>
<td><strong>Infrastructure</strong></td>
<td>App server p-Series, DB server p-Series, WAS, webmethods, DB2</td>
</tr>
<tr>
<td></td>
<td>Integrated with 30+ legacy and external systems</td>
</tr>
</tbody>
</table>
Case Study 6: Major Multi-line Insurance Company

The Approach:

- Implement WCC as the customer administration platform
- Start in Individual Life and Annuities
- Integrate to Web Methods EAI layer via WCC XML Interface
- Roll out to other lines of business:
  - Institutional (Group Life)
  - Brokerage
  - Banking
IBM’s experience is that a value-focused approach combined with smaller, targeted, releases creates predictable results.

Value Discovery is executed near the start of the project. The scope, sequence and success criteria of the Phase 1 Value Foundation and each of the subsequent Transactional Realization, Channel Enablement and Enterprise Adoption releases are all driven by the business value articulated during the Value Discovery.

Value Delivery occurs at multiple points along the road to ensure that the project is kept on track. It also validates that the goals set in Value Discovery are still valid and are achievable.
**IBM CDI Realization Roadmap**

Value Foundation lays the CDI infrastructure, delivering new customer-centric capabilities and values. Subsequent Transactional Realization, Channel Enablement and Enterprise Adoption phases drive increased usage and values across the enterprise.

### Phase 1 Value Foundation

**Value Foundation: Description**
Install WCC and implement base infrastructure. Load data based on chosen Quick Step/Green Field/Virtual Registry or Full Panorama approach that is of value. Enable real-time connectivity for consumption of 500+ XML services.

**Timeline**
Typically from 3 to 7 months

**Value Proposition**
- Foundation for full transactional CDI hub implementation.
- Respond to business priorities within a short time window.
- Provide 360-degree view enablement for loaded customers/prospects.
- Facilitates up-sell and cross-sell.
- Unique customer key management.

### Transactional Realization

**Description:** Facilitates gradual implementation of bi-directional updates and synchronization of customer data in both real-time and batch modes.

**Timeline**
3 to 6 month release cycles

**Value Proposition**
- WCC becomes System of Record for selected enterprise data.
- Facilitates operational efficiencies through once-and-done processing.

### Channel Enablement

**Description**
Integrate WCC with existing or new front office systems. Adds new user communities and customer–centric business processes in a controlled manner.

**Timeline**
3 to 6 month release cycles

**Value Proposition**
- Reduced integration effort due to services oriented architecture approach.
- Maximizing client interaction across multiple channels.
- Facilitates cross-channel business process and organization improvement.

### Enterprise Adoption

**Description**
Integrate remaining LOB entities, and extend the technical infrastructure as necessary. Facilitates end-to-end business process and organization re-engineering.

**Timeline**
3 to 6 month release cycles

**Value Proposition**
- Full enterprise integration.
- A true “Active Customer Hub” will become the single source of record for all customer information which increases customer insight and understanding.
Implementation

One approach to the program would be to combine smaller enablement phase with waves of...
IBM leads the industry in real world CDI implementation experience. This experience has enabled us to understand the key implementation challenges, the potential options on addressing these and the Best Practice approach that we recommend to our Clients.

1. Organizational Alignment
2. Initial and Ongoing Loads (ETL processes)
3. Data Quality and Data Management
4. User Interfaces
5. Data Model
6. Real Time Integration
7. Performance Tuning and Testing
CDI implementations are a Journey as opposed to a marathon and organizations that start out on this journey must ensure that needed building blocks are in place so that they are able to stay the course. We have found that the single most challenging component of a CDI implementation is the business and organizational issues as opposed to the technical one. These include:

- Introducing process changes as the technology moves from multiple systems of record feeding a central customer data repository in batch to an operational single source of customer information.
- Creating new processes to manage duplicate customer data reduction and "ever greening”.
- Modifying behavior to instill a culture to support customer data as an enterprise asset rather than owned at a line of business level, especially around duplicate customer data reduction.

### Best Practices for Organizational Alignment

<table>
<thead>
<tr>
<th>Risk</th>
<th>Options</th>
<th>Best Practice</th>
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</table>
| CDI implementations are a Journey as opposed to a marathon and organizations that start out on this journey must ensure that needed building blocks are in place so that they are able to stay the course. We have found that the single most challenging component of a CDI implementation is the business and organizational issues as opposed to the technical one. These include: | Executive level sponsorship  
Phased implementation approach  
Implement cross organizational senior management CDI committee or task force  
Establish Data Steward function within organization. These people own the management of data quality from a De-Duping perspective  
Solicit input from the business in establishing the roadmap and ensure that all Releases drive business value | Driving Business Value  
- Without business alignment ongoing funding will dry up it is essential to continually show the business value/benefit associated with the implementation  
- Professional Services has established the VDDS that works with organizations to help identify business value opportunities and establish the ROI and business case  
Managing Organizational Change and Realignment  
- Sr. Executive sponsorship is a Critical Success Factor  
- Aligning the organization to support customer centricity (e.g., Data Stewardship)  
IBM has established the CDI Implementation Strategy and IBM Unite Implementation Methodology both experienced based approaches specifically geared to the successful implementation of a Phased CDI implementation |
### Best Practices for Initial and Ongoing Loads

#### Maximizing Efficiencies:

**Risk**
- For the management of large volumes of Customer data, the load time for the ETL process, as well as the nightly batch window for delta loads are significant risks that must be managed.
- Reducing the amount of “throw away” code, to leverage initial batch conversion / ETL processes to support on-going delta batch updates and real-time synchronization.
- Similarly, creating throw-away processes that can’t be leveraged in future Releases is a significant risk in terms of effort and productivity.

**Options**
- Timely load process require an understanding of load performance, requirements and the cost/benefit trade-off. This understanding is best gained through experience. The key is having options, and the flexibility and knowledge of when to use each. Outlined below our 4 load options:
  - Direct Load to the database
  - Batch Load leveraging services
  - Real-Time Load
  - Continuous Conversion
- Using ETL Tools to manage the Extract and Transform portion of the process
  - Benefits include provides reusable process that can facilitate future initiatives, tool that can help compress time to implementation, facilitates ability to use multiple load options (see above)
  - Challenges include additional fees if do not currently have tool, additional skill set required (this offset by large pool of skilled consultants)

**Best Practice**
- Please see following slide which outlines the best practice approach for each of the load options
- Whenever possible create a standard mapping interface that can be used for multiple systems creating a reusable process (whether managed with an ETL tool or not) that can be leveraged as you bring on other systems, LOBs or subsidiaries.
## Best Practices for Initial and Ongoing Loads

**Maximizing Efficiencies:**

<table>
<thead>
<tr>
<th>Load Approaches</th>
<th>Best Practice for each Load Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Initial / Ongoing</strong></td>
</tr>
<tr>
<td><strong>Direct Load to the database</strong></td>
<td>Initial</td>
</tr>
<tr>
<td><strong>Batch Load leveraging services</strong></td>
<td>Both</td>
</tr>
<tr>
<td><strong>Real-Time Load</strong></td>
<td>Both</td>
</tr>
</tbody>
</table>
Best Practices for Initial and Ongoing Loads

Managing the load of Augmented data (e.g. Hierarchies):

<table>
<thead>
<tr>
<th>Risk</th>
<th>Options</th>
<th>Best Practice</th>
</tr>
</thead>
</table>
| ✂️ It is imperative to understand your data, the data quality, the data requirements, etc. The data and how you handle it is a key component to success. ✂️ How do you create and manage hierarchy relations? ✂️ How should Product or Service Hierarchy be created? | ✂️ Automated Loads
  - Benefit: Leverage existing information, lower error rate, may be leveragable on subsequent loads
  - Challenge: Data is not available to automate hierarchy creation, typically a multi-stepped process (load relevant parties, load hierarchy, load associated relations)
| ✂️ Manual Creation
  - Benefit: More control, might not have data available to automate
  - Challenge: Higher risk of user error
| ✂️ Big Bang
  - Benefit: Fast, higher upfront effort, lower likelihood of user error
  - Challenge: Often not feasible, if data quality is not good, replicate problems in existing systems | ✂️ By understanding your data and the requirements specific to your organization and implementation each of the options may be applicable depending on the specific situation |
Best Practices for Initial and Ongoing Loads

Managing batch delta feeds and Real-time interactions (Rules of Survivorship):

- Have information coming in from multiple channels, some of which are batch others real-time. How do you determine which information is the best quality and as such should “survive”.

- All data from source systems assumed to be of the best quality and therefore on delta loads updates information within Customer Hub

- All data entered on a real-time basis assumed to be of the best quality and therefore survives the batch updates

- Flexible solution driven by externalized rules which allows you to drive these decision criteria based on your companies unique needs

- Needs will vary not only at an interface, or even a system level, but it may go down to an entity or attribute level. The Customer Hub may be SOR for some information and source systems SOR for others. Therefore it is critical to have the flexibility to configure survivorship rules for your specific needs.

- In an Enablement Release e.g., if the data steward updates a phone number, and a different phone number comes in on the delta feed both may be kept. This approach allows this incongruity in data to be flagged for manual intervention. An alternative to this is to have all information entered by the Data Steward deemed to be of the best quality and supercedes that of the batch delta loads (the cleanup would then be deferred until real-time bi-directional updates are implemented.)
## Best Practices for Data Quality and Data Management

### How do you manage data quality with Batch and Real-Time Feeds?

<table>
<thead>
<tr>
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<th>Best Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data quality issues are one of the most significant challenges within a CDI implementation (outside of the organizational issues). Within one individual system you will find missing critical data, data that when left blank is defaulted to a meaningless value in the old system, but may have significant implications from a CDI solution (e.g., DOB and Suspect Duplicate processing). These challenges are further compounded when bringing data together from multiple systems, and LOBs. Often we find organizations that are using a different paradigm for addressing the data quality issue in batch and real-time. The challenge is an inconsistent result depending on the source/channel of the data.</td>
<td>Manage data quality during the load processes&lt;br&gt;• Benefit: Reduce batch load window required&lt;br&gt;• Challenge: Data cleansing only done on load and managed poorly in operational environment, no audit trail of collapses&lt;br&gt;Manage data quality within the application only&lt;br&gt;• Benefit: Approach can be leveraged in both batch and operational environment, no redundant requirements and coding efforts&lt;br&gt;• Challenge: May increase batch window req’ts, algorithms may not be as robust as in ETL tools&lt;br&gt;Manage data quality on load and within the application&lt;br&gt;• Benefit: Reduced batch window requirement, use of ETL tool, leveraged processes&lt;br&gt;• Challenge: Potentially diff approaches external/internal to application</td>
<td>From a best practice perspective if feasible there can be substantial value derived in having an audit trail of collapsed parties therefore using an ETL tool the data analysis and scrubbing can be done prior to the load, however on load (or post load in an Evergreening process) the Suspect Duplicate processing and Name/Address Standardization can be done. If load does not leverage services, or if suspect duplicate processing is turned off for performance reasons an Evergreening process can be invoked which executes the suspect duplicate process in a batch mode. By using the native de-duping capabilities of the application the rules developed can be leveraged both for Batch and Real-time. Additionally, the cleansing process can be augmented by 3rd party providers such as Ascential and D&amp;B.</td>
</tr>
</tbody>
</table>
# Best Practices for Data Quality and Data Management

## Maintaining consistency while enabling flexible processes:

<table>
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<tr>
<th>Risk</th>
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<th>Best Practice</th>
</tr>
</thead>
</table>
| Creating a solution that is either so open that there are no inherent controls thereby impacting data quality or the application controls are too strict and reduces flexibility resulting in the application driving your processes rather than having the ability to tailor the solution to your company's specific needs. | Adjust your business process to the application:  
   - Benefits include you will need to change processes as you become customer centric anyway, may be appropriate for the first release to gain a quick win.  
   - Challenges include limits ability to elevate to an enterprise level your unique value proposition, no one knows your business plans/vision better than you.  
   - Using a configurable solution that externalizes rules and interfaces thereby providing flexibility needed to implement a solution that drives business value to your organization while imposing necessary constraints that maintains data quality and integrity. | Use code tables to align options with organizational needs and processes  
   - Externalize rules to ensure flexibility in the implementation while also allowing consumption by other applications (thereby leveraging effort and gaining further organizational consistency)  
   - Data validation at the attribute level provides full flexibility to ensure that required data constraints are ensured. Additionally, these should be done at the Server level as opposed to UI so that can be leveraged by multiple consuming applications further enforcing consistency across the organization. |
## Best Practices for User Interfaces

### Managing entitlement and rules of visibility:

<table>
<thead>
<tr>
<th>Risk</th>
<th>Options</th>
<th>Best Practice</th>
</tr>
</thead>
</table>
| - When giving access to customer information across multiple LOBs and user groups and taking privacy legislation into consideration the risk of inappropriate exposure of the information needs to be managed appropriately and with the right tools. | - Limit/filter at the UI  
  - Benefits: lower level skill required  
  - Challenges: Not reusable, often hard-coded, maintenance nightmare, can’t enforce an enterprise approach, open to legal deprecations, message includes privileged information (security risk)  
- Hard coded server side limits to data  
  - Benefits: May be easier (lower skill level)  
  - Challenges: maintenance nightmare, difficult to change with changing legislation  
- Externalized server side limits to data  
  - Benefits: Reusable, flexible, maintainable  
  - Challenges: more up-front thought/design required | - Using server side capabilities that limits visibility to data as well as access to transactions has a number of significant benefits:  
  - Since it is at the hub it can be leveraged in all consuming applications  
  - Since it is server side the message does not contain privileged data minimizing security risks  
- Externalizing these capabilities has the advantage of making them easily configurable to your specific needs as well as enabling other systems that interface with the rules engine the ability to leverage them.  
- With the server side capabilities and the externalized/extendible nature of rules of visibility and entitlements privacy and opt-in preferences can also be included in these rules providing strong internal controls and mitigate risks associated with privacy legislation. |
## Best Practices for User Interfaces

### What unique functional needs are there with a CDI implementation?

<table>
<thead>
<tr>
<th>Risk</th>
<th>Options</th>
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</tr>
</thead>
<tbody>
<tr>
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<td></td>
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</tr>
</tbody>
</table>
| - Through our implementation experience it has become apparent that there are specific UI functional requirements that help facilitate some of the organizational changes that are needed to become customer centric. | - Custom build UIs  
  - Benefits include custom tailored to your needs  
  - Challenges include high initial as well as ongoing costs, do not leverage experience of organization that focuses on nothing but CDI.  
  - Use existing administrative and data stewardship UIs  
  - Benefits include using UIs that are based on extensive experience in CDI space, low/no incremental cost  
  - Challenges include solution selected may not have the deep knowledge needed to build out solution, solution may not provide flexibility needed to implement any custom requirements needed | - We have found that there are typically 3 basic types of User Interfaces required.  
  - End Users  
    - Internal Users (e.g., Sales)  
    - Any front end channel (e.g., IVR, Web, SFA, CRM, etc).  
  - Administrative UI focuses on maintaining code tables, external rules, data validation, rules of visibility, etc.  
  - Data Stewardship focuses on suspect duplicate prospecting including management of party collapse and split. While some clients automate process for exact matches there is always a manual process involved. Many of our clients (e.g., MetLife, Citi) have created a data steward area within the organization that specifically manages this. Therefore a separate UI with robust capabilities is critical to the effectiveness of this process. |
| - These UIs not only need to be available they also need to be robust while also being friendly to a user community without this capability the technological capabilities will not be there to support the business. | | |
# Best Practices for Data Model

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<th>Risk</th>
<th>Options</th>
<th>Best Practice</th>
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| Need the data model to be robust and flexible so that can accommodate your companies needs | Use the model provided  
  - Benefit: Simple  
  - Challenge: May not provide you with the functionality needed today or give flexibility needed for tomorrow  
  - Use a robust model and leverage as much as possible, but have flexibility to extend should it be required.  
    - Benefit: Provides flexibility needed for both today and tomorrow, with wizards can be easy to extend, supports early win with robust data model  
    - Challenge: have to understand (or have someone that understands) model so that are able to leverage its capabilities. | Starting with a robust data model provides a solid foundation for a low risk implementation that can drive an early win for the organization.  
  - We have found that an Enablement first release along with a robust data model results in relatively few data model extensions/additions being required. In fact in several of our implementations (Bell, Michelin, CBG) the first Release required 0 extensions or additions to the data model.  
  - Additionally, should additions or extensions be required (if not in the first release, in subsequent releases) it is important to have wizards that reduce the effort, ensure consistency in the implementation and also reduce the learning curve. |
**Best Practices for Real-Time Integration**

**Tight vs. Loose Coupling:**

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| - When coming up with an integration approach there is a risk of taking too tactical of a view only looking at singular integration points rather than ensuring that the solution has the capability of satisfying your longer term vision.  
- You can take a tactical approach, however you should ensure that the solution selected has the needed flexibility to also satisfy your longer term needs. | - Tight integration with front end channels.  
  ‣ Benefits: Usually out of the box integration as part of a packaged solution  
  ‣ Challenges: does not provide a flexible, agnostic integration approach which can create challenges when integrating to non-packaged solutions.  
- Point to Point integration  
  ‣ Benefits: Faster implementation timeline (when viewed from a one-off perspective) than through an EAI hub  
  ‣ Challenge: not reusable, difficult/expensive to maintain  
- ESB/EAI Hub  
  ‣ Benefits: Reusability, flexible, provides additional functionality that can be leveraged at an enterprise level (e.g., transformations)  
  ‣ Challenges: More upfront effort and complexity | - From a long-term perspective the EAI hub provides the scalability, functionality and leveragability that best enables an enterprise CDI solution that will be used across multiple front and back end systems and across multiple LOBs (e.g., Citi, Nationwide, JPMC).  
- The CDI solution should be neutral and agnostic in order to make integration efforts easier. Additionally, the solution should have pub/sub capabilities to best leverage the functionality of an EAI hub.  
- From a tactical perspective a point to point integration solution can provide you with a quick win (e.g. Michelin) |
## Best Practices for Performance Testing and Tuning

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| - Not fully understanding how the application will scale as requirements increase and where additional resources will need to be applied | - Big Bang Approach  
  - Benefit: Instinctive approach  
  - Challenge: no visibility or understanding of source of issues, little understanding of true performance requirements  
  - Component based approach  
  - Benefit: understand performance requirements and throughput at a component level, facilitates scaling, very effective  
  - Challenge: More upfront prep time, more effort to execute | - Component based approach  
  - Devise a comprehensive performance strategy for both runtime and batch transactions. Baseline and load test using a production based load specification model.  
  - Create load tests for isolated components to assess maximum throughput.  
  - Develop a load specification model that reflects a production scenario. Use this model to construct a hierarchy of transactions that are the most critical in nature for overall performance. |