





# How Data Management Supports the CIO,

Dan Weller, APL, Limited & Nicholas Khabbaz, e-Modelers, Inc..



## How Data Management Supports the CIO


**Dan Weller, CDMP**  
**Data Management**  
**APL**



**Dr. Nicholas Khabbaz**  
**Enterprise Architect**  
**e-Modelers, Inc.**

**DAMA International Symposium**  
**Denver, Colorado**  
**April 23, 2006**

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## Agenda

- Neptune Orient Lines Background
- Six Goals of a CIO – For Each Goal:
  - Actionable Program
  - Example
- Goals vs. Programs
- Wrap Up / Discussion



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**The DAMA International Symposium & WILSHIRE Meta-Data Conference**  
Denver, Colorado ● April 23-27, 2006




### Neptune Orient Lines Background

- *Fifth largest container shipper in the world.*
  - *Shipping volume: 1.8 million containers per year*
  - *2004 Revenues: US\$ 6.5 billion*
  - *2005 Revenues: US\$ 7.3 billion*
- *158 years of continuous operation.*
- *Headquarters are in Singapore.*
- *11,000 employees in 84 offices worldwide*
- *Services to 25,000 locations in 140 countries across 6 continents.*
- *6 owned-and-operated port terminals in North America and Asia.*
- *Strong history and commitment to service excellence, innovation and information technology.*
- *Supply chain solutions capability through APL Logistics.*

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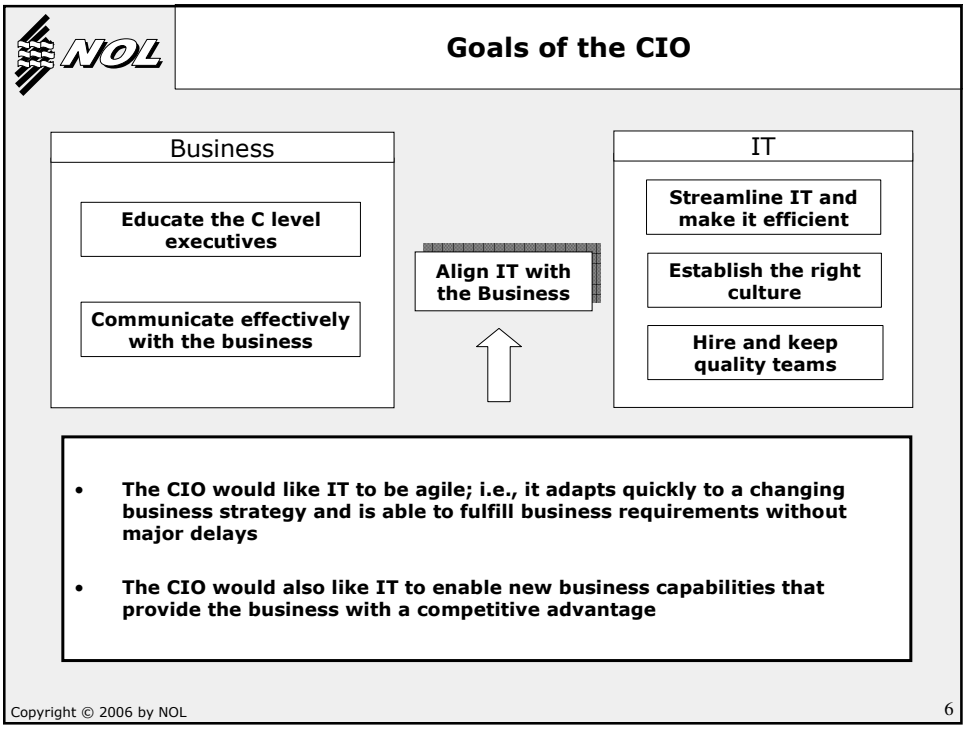
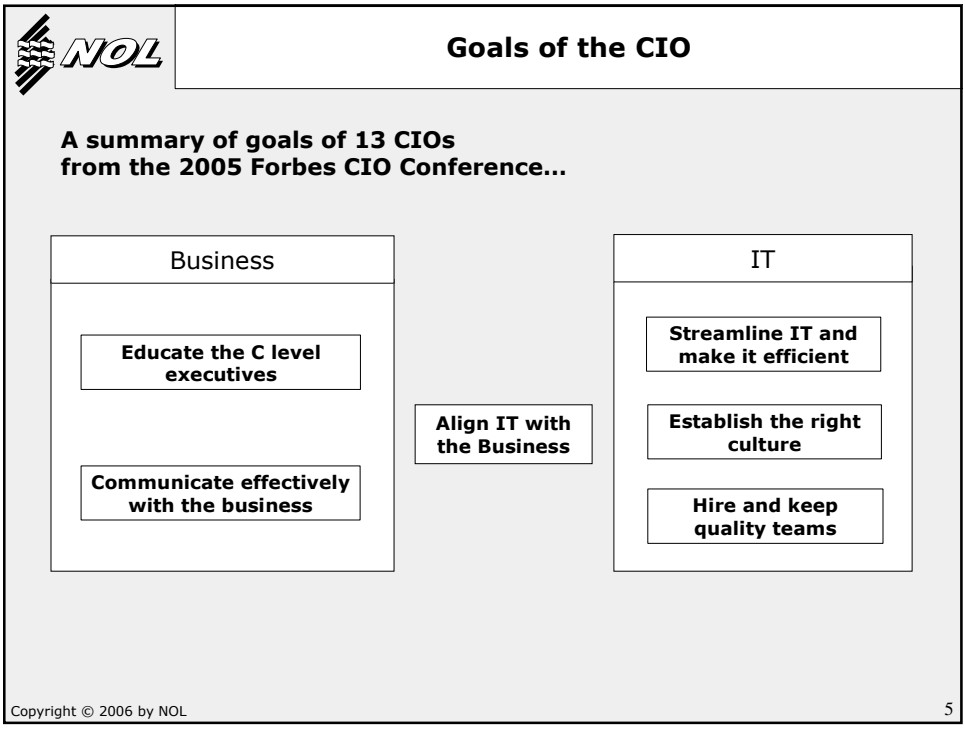
### Neptune Orient Lines IT

<p><b><u>Organization</u></b></p> <ul style="list-style-type: none"> <li>• <b>IT Headquarters: Oakland, CA</b></li> <li>• <b>RFID Center: Singapore</b></li> <li>• <b>Outsourcing: Bhubaneshwar, Bangalore, Hyderabad</b></li> <li>• <b>IT Personnel in 27 countries</b></li> </ul>	<p><b><u>Data Center</u></b></p> <ul style="list-style-type: none"> <li>• <b>IBM 2900-2C5</b></li> <li>• <b>NCR Teradata</b></li> <li>• <b>IBM AS400 Midrange</b></li> <li>• <b>IBM AIX Servers</b></li> <li>• <b>Sun Servers</b></li> <li>• <b>7+ Terabytes Storage</b></li> <li>• <b>250 Servers in Dallas; 600 Worldwide</b></li> <li>• <b>9,000+ PC's &amp; Printers</b></li> </ul>
<p><b><u>Key Technologies</u></b></p> <ul style="list-style-type: none"> <li>• <b>Mainframe, UNIX</b></li> <li>• <b>Languages: COBOL, SQL, Powerbuilder, C, Java</b></li> <li>• <b>Databases: IDMS, DB2, Oracle, Teradata, (SQL Server)</b></li> <li>• <b>Networks: MPLS, Frame Relay, VPN</b></li> <li>• <b>Data Interchange: NDM, FTP, MQ, LU 6.2, EDX</b></li> </ul>	<p>• <b><u>Applications</u></b></p> <ul style="list-style-type: none"> <li>• <b>124 Liner Applications</b></li> <li>• <b>84 Logistics Applications</b></li> <li>• <b>37 Common Business Services Applications, such as HR</b></li> <li>• <b>400+ Local Applications</b></li> <li>• <b>Reporting: Holos, Brio, Actuate, Essbase, Webfocus, BI Query</b></li> </ul>

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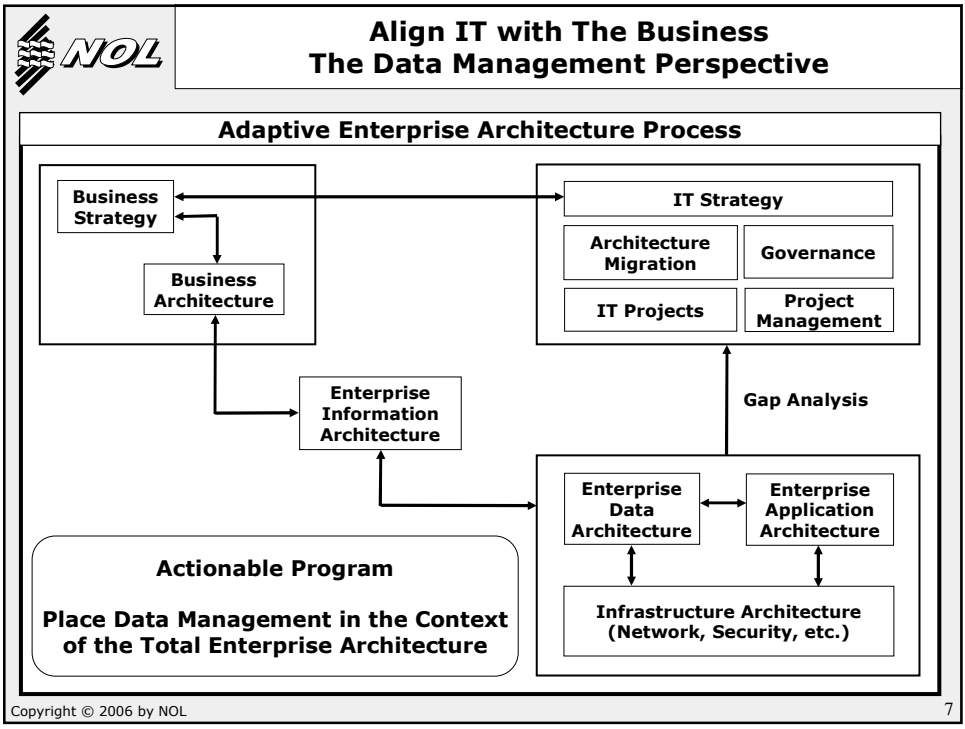
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- 
- Align IT with The Business  
The Data Management Perspective**
- Actionable Program**  
Place Data Management in the Context of the Total Enterprise Architecture
1. Track and understand the business strategy and high level business requirements
  2. Track and understand the business architecture (business functions and inter-relationships and business processes)
  3. Understand the CIO's IT strategy and its impact on data management
  4. Articulate the current and target enterprise information architecture; develop a high level process to migrate from current to target information architecture
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**Align IT with The Business  
The Data Management Perspective**

**Actionable Program**

**Place Data Management in the Context  
of the Total Enterprise Architecture**

5. Identify the various components of the enterprise data architecture such as metadata, data security, data quality, data services, data rationalization, and reporting architecture
6. Articulate the current and target enterprise data architecture across all of its components; develop a high level process to migrate from current to target data architecture
7. Coordinate effectively with the rest of the Architecture teams, including the application and business architecture teams

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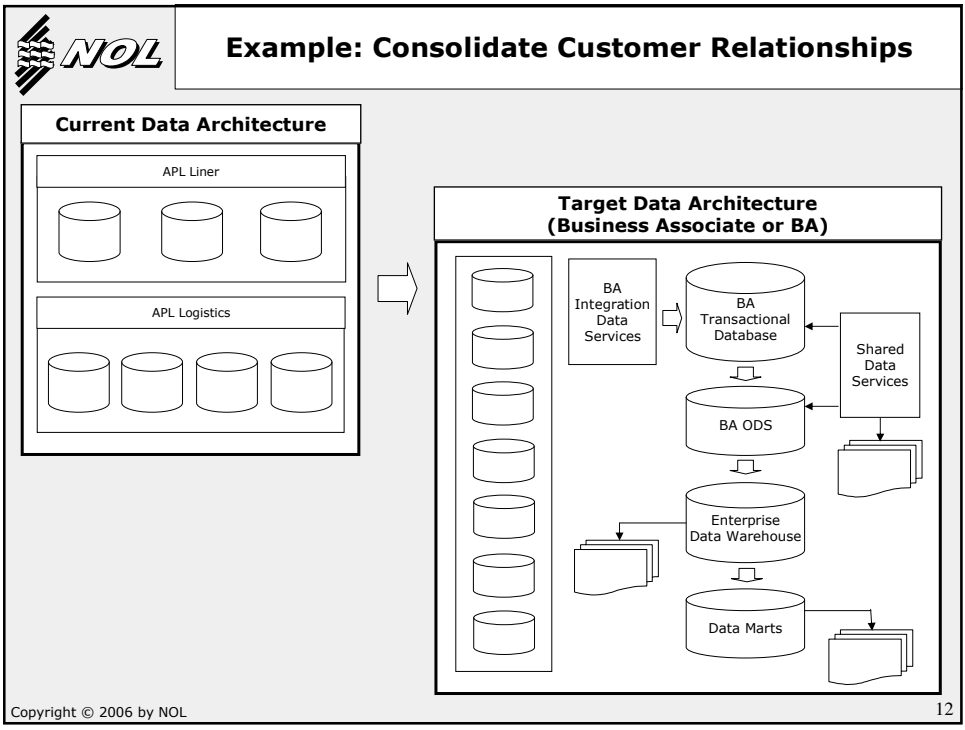
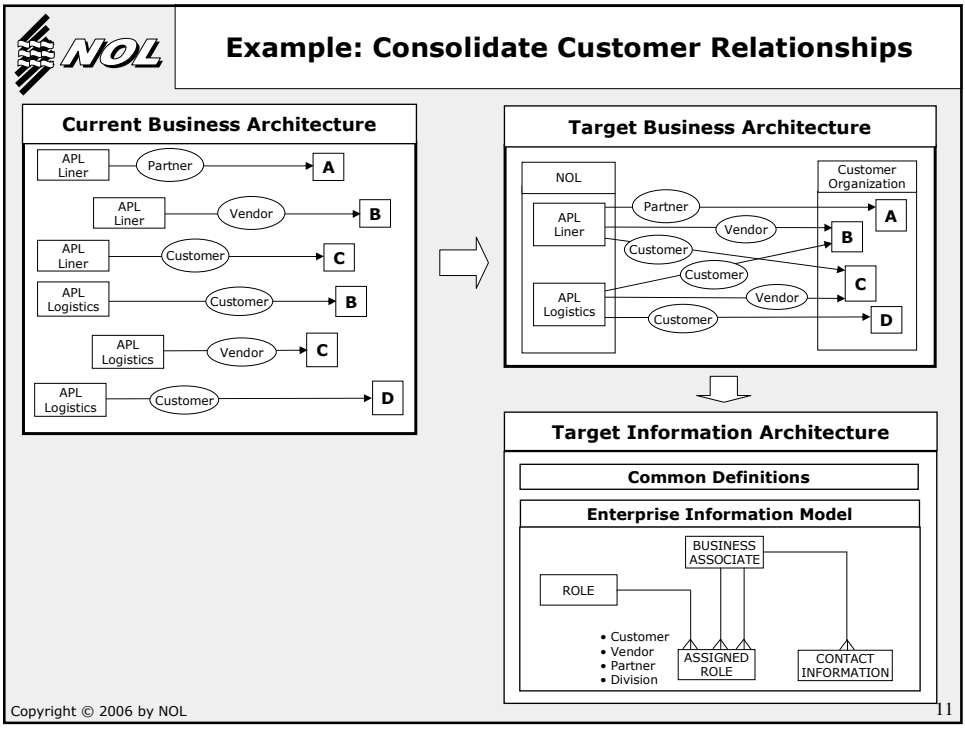
**Example: Consolidate Customer Relationships**


Business Strategy	Business Strategy Element	High Level IT Requirement
<p><b>Become an Integrated Global Transport Company</b></p>	<p>Provide Seamless Solutions (across Products)</p>	
	<p>Become Customer Centric (across subsidiaries)</p>	
	<p>Consolidate Relationships with Each Major Global Customer</p>	<p>Provide a Consolidated View of Relationships with a Single Entity (Organization, Group of Organizations, or Individual)</p>
	<p>Expand the offered Products and Services</p>	
	<p>Price Across the Supply Chain</p>	
	<p>...</p>	

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**Example: Consolidate Customer Relationships**


**Meeting High Level Requirements**

1. Total view of customer relationship
2. Customer as one integrated account
3. Customer profile integration and sharing
4. Customer segmentation
5. New customer analysis

**New Capabilities Enablement**

1. Total view of business associate relationship (customer, vendor, partner, consolidator, carrier, manufacturer, etc.)
2. Role segmentation

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**Goals of the CIO**

**Business**

Educate the C level executives

Communicate effectively with the business

Align IT with the Business

**IT**

Streamline IT and make it efficient

Establish the right culture

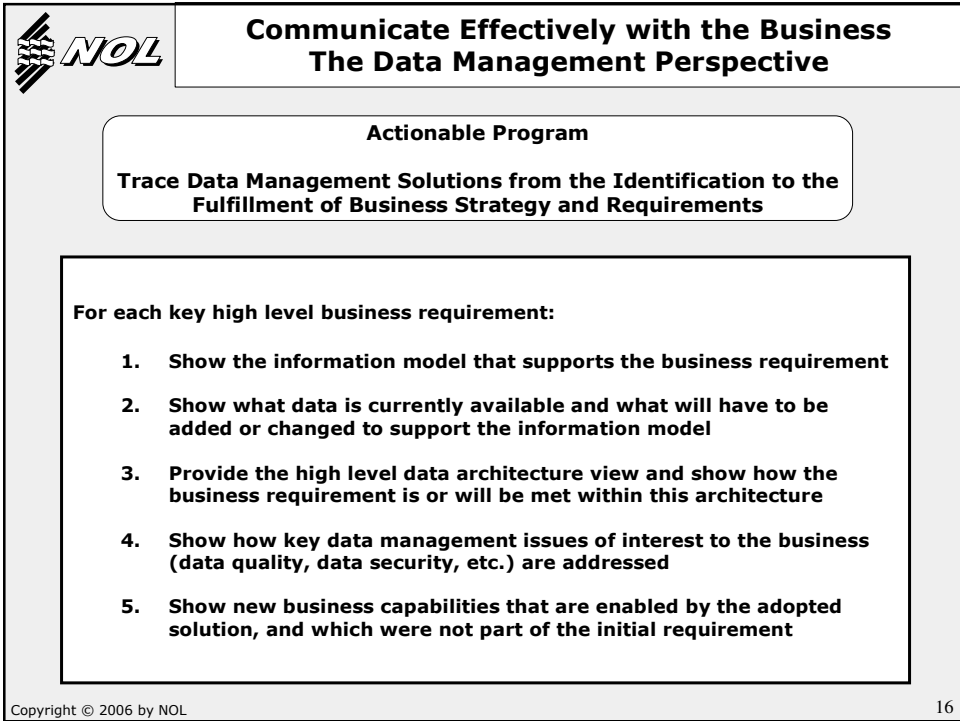
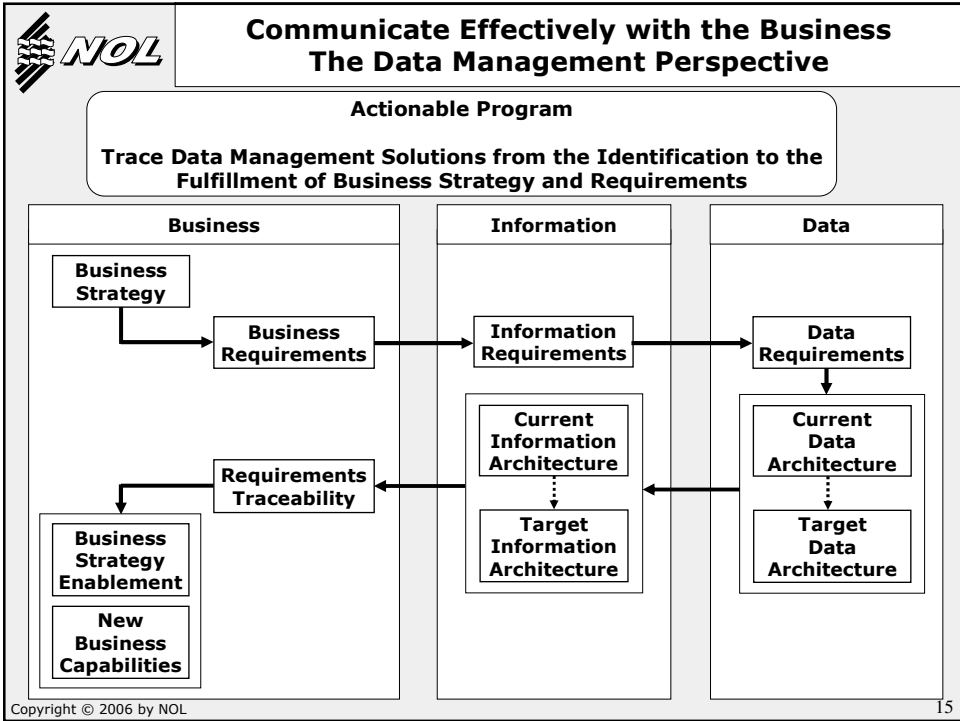
Hire and keep quality teams

- The CIO would like IT to fully understand the business and its requirements
- The CIO further needs to demonstrate to the business that IT understands their requirements and have set up frameworks and processes to support these requirements

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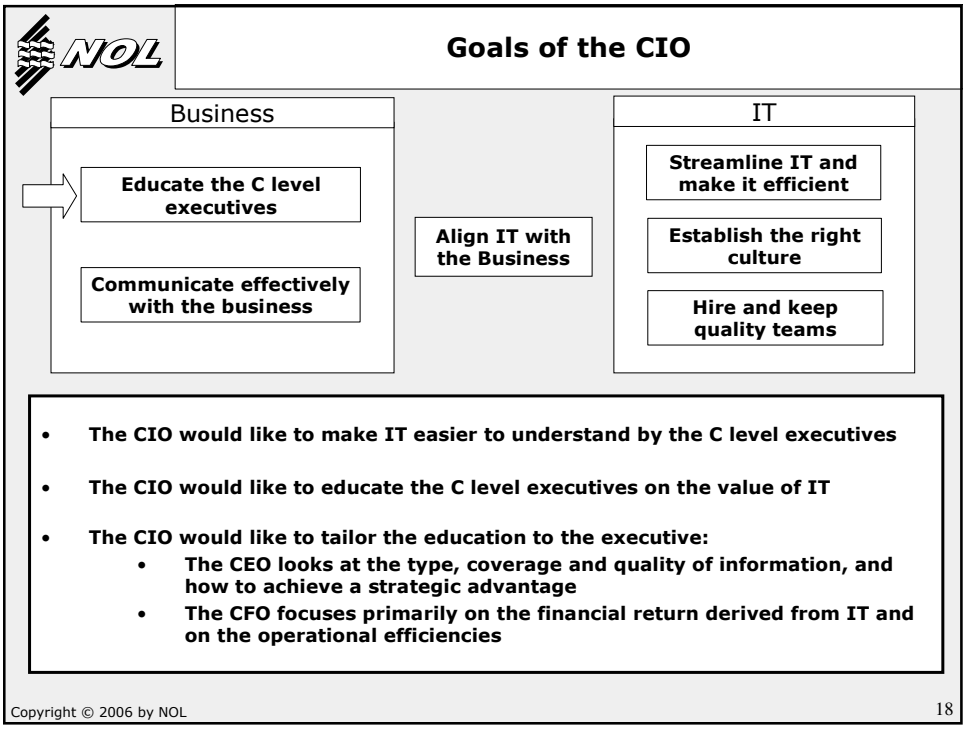
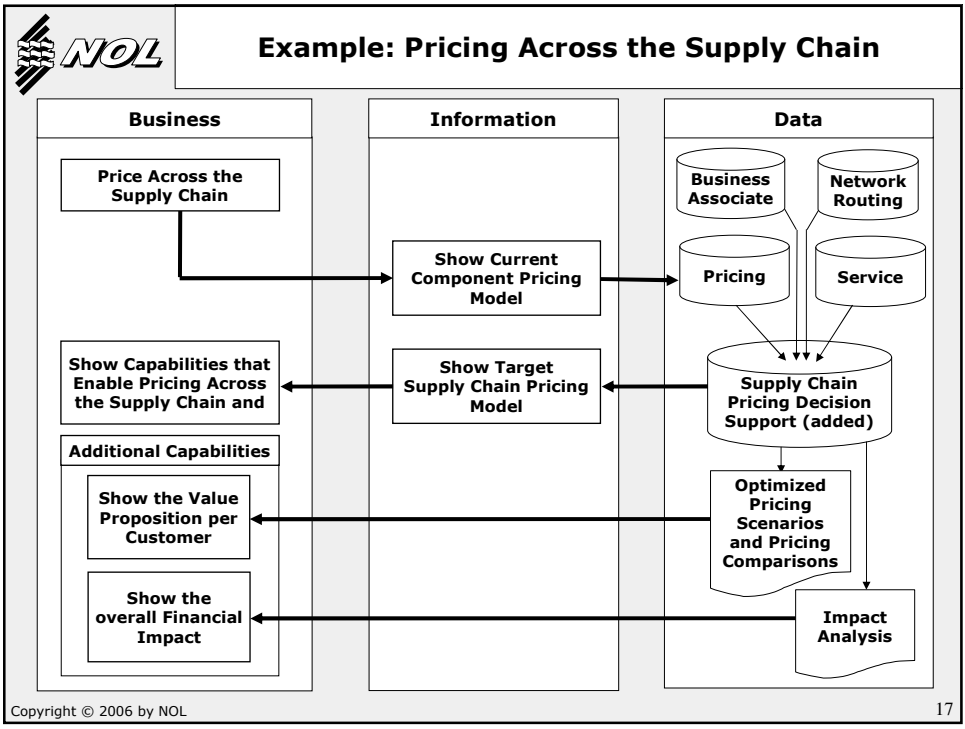
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**Educate the C Level Executives  
 The Data Management Perspective**

**Actionable Program**

**Identify Themes that are Most Important to the Business  
 and Educate Executives on these Themes**


**Themes**

- Information quality
- Enterprise level reporting and decision support
- Competitive information
- Risk management
- Business continuity
- Etc.

**Education**

- Describe what it is
- Show how it impacts the business
- Show where it fits in data management
- Describe specific current challenges
- Provide a framework for a solution
- Provide specific solution scenarios that address current challenges

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**Example: Data Quality**

**Characteristics of High Quality Information**

- Valid (valid values and formats)
- Accurate and precise
- Complete (no missing information)
- No uncontrolled duplicate information
- Meaningful
- Consistent (consistent definitions and values)
- Current

**How does poor quality impact the business?**

- Confusion about the meaning of certain information
- Information is not up-to-date
- Reports are inconsistent
- hard to combine information

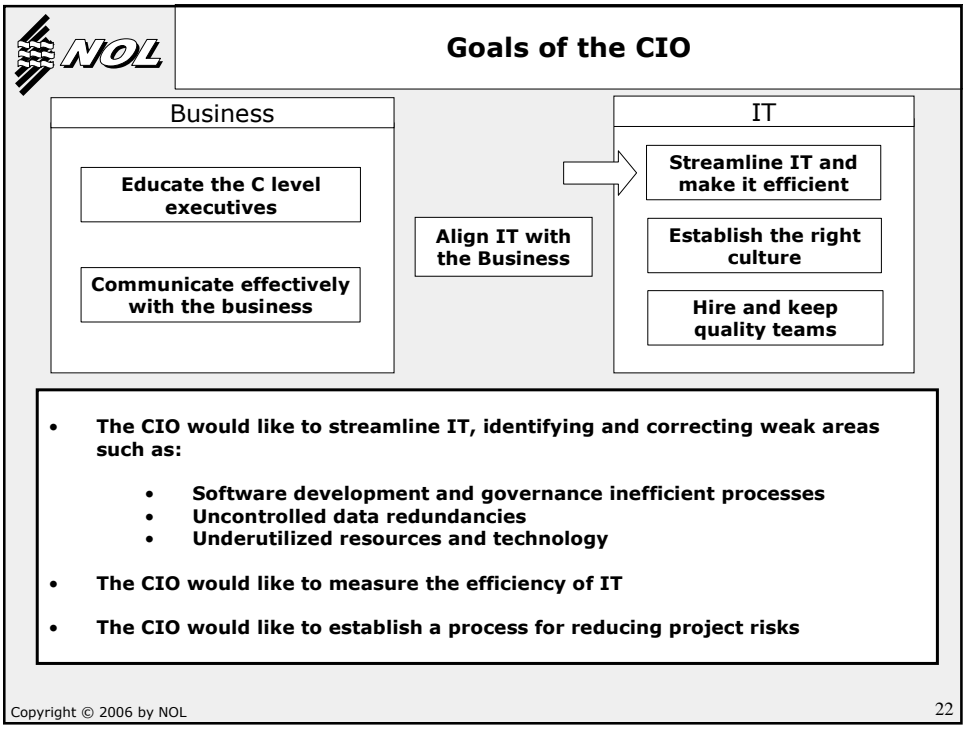
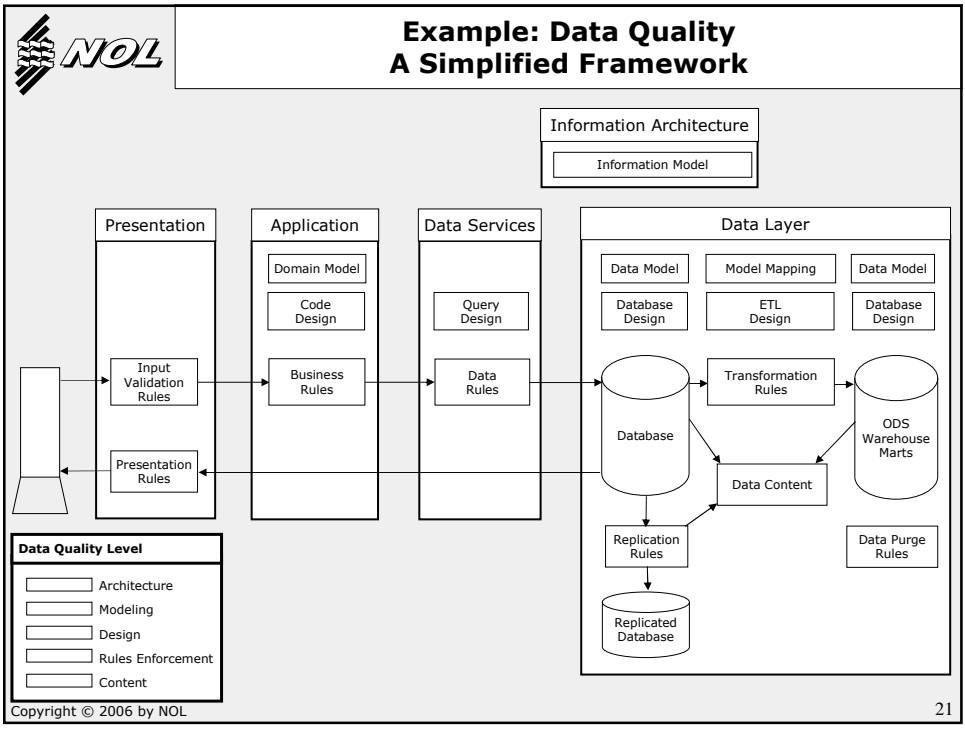
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**Business decisions based on incomplete, old or unreliable information**

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## Streamline IT and Make it Efficient The Data Management Perspective

**Actionable Program**

**Maintain an Integrated Conceptual Data Architecture, Implement Related Processes, and Enforce Data Principles and Policies**

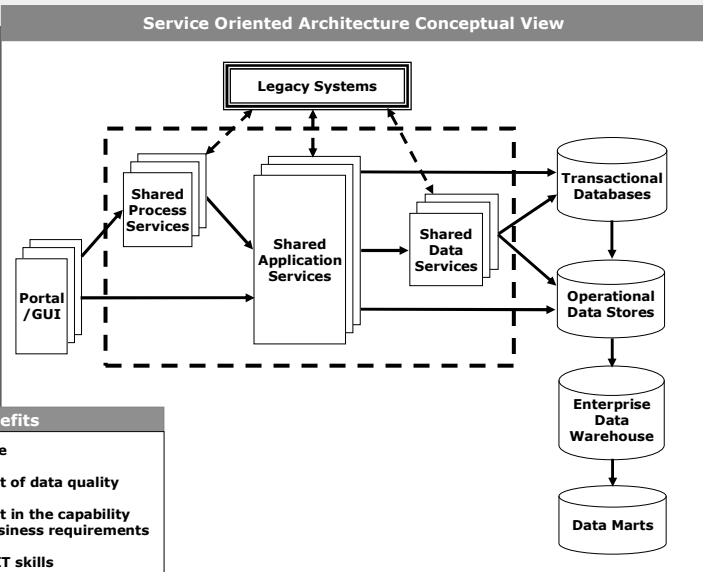
1. **Adopt the CIO vision for IT; e.g., service oriented architecture**
2. **Develop a conceptual data architecture around the CIO vision**
3. **Streamline processes within data management that support the architecture**
4. **Integrate data management into IT wide processes such as SDLC, IT governance and information quality**
5. **Develop and enforce data principles and policies related to areas such as data quality, availability, shareability, scalability, security, privacy, and stewardship**

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## Example: Shared Data Services

**Service Oriented Architecture Conceptual View**



The diagram illustrates a Service Oriented Architecture (SOA) conceptual view. It shows a central 'Shared Application Services' block connected to 'Shared Process Services' and 'Shared Data Services'. 'Legacy Systems' are shown at the top, interacting with the shared services. On the left, a 'Portal / GUI' provides access. On the right, a data stack is shown: 'Transactional Databases' feed into 'Operational Data Stores', which feed into an 'Enterprise Data Warehouse', which in turn feeds into 'Data Marts'.

**SOA Benefits**

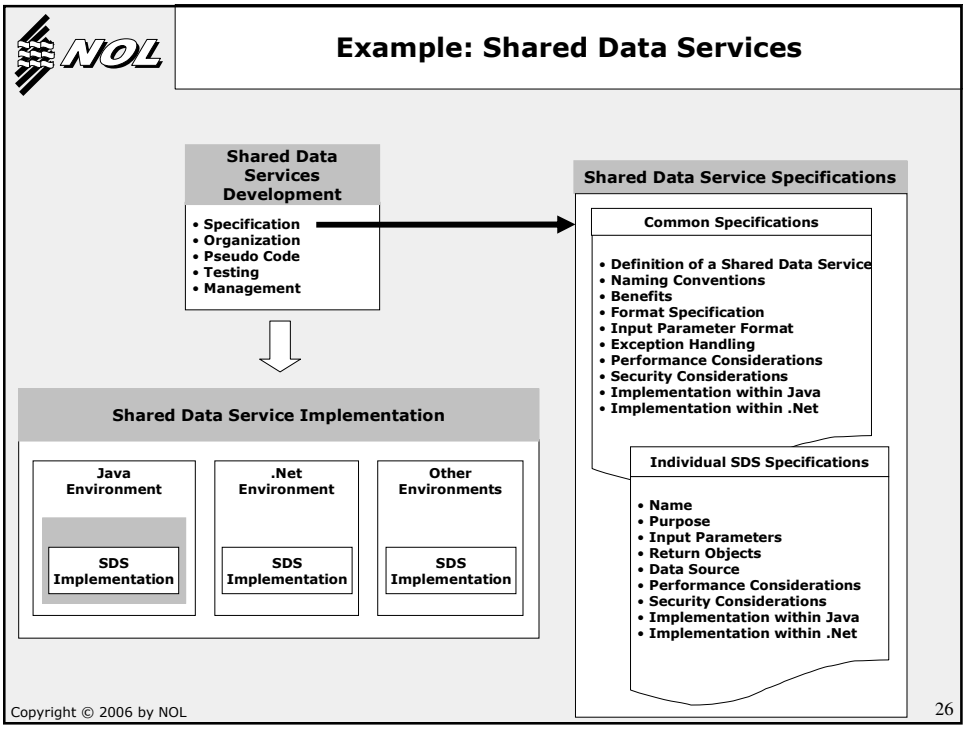
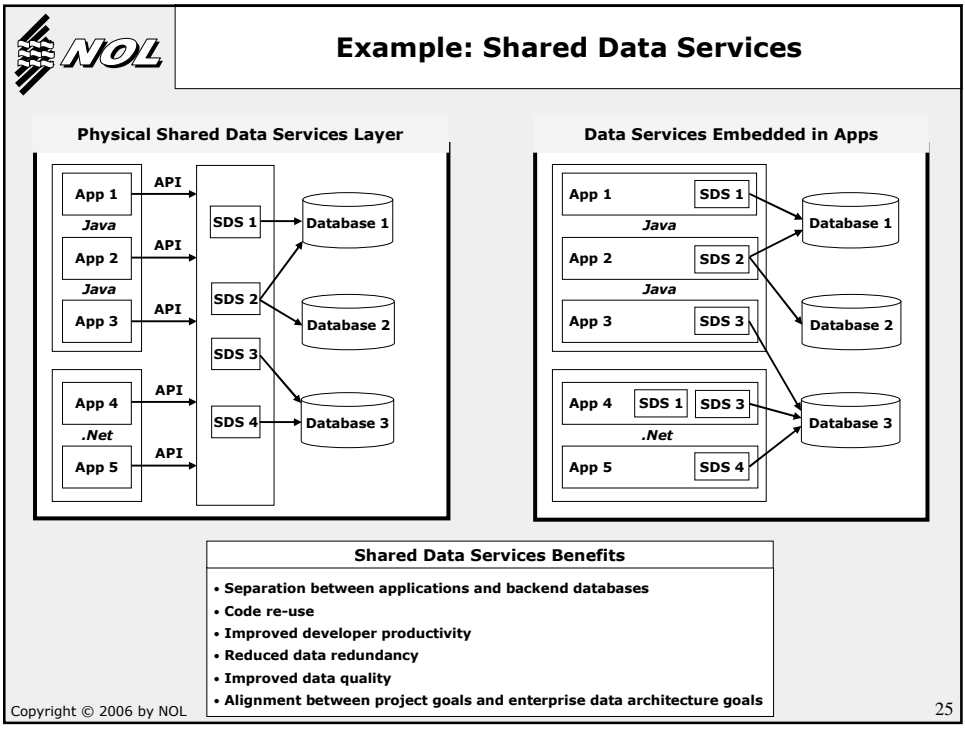
- High Level of code re-use
- Substantial improvement of data quality
- Substantial improvement in the capability to accommodate new business requirements
- Improved utilization of IT skills

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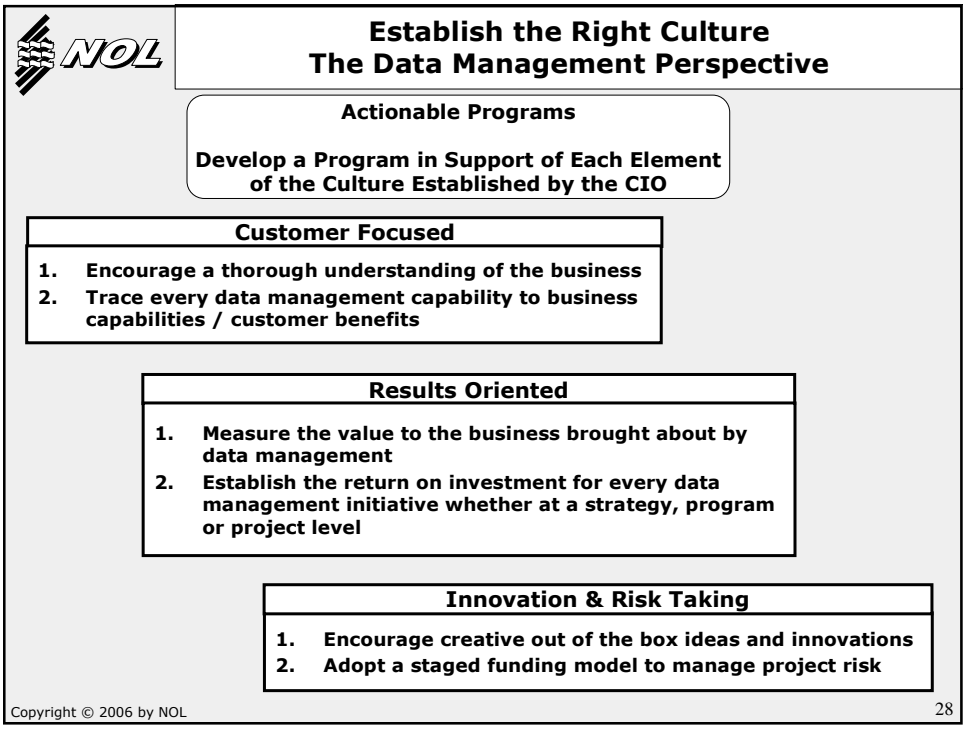
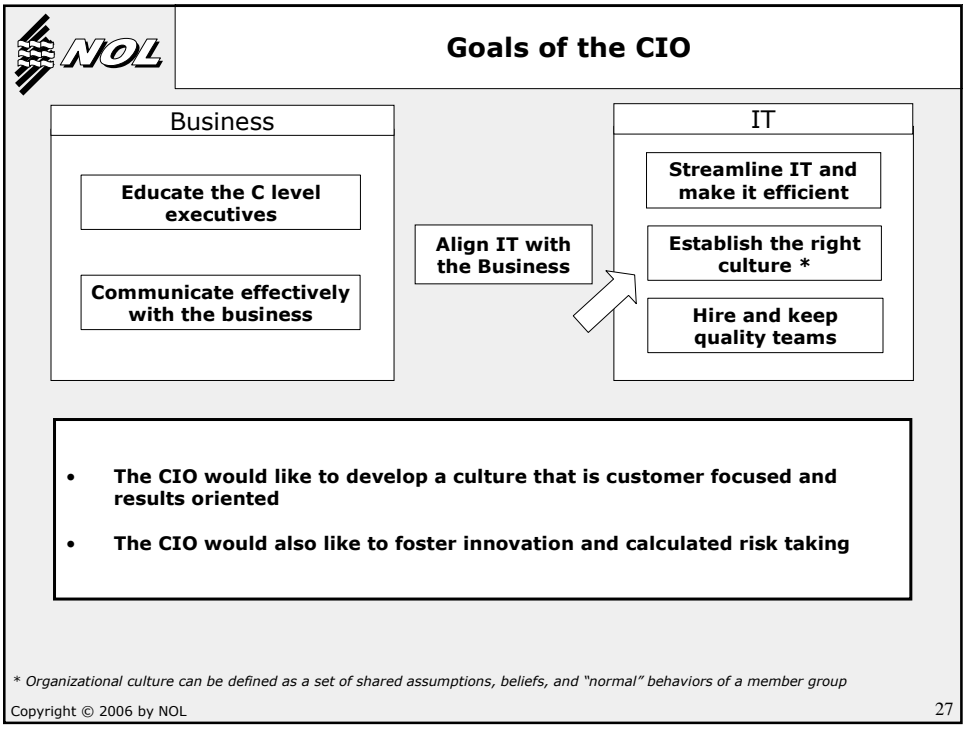
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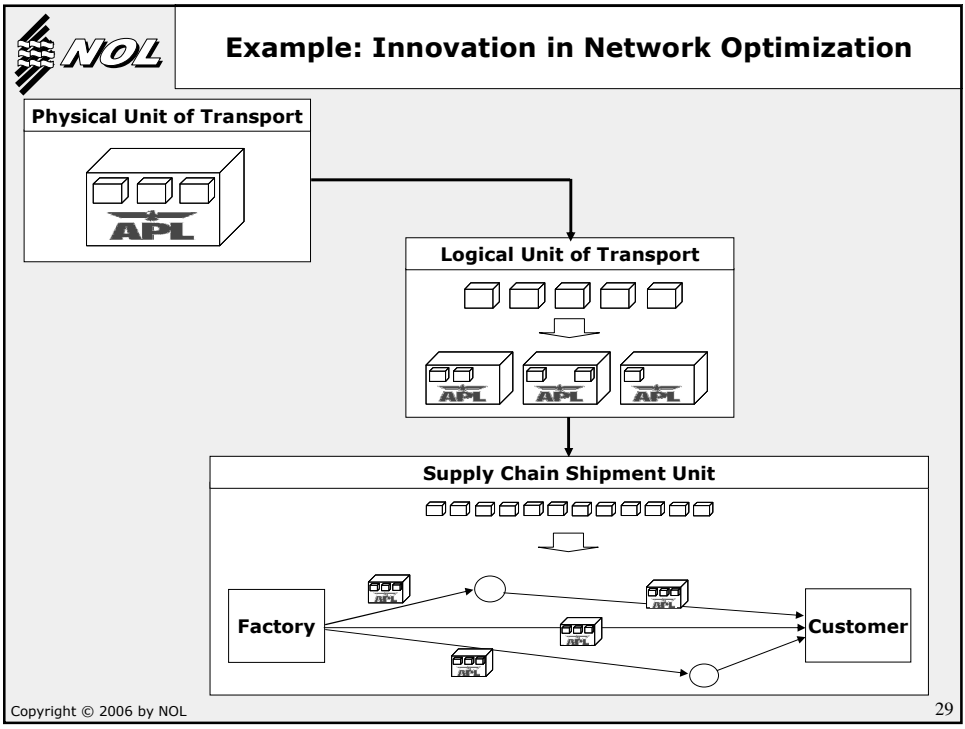
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**Benefits for NOL Customers**

- Increased operational efficiencies by streamlining and optimizing transport within the customers' supply chains
- Substantial flexibility in transport

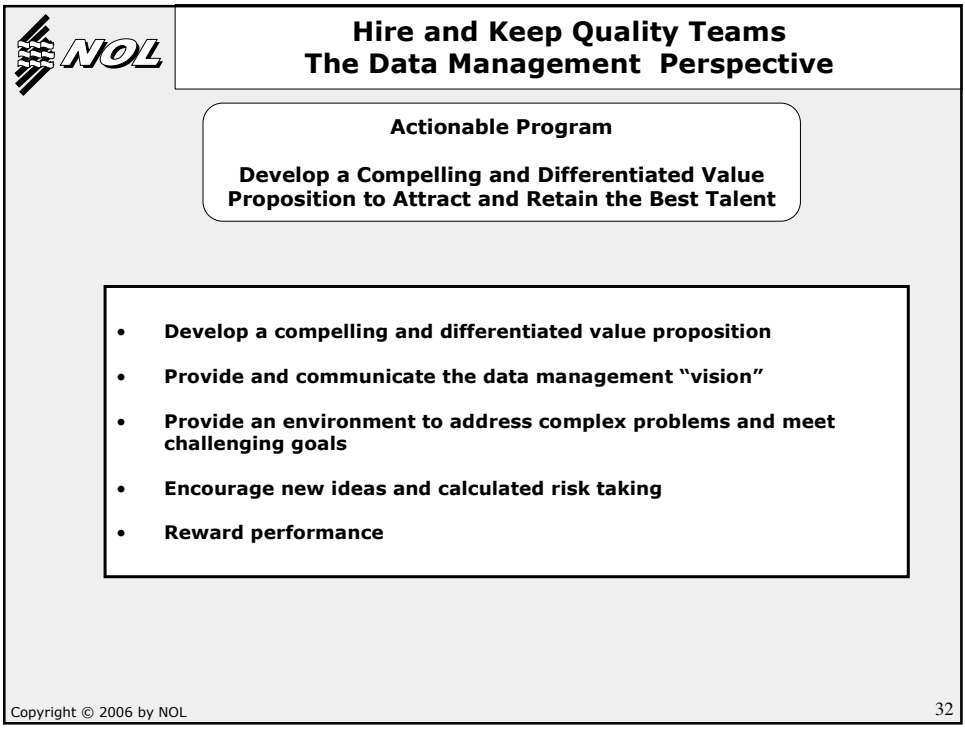
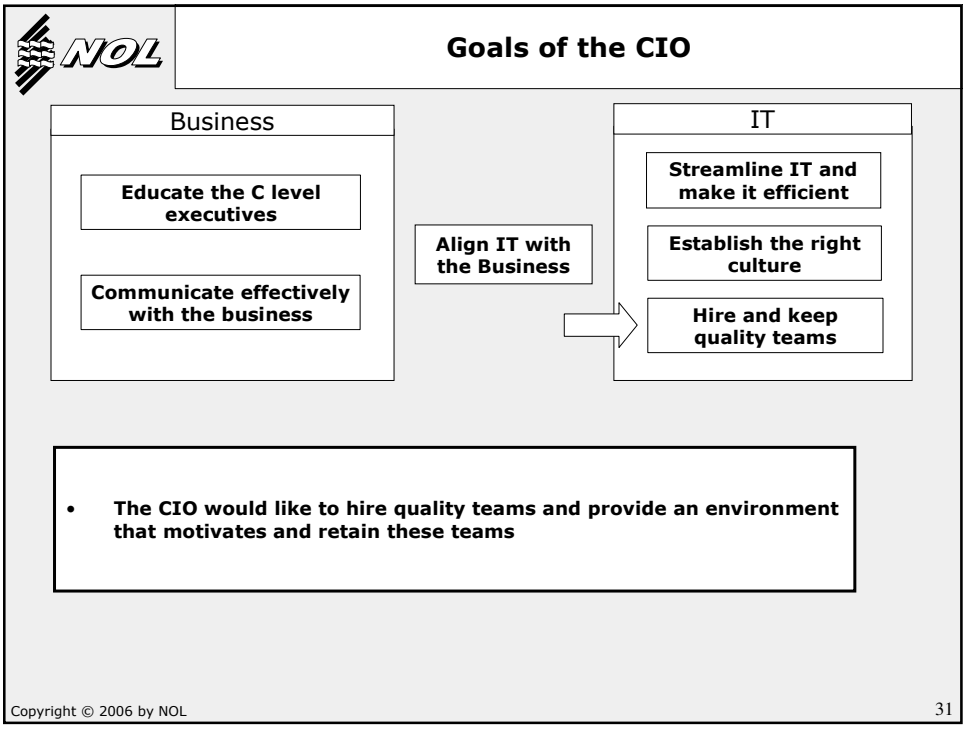
**Benefits for NOL**

- Improved NOL asset utilization
- Improved customer shipment delivery time
- Improved customer retention

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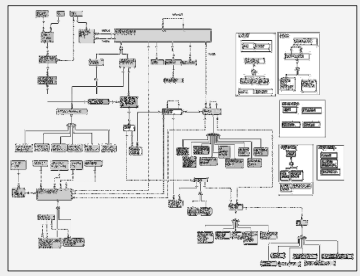


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## Example: Enterprise Information model




**Challenging Task: Build an enterprise information model**

**Requires...**

- Quick Understanding of the business
- Engaging the business
- Handling inherent complexities
- Ability to conceptualize
- "Selling" the model

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## Program Impact

**The programs taken together support quite effectively all the goals of the CIO**

	Goals of the CIO					
	Align IT with the Business	Streamline IT and Make it Efficient	Communicate Effectively with the Business	Educate the C Level Executives	Establish the Right Culture	Hire and Keep Quality Teams
Place Data Management in the Context of the Total Enterprise Architecture	✓	✓				
Maintain an Integrated Conceptual Data Architecture, Implement Related Processes, and Enforce Data Principles and Policies	✓	✓	✓	✓		✓
Trace Data Management Solutions from the Identification to the Fulfilment of Business Strategy and Requirements	✓	✓	✓		✓	
Identify Themes that are Most Important to the Business and Educate Executives on these Themes	✓		✓	✓	✓	
Develop a Program in Support of Each Element of the Culture Established by the CIO	✓	✓	✓		✓	✓
Develop a Compelling and Differentiated Value Proposition to Attract and Retain the Best Talent					✓	✓

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## Summary

**There is a compelling case for data management to put in place programs that align its function with the goals of the CIO, and therefore the goals of the organization. In particular, data management should:**

- **Be pro-active rather than reactive, continuously monitoring changes in the business strategy, high level requirements and business structure and anticipating the impact on data management**
- **Support the CIO for an effective communication with the business and with implementing the culture within IT**
- **Leverage the organization's enterprise architecture process in order to better align with the business and the rest of the organization**
- **Maintain an integrated conceptual view of the current and target data architecture and develop and enforce data principles and policies**
- **Streamline its internal processes and as much as possible align with IT-wide processes and governance**
- **Develop a compelling and differentiated value proposition to attract and retain the best talent**