



“Extreme Scoping”

An Agile Project Management Approach for Data Warehouse Projects

Larissa T. Moss

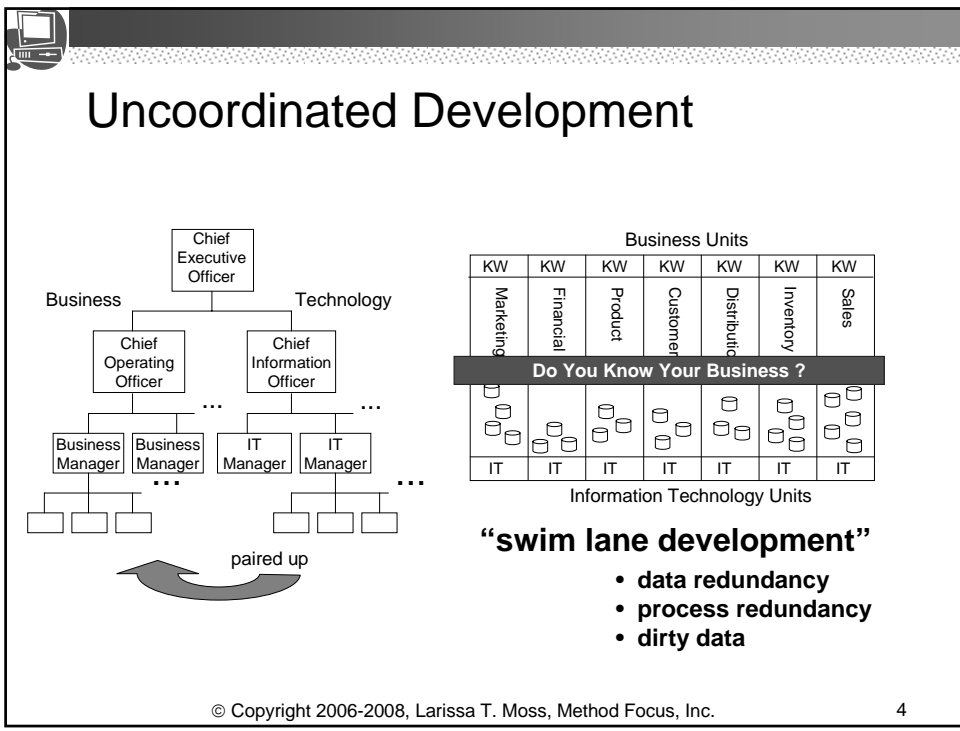
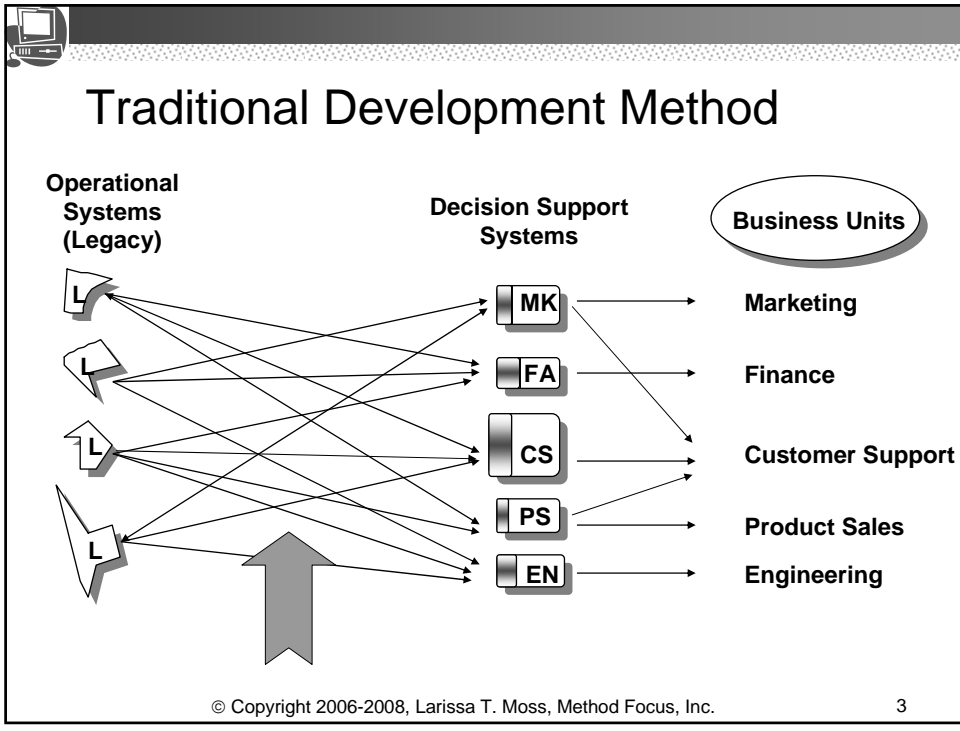
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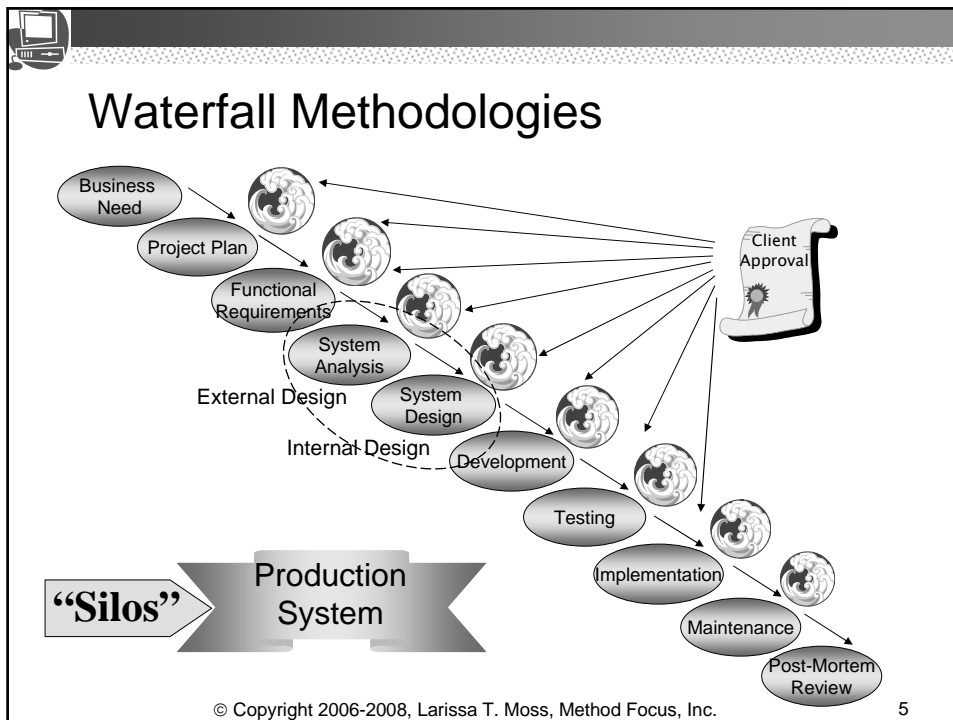
DAMA • Central Ohio Chapter • 2008



Outline

- ● Why traditional project management does not work on DW projects
- Software release concept with self-organizing project teams
- Different project planning process
- BI program management
- Organizational culture change





- ## Using the Waterfall Approach
- Requirements are well defined
 - Scope is manageable
 - Scope and users are confined to one business unit (department, business function)
 - Technology infrastructure is known and proven
 - Data volumes are relatively small
 - Development activities are the same on every project
 - Development activities are not cross-organizational
 - Project schedules are relatively easy to estimate
- Mistakes are less expensive to fix early in the development process!*
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Industrial-Age Mental Model

highest to lowest priority →

Priority	1	2	3	4	5
TIME	✓				
SCOPE		✓			
BUDGET			✓		
PEOPLE				✓	
QUALITY					✓

"Scrap and rework"
(Larry English)

- Cost-based value proposition →
- Cheaper, faster, better
 - Automate as quickly as possible

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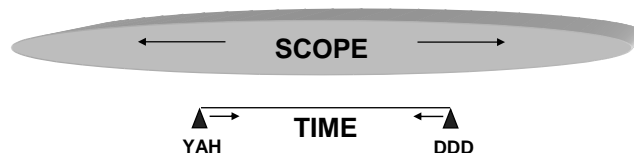


Time versus Quality

- Everyone wants quality, but rarely is the extra time given or taken to achieve it.

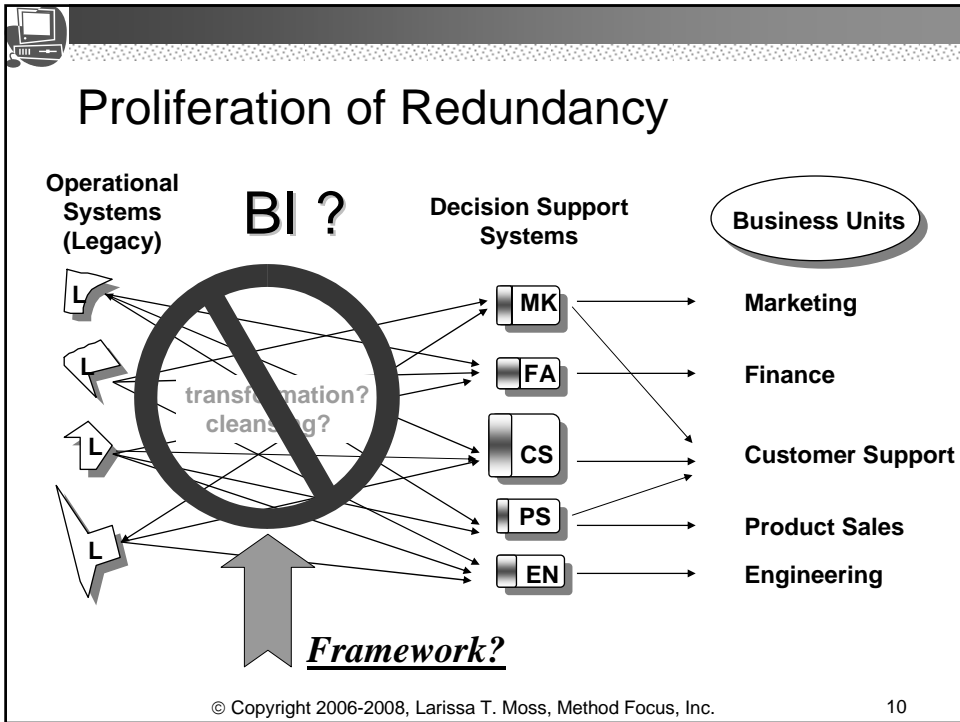
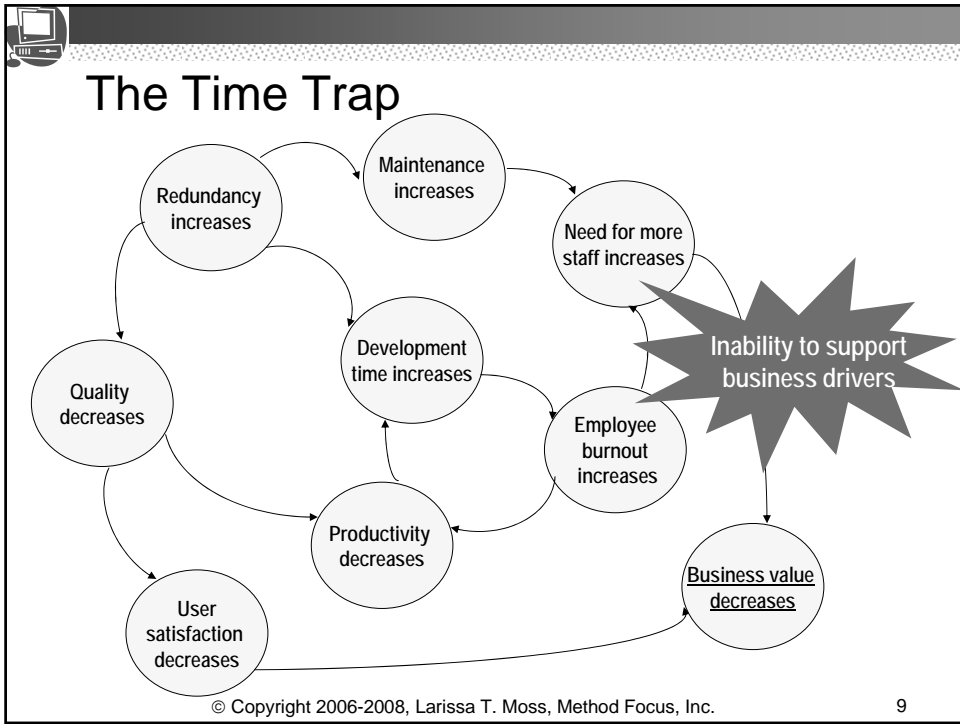
Quality and time are polarized constraints.

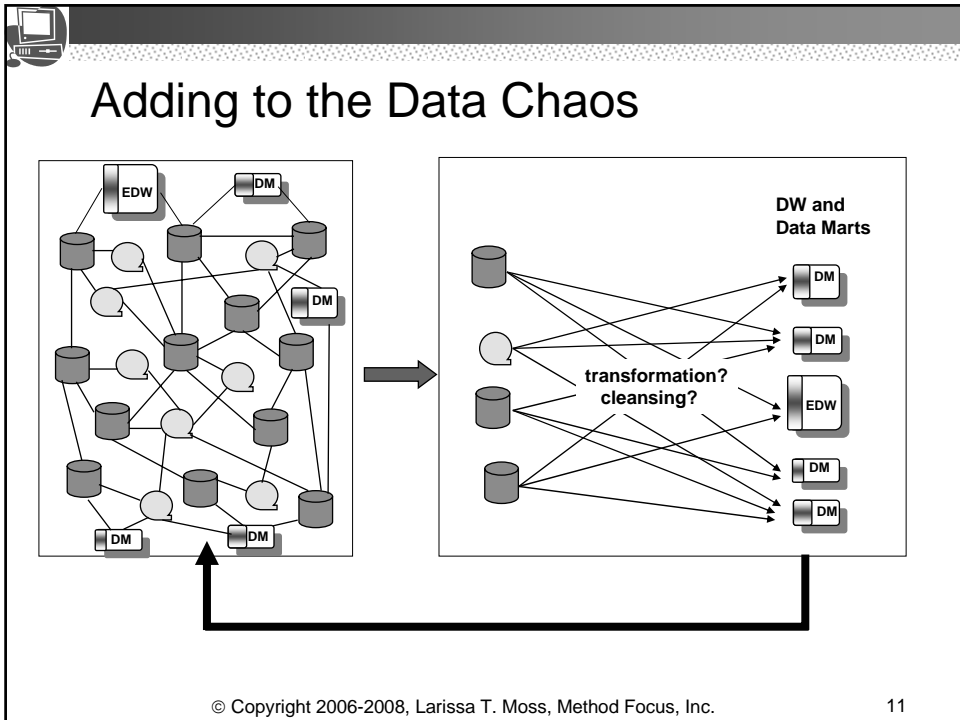
- The higher the quality the more time it takes to deliver.
- Companies are driven by shorter and shorter schedules.



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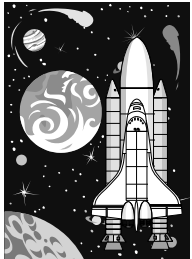
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The Lesson?

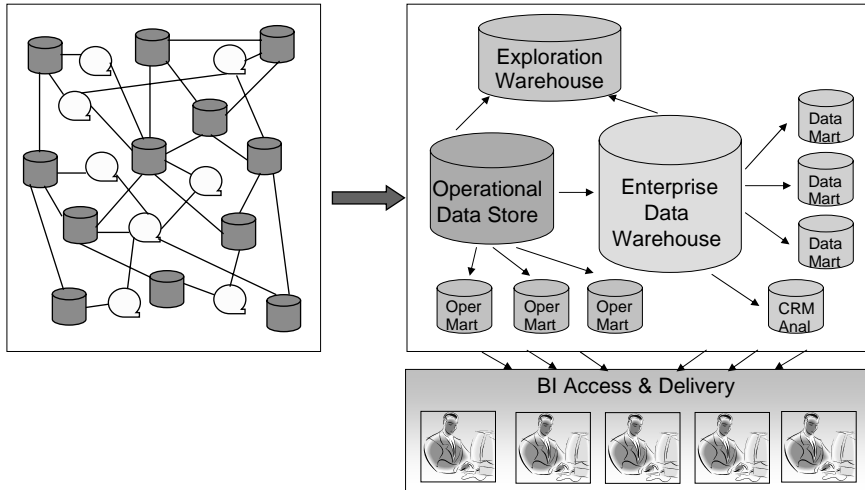
You cannot keep doing
what you have always done
and expect the results to be different.



“That wouldn’t be logical”
Spock, Star Trek

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From Chaos to Architecture



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Information-Age Mental Model

highest to lowest priority →

Priority	1	2	3	4	5
QUALITY	✓				
TIME		✓			
PEOPLE			✓		
BUDGET				✓	
SCOPE					✓

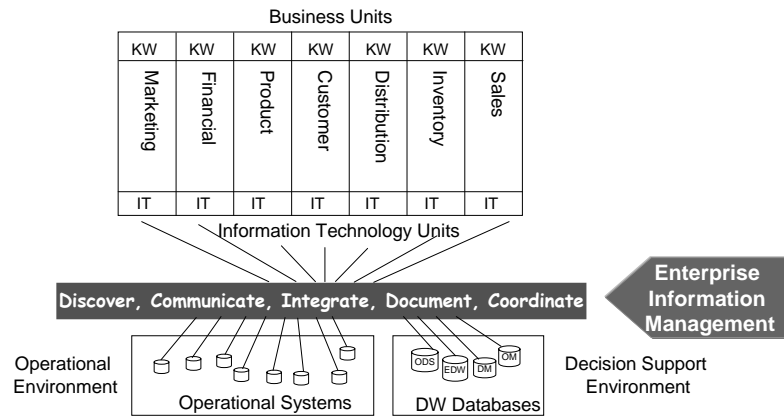
"Reassemble reusable components"
(John Zachman)

- Investment-based value proposition →
- Reassemble the entire enterprise value proposition
 - Reuse assets from inventory

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Coordinated Development



“cross-organizational development”

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Cross-Organizational Development

- Commitment to data integration embedded in the methodology < **principles**
- Cross-organizational program management < **governance**
- Enterprise information management group < **resources**
- Standards that include a common information architecture (enterprise data model) < **policies**
- Coordinating the development/ETL processes < **enforcement**
 - Disallowing stovepipe development
 - Extracting and cleansing source data only once
 - Reconciling data transformations and storing the reconciliation totals as meta data

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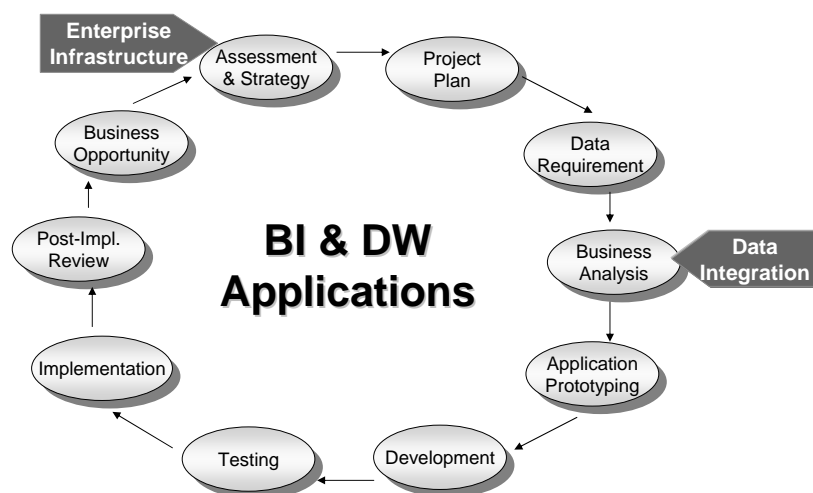


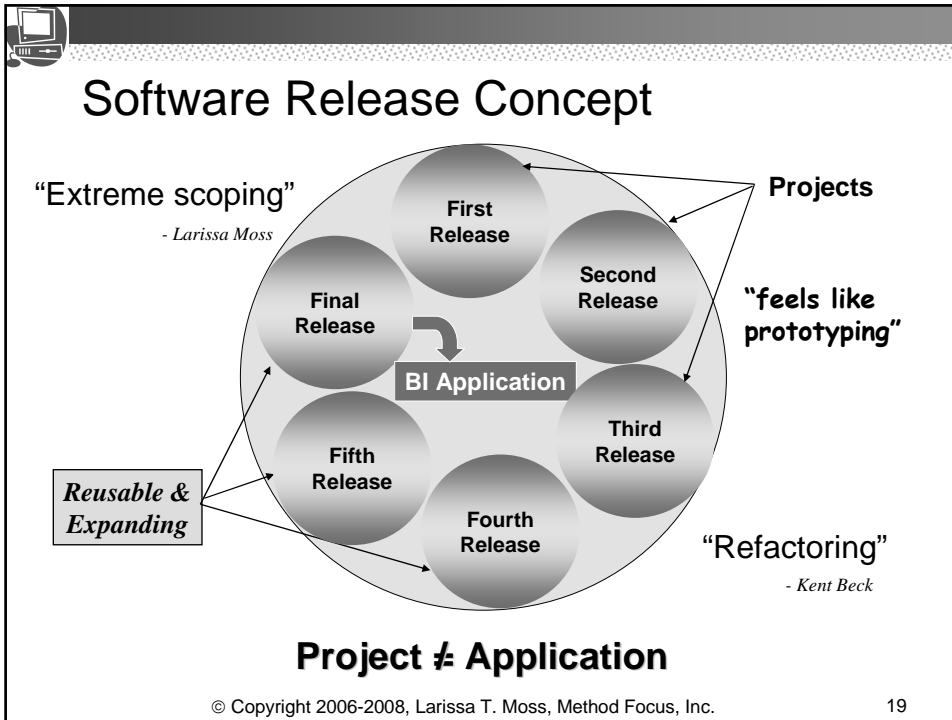
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- Why traditional project management does not work on DW projects
- ● Software release concept with self-organizing project teams
- Different project planning process
- BI program management
- Organizational culture change



Spiral BI/DW Methodologies





- ## Using the Software Release Approach
- Unstable requirements can be tested and enhanced in small increments
 - Scope is very small and manageable
 - Technology infrastructure can be tested and proven
 - Data volumes (per release) are relatively small
 - Project schedules are easier to estimate because the scope is very small
 - Development activities can be iteratively refined, honed, and adapted
- Mistakes are less expensive to fix early in the development process!*
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Using the Software Release Approach

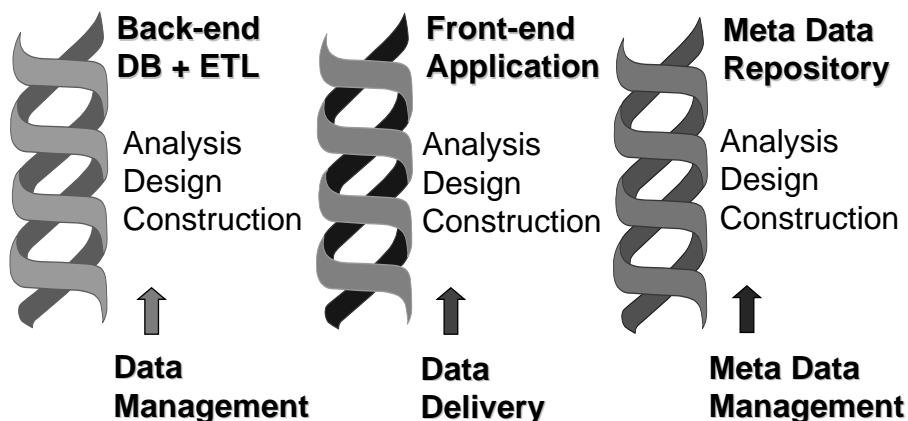
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- Data volumes (per release) are relatively small
- Project schedules are easier to estimate because the scope is very small
- Development activities can be iteratively refined, honed, and adapted

And the quality of the release deliverables (and ultimately the quality of the BI applications) will be higher!

And the development process will get faster and faster!

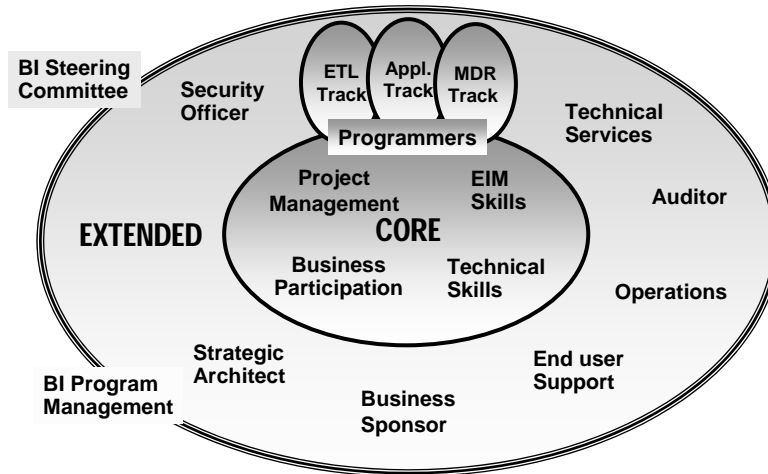


Parallel Development Tracks





Team Organization



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Project Team Structure

- **Project core team**
 - Self-organizing SWAT team
 - Optimum team size: 3 – 5 people; never more than 7
 - Full-time involvement on the project from beginning to end
 - Meet daily to control project activities
- **Development track team**
 - Self-organizing XP (extreme programming) team
 - Optimum team size: 2-3 people; never more than 5
 - Full-time involvement on their development track
 - Meet daily to control development activities
- **Extended team**
 - Involvement on an as-needed basis
 - Support roles

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Project Team Staffing

- Project core team
 - One hands-on project manager
 - One business representative with some decision-making authority
 - One EIM person from IT (data administrator or enterprise information architect)
 - One technical lead person from IT (senior developer or architect)
- Development track team
 - One senior developer
 - One developer or systems analyst
- Extended team
 - Business sponsor
 - Technical support team
 - Operations
 - Etc.



Core Team Roles

- Application lead developer
- BI infrastructure architect
- Business representative
- Data administrator (EIM)
- Data quality analyst
- Database administrator/designer
- ETL lead developer
- Meta data administrator (EIM)
- Project manager
- Subject matter expert





Extended Team Roles

- Application developers
- BI support staff (helpdesk)
- Business sponsor
- Data Miner
- ETL developers
- IT auditor or QA analyst
- Meta data repository developer
- Network services
- Operations
- Security officer
- Stakeholders
- Technical services
- Testers
- Tool administrator
- Web developers
- Webmaster



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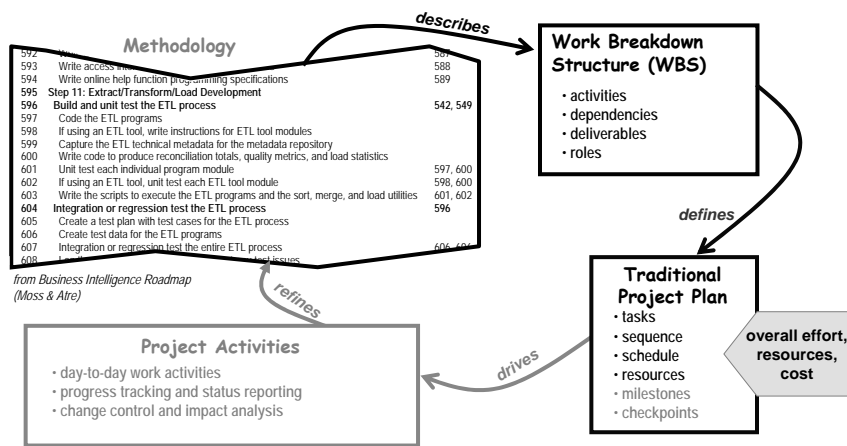
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Software Release Planning Process

1. Estimate development effort for entire BI application



Based on source: TDWI

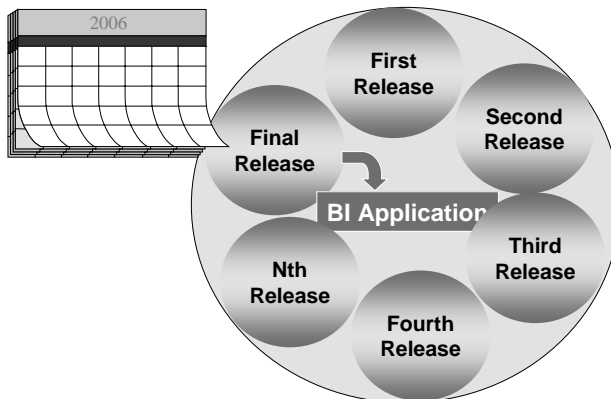
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Software Release Planning Process

1. Estimate development effort for entire BI application

2. Break BI application into software releases



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Software Release Planning Process

1. Estimate development effort for entire BI application
2. Break BI application into software releases
3. Create milestones from DDD to YAH for first release

First Release

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Software Release Planning Process

1. Estimate development effort for entire BI application
2. Break BI application into software releases
3. Create milestones from DDD to YAH for first release
4. Organize and assign parallel development tracks

**Back-end
DB + ETL**

Analysis
Design
Construction

↑

**Data
Management**

**Front-end
Application**

Analysis
Design
Construction

↑

**Data
Delivery**

**Meta Data
Repository**

Analysis
Design
Construction

↑

**Meta Data
Management**

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Software Release Planning Process

1. Estimate development effort for entire BI application
2. Break BI application into software releases
3. Create milestones from DDD to YAH for first release
4. Organize and assign parallel development tracks
5. Create detailed work assignments for all milestones



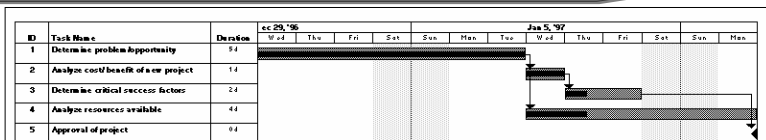
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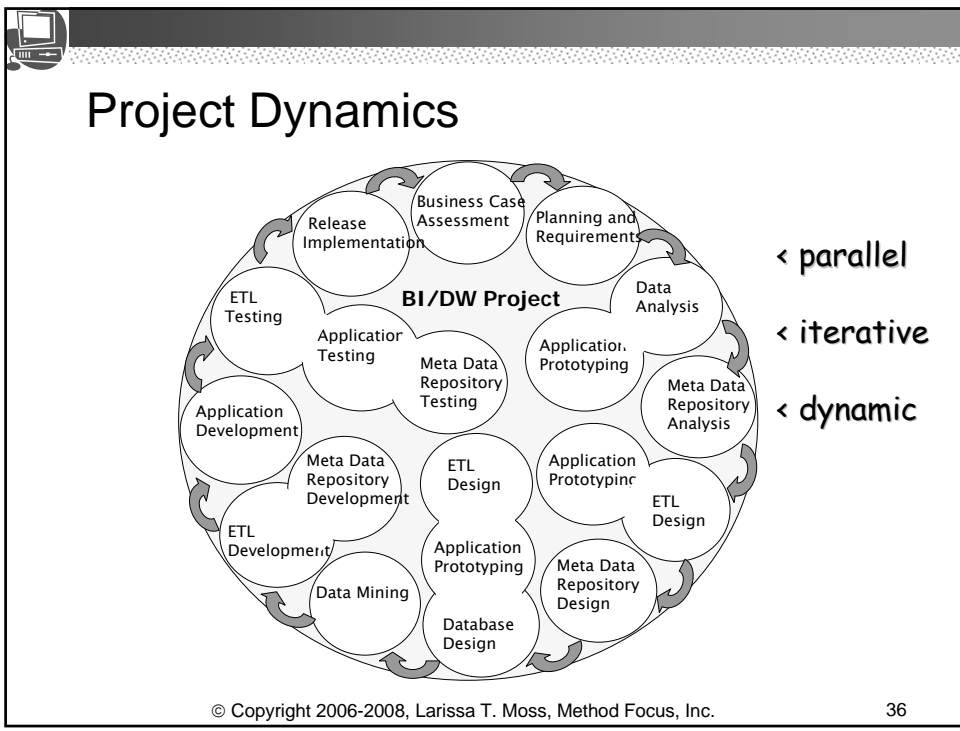
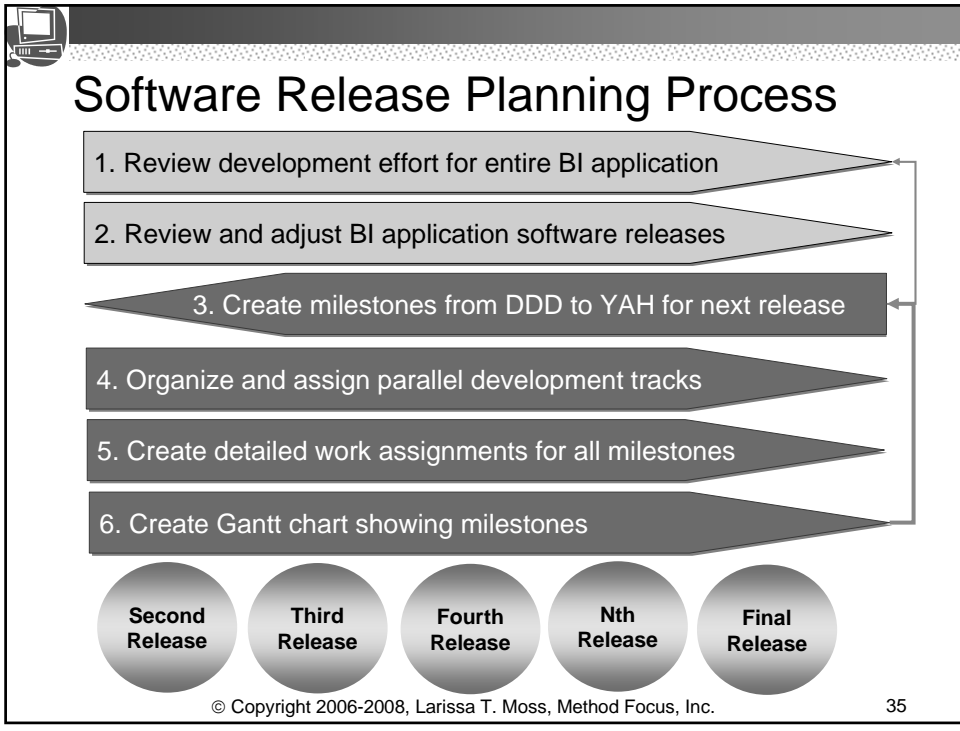
Software Release Planning Process

1. Estimate development effort for entire BI application
2. Break BI application into software releases
3. Create milestones from DDD to YAH for first release
4. Organize and assign parallel development tracks
5. Create detailed work assignments for all milestones
6. Create Gantt chart showing milestones



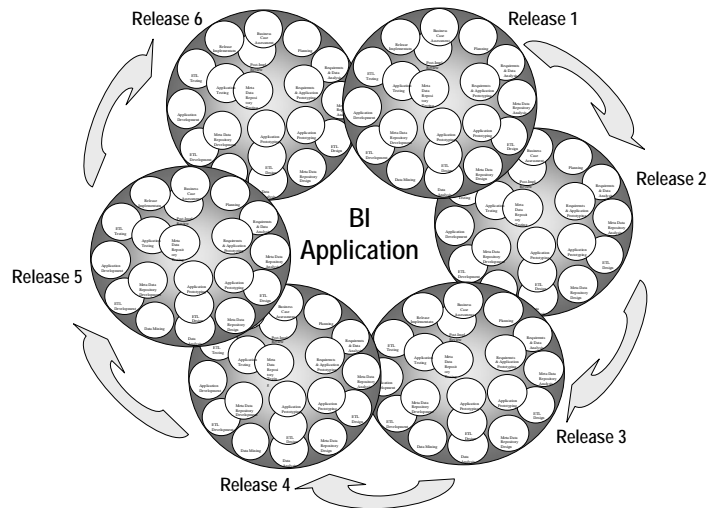
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Iterative BI Application Development



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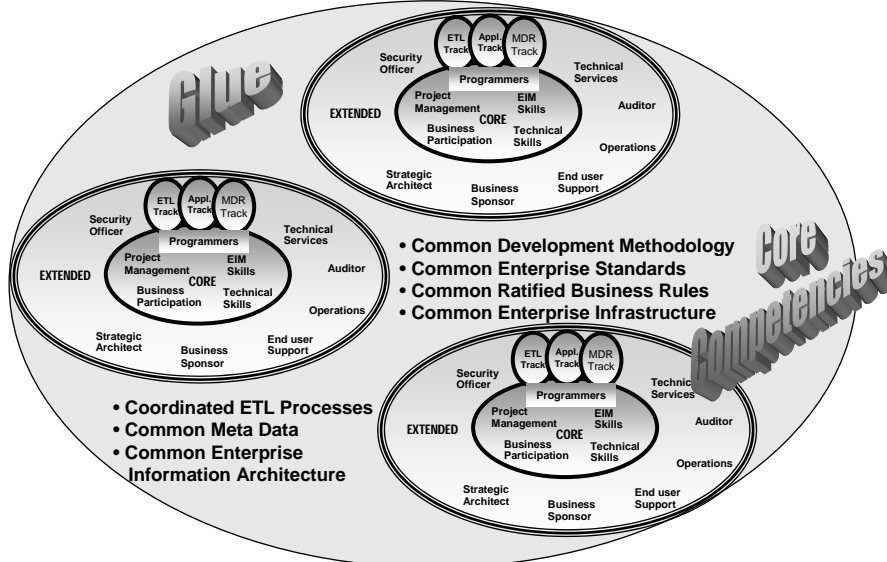
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BI Program Management



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Enterprise Infrastructure Management

- Technical infrastructure (configuration management)
 - Hardware
 - Network
 - RDBMS
 - Tools
- Non-technical infrastructure
 - Development methodology
 - Data strategy with enterprise standards
 - Data (modeling, naming, defining)
 - Meta data (capture, maintenance, usage)
 - Testing and reconciliation
 - Security
 - Ratified business rules
 - Roles and responsibilities

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Enterprise Information Management

- Data governance program
 - Data administration principles (data standardization)
 - Data ownership
 - Data stewardship
 - Data profiling and data audits
 - Data quality improvement processes
 - Data certification
- Enterprise data models
 - Business schemas (unnormalized transactions)
 - Conceptual schemas (normalized business views)
 - Logical schemas (refined and fully attributed views)
 - Physical schemas (denormalized database views)
 - Enterprise schema (integrated business views)



Enterprise Meta Data Management

- Meta data strategy
 - Buy or build
 - Centralized or decentralized
- Meta data infrastructure
 - Meta data sourcing
 - Business meta data
 - Technical meta data
 - Meta data content management
 - Meta data usage
 - Impact analysis
 - Data lineage
 - Trend analysis of data statistics
 - Query extensions

Monthly Sales Report				
Month	Produce	US Sales \$	Canada Sales \$	Total Sales \$
January	Apples	22,000	8,000	30,000
	Bananas	11,900	6,000	17,900
	Cocoanuts	2,000	800	2,800
February	Apples	22,500	8,500	31,000
	Bananas	10,000	5,800	15,800
	Cocoanuts	2,200	350	2,550
March	Apples	23,700	9,300	33,000
	Bananas	9,900	7,000	16,900
	Cocoanuts	2,400	750	3,150

Meta Data as a query extension

Data Quality & Load Statistics
51 % of \$ values not loaded
10 % of source records not loaded



BI Application Portfolio Management

- Project prioritization based on BI application business values
- Project scheduling based on project and resource interdependencies
- Project funding and staffing
- Resolution of issues among interdependent projects

Beyond traditional PMO



BI Steering Committee

- Composed of business executives and senior business managers
- Collective sponsorship from business executives
- Communicate enterprise-wide data integration principles to all lines of business [ongoing championship]
- Stand behind a BI strategy appropriate for the organization
- Fund an enterprise information management group
- Identify data owners and data stewards in all LOB
- Assign business representatives to project core teams





BI Program Manager

- Led by a BI program manager or BI director
- Perform periodic readiness assessments
 - Identify new information needs
 - Ascertain user satisfaction
- Create and enforce a common technical and non-technical infrastructure (“Core Competencies”)
- Work with BI steering committee to prioritize BI and DW projects (BI portfolio management)
- Determine BI and DW project interdependencies
- Coordinate project resources and activities (Software release management)

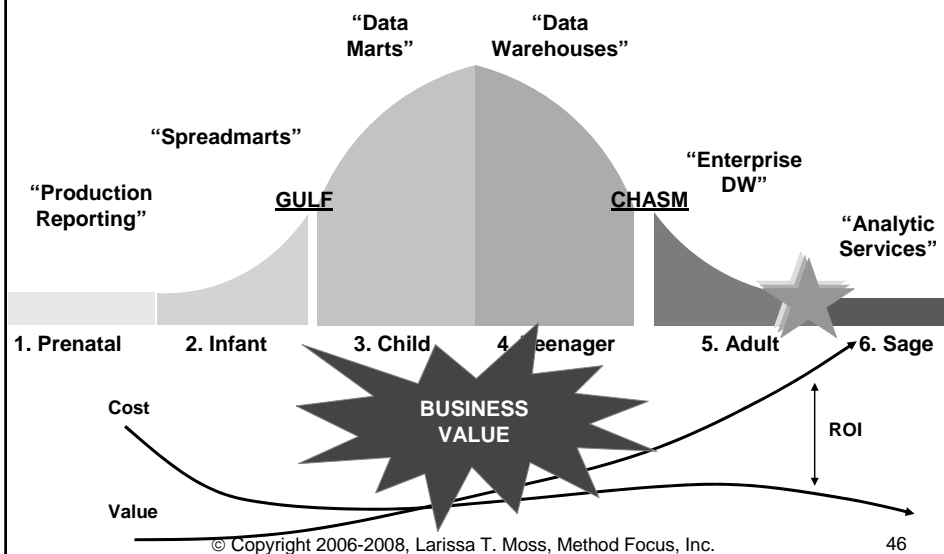
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BI Maturity Model

Source: Wayne Eckerson, TDWI



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Organizational Impact

- No BI program management in place
- Cross-organizational tasks and responsibilities are not well defined
- New project dynamics are not understood
- Teams are still organized the traditional way
- Business people still don't participate on project activities
- Project scopes are still too big
- Data quality responsibility is not clear or ignored
- BI/DW projects are usually cost justified using the industrial-age mental model (no ROA)
- No reward for data sharing
- Resistance to change



Inevitable Culture Shift

- Business and IT collaboration (“partnership”)
- Business and business collaboration (“partnership”)
- IT and IT collaboration (“partnership”)
- Shifted roles and responsibilities
- Common architecture
- Enterprise standards
- Cross-organizational activities
- Software release concept



Power Shift

- Business people must play an increased role and assume responsibilities for:
 - Data ownership – **Information Architecture**
 - Enforcement of standardization – **Incentives**
 - Integration and standardization across all business units – **Cross-Organizational Disciplines**
 - Dispute resolution across all BI projects – **Leadership**
 - Governance – **BI Program Management**



Charge-Back Policy

System ownership – by business unit



- Automate a business process from scratch
- Cost-based value proposition
- Business units pay for their own systems
- System = programs *coupled* with data

Information ownership – by the enterprise



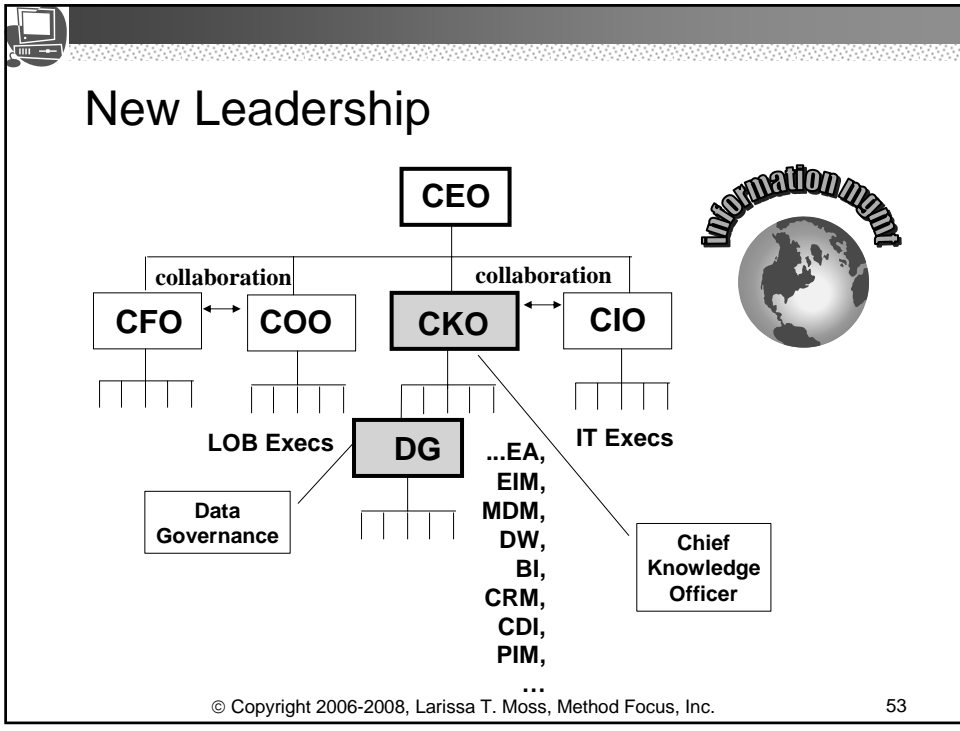
- Reassemble the entire enterprise quickly
- Investment-based value proposition
- Organization pays for enterprise data
- Business units pool to pay for shared BI applications
- BI application = BI tools and programs *decoupled* from data



New Incentive Policy

- Management and staff should be evaluated on:
 - Team work and collaboration (IT and business)
 - Data sharing (business)
 - Data quality (business)
 - Adherence to standards (IT and business)
 - Adherence to cross-organizational development approach (IT and business)
- Rewards (salary increases and bonuses) should be tied to above performance measures

Applicable to the business side as well as IT.



Thank You

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Larissa T. Moss
Method Focus, Inc.
 methodfocus@earthlink.net

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