Success Stories in Building a Global Data Strategy

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Enterprise DATAVERSITY, November 4th, 2015
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Donna is a recognized industry expert in information management with over 20 years of experience in data management, metadata management, and enterprise architecture. Her background is multi-faceted across consulting, product development, product management, brand strategy, marketing, and business leadership.

She is currently the Managing Director at Global Data Strategy, Ltd., an international information management consulting company that specializes in the alignment of business drivers with data-centric technology. In past roles, she has served in key brand strategy and product management roles at CA Technologies and Embarcadero Technologies for several of the leading data management products in the market.

As an active contributor to the data management community, she is a long time DAMA International member and is the President of the DAMA Rocky Mountain chapter. She was also on the review committee for the Object Management Group’s Information Management Metamodel (IMM) and a member of the OMG’s Finalization Taskforce for the Business Process Modeling Notation (BPMN).

She has worked with dozens of Fortune 500 companies worldwide in the Americas, Europe, Asia, and Africa and speaks regularly at industry conferences. She has co-authored two books: *Data Modeling for the Business* and *Data Modeling Made Simple with CA ERwin Data Modeler r8*. She can be reached at donna.burbank@globaldatastrategy.com

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Agenda
What we’ll cover today

• Aligning with Business Motivations & Drivers
• Components of a Global Data Strategy
• Case Studies
  • International Telcom company
  • International Pharmaceutical company
  • Consumer Energy company
  • Professional Development & Certification organization
Aligning with Business Motivation & Drivers

Why are we doing this, anyway?
How can we Transform the Business through Data?

• **Optimization: Becoming a *Data-Driven Company***
  • Making the Business More Efficient
    • Better Marketing Campaigns
      • Higher quality customer data, 360 view of customer, competitive info, etc.
    • Better Products
      • Data-Driven product development, Customer usage monitoring, etc.
    • Better Customer Support
      • Linking customer data with support logs, network outages, etc.

• **Transformative: Becoming a *Data Company***
  • Changing the Business Model via Data – data becomes the product
    • Monetization of Information: examples across multiple industries including:
      • *Telcom*: location information, usage & search data, etc.
      • *Retail*: Click-stream data, purchasing patterns
      • *Social Media*: social & family connections, purchasing trends & recommendations, etc.
      • *Energy*: Sensor data, consumer usage patterns, smart metering, etc.
The Motivation Model

Common Set of Goals & Guidelines

• There is benefit in formally documenting the motivations for the project.
  • Commonly-agreed upon guidelines for project tasks & deliverables
  • Reminder of “why we’re doing this” - Neutral arbitrator for disagreements

• Components of the Motivation Model include:
  • Corporate Mission: describes the aims, values and overall plan of an organization.
    • e.g. To be provide the most comprehensive, customer-driven online shopping experience in the market
  • Corporate Vision: describes the desired future state
    • e.g. To transform the way consumers purchase goods through social-media-driven connections.
  • External Drivers: What market forces are driving this initiative?
    • e.g. Cultural shift to online retail
  • Internal Drivers: What internal pressures or initiatives are key for this project?
    • e.g. Disparate systems require need for an integrated view of customer
  • Project Goals: high level statement of what the plan will achieve.
    • e.g. To improve customer satisfaction with over 90% satisfaction rating in 2 years.
  • Project Objectives: outcome of projects improving capabilities, process, assets, etc.
    • e.g. To link consumer purchase history with social media activity.
Sample Business Motivation Model

Artful Art Supplies

Corporate Mission
To provide a full service online retail experience for art supplies and craft products.

Corporate Vision
To be the respected source of art products worldwide, creating an online community of art enthusiasts.

External Drivers
- Digital Self-Service
- Increasing Regulation Pressures
- Online Community & Social Media
- Customer Demand for Instant Provision

Internal Drivers
- Targeted Marketing
- 360 View of Customer
- Revenue Growth
- Brand Reputation
- Community Building
- Cost Reduction

Goals & Objectives

Accountability
- Create a Data Governance Framework
- Define clear roles & responsibilities for both business & IT staff
- Publish a corporate information policy
- Document data standards
- Train all staff in data accountability

Quality
- Define measures & KPIs for key data items
- Report & monitor on data quality improvements
- Develop repeatable processes for data quality improvement
- Implement data quality checks as BAU business activities

Culture
- Ensure that all roles understand their contribution to data quality
- Promote business benefits of better data quality
- Engage in innovative ways to leverage data for strategic advantage
- Create data-centric communities of interest

• Corporate-level Mission & Vision
  - May already be created or may need to create as part of project.

• Project-level, Data-Centric Drivers
  - External Drivers are what you’re facing in the industry
  - Internal Drivers reflect internal corporate initiatives.

• Project-level, Data-Centric Goals & Objectives
  - Clear direction for the project
  - Use marketing-style headings where possible
From Cruise Ship to Life Raft

With a common motivation, disparate skills, personalities and roles become an asset, not an annoyance
Roles & Culture

• DBAs, Data Managers and Executives are different creatures

DBAs
• Analytical
• Structured
• Cautious
• Doesn’t like to talk
• Project & Task focused
• “Just let me code!”

Data Managers
• Analytical
• Structured
• Passionate
• Likes to Talk
• “Big Picture” focused
• “Let me tell you about my data model!”

Business Executive
• Results-Oriented
• “Big Picture” focused
• Little Time
• “How is this going to help me?”
• “I don’t care about your data.”
• “I don’t have time.”
Components of a Global Data Strategy

Where do we start?
DAMA DMBOK Framework

Industry Best-Practices & Guidelines

• The DAMA Data Management Body of Knowledge (DMBOK) is a helpful guideline to follow for industry best practices

• Modeled after other BOK documents:
  • PMBOK (Project Management Body of Knowledge)
  • SWEBOK (Software Engineering Body of Knowledge)
  • BABOK (Business Analysis Body of Knowledge)

• Outlines core data management functions:
  • Data Architecture Management
  • Data Development
  • Database Operations Management
  • Data Security Management
  • Reference & Master Data Management
  • Data Warehouse & Business Intelligence Management
  • Document & Content Management
  • Meta data Management
  • Data Quality Management

• Data Governance is the central “hub” which controls the various functions
Building an Enterprise Data Strategy

A Successful Data Strategy links Business Goals with Technology Solutions

- "Top-Down" alignment with business priorities
- Managing the people, process, policies & culture around data
- Leveraging & managing data for strategic advantage
- Coordinating & integrating disparate data sources
- "Bottom-Up" management & inventory of data sources

Business Strategy | Data Strategy
---|---

Data Governance

- People
- Process
- Policy
- Culture

Master Data Management | Data Warehousing | Business Intelligence | Big Data Analytics | Data Quality | Data Architecture & Modeling
---|---|---|---|---|---

Data Asset Planning & Inventory | Data Integration | Metadata Management

- Databases
- Big Data
- Unstructured Data
- Semi-Structured Data
- Document & Content Mgt.
Case Studies

What’s worked in the real world?
The Importance of “Right-Sizing” your Data Strategy

The Right Data Strategy Depends on a Number of Factors

• The following case studies illustrate examples from a variety of organizations
  • From a large international telcom
  • To a small professional development organization

• There are many common elements required by any organization
  • Alignment with business motivation & drivers
  • Core data management fundamentals (data quality, metadata, etc.)

• While some elements are unique based on size & scale of organization
  • Global inventory needed for large international firm
  • Geographic considerations: legal, cultural, technological, etc.
  • Smaller organizations often need to be more tactical in their approach
International Telcom Company

Business Transformation to “Becoming a Data Company”

• An international telcom company was looking to leverage data as a corporate asset.
  • Data is seen as their most strategic asset and corporate focus
  • Telecommunications is a secondary goal – becoming a commodity

• Opportunities in Leveraging Big Data
  • New Product & Service Development
    • Data is Anonymized & sent to digital arm for new product and development
    • Data-driven prototyping – using analytics to see what products are working best and used most
  • Customer Value Management
    • Marketing with Opt-in, e.g. ads for bolt-on roaming when enter a new country—before they use a competitor platform
    • Sentiment Analysis (via call logs & social media)
  • Operational Performance & Maintenance
    • Network Optimization
    • Integrating call failure information and location information with survey data
  • Monetization
    • Resell anonymized data to Retail, City Planners, etc.
    • Footfall with integrated geospatial location data
**The Motivation Model**

- **Motivations from both Business & IT**
  - Business focused on gaining value from data
  - IT focused on cost-savings & reuse

- **Common Goals & Objectives**
  - Use Case Patterns
  - Clear definition of Big Data (& what it’s not)
  - Common Service Catalog
  - Reusable Technology & Architecture
Categorization of Big Data Use Cases

- Extended interviews were conducted with stakeholders worldwide
- Demand patterns were categorized into the following groups:
Use Case Model

• The Use Case Model
  • Categorizes existing demand worldwide
  • Provides a “heat map” of usage patterns

• Particularly important for large, geographically distributed teams & departments.

• Privacy & Legal issues also differed by country.
Establishing Project Governance: Big Data Usage “Checklist”

- A questionnaire was provided to:
  - Provide education & guidance on proper use cases for Big Data (in this case Hadoop)
  - Establish governance criteria for approving use cases for the platform
- A subset of this questionnaire is shown here.

The table below provides some general guidelines for you to use to determine whether Hadoop is a good choice for your usage needs. Note that a check in a given box does not automatically determine that Hadoop is the best fit as there are multiple criteria that influence this decision, but the following checklist is a good starting point. Your service representative will have a more detailed discussion with you in order to determine the best fit for your needs, but the checklist below is a good starting point:

<table>
<thead>
<tr>
<th>Criteria/Need</th>
<th>Hadoop</th>
<th>RDBMS</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistical correlations across multiple data sets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanatory analysis to discover new patterns in data</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Support for both structured and unstructured data sets</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data generated at a rapid pace (second, sub-second)</td>
<td></td>
<td>X</td>
<td></td>
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<tr>
<td>High volume of data (TB, PB)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highly secure or private data</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ACID transactions (Atomicity, Consistency, Isolation, Durability)</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Structured data, that can be designed “up front” with predictable queries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis of raw data before it goes into a Data Warehouse or Transactional Database</td>
<td></td>
<td>X</td>
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</table>

... Etc.
New Operating Model: Interactions Between New & Existing Roles

Existing Roles
- Privacy Analyst
- Data Architect
- Network Administrator
- ETL Developer

New Roles
- Data Scientist
- Hadoop Administrator

Alignment
### Roles & Responsibilities

<table>
<thead>
<tr>
<th>Roles</th>
<th>Responsibilities</th>
<th>Skills</th>
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<tbody>
<tr>
<td><strong>Hadoop Administrator</strong></td>
<td>• Deploy, configure, monitor &amp; tune Hadoop cluster&lt;br&gt;• Add and remove nodes&lt;br&gt;• Capacity monitoring&lt;br&gt;• Configure &amp; manage scheduling&lt;br&gt;• Manage memory, CPU, OS, &amp; storage</td>
<td>• Hadoop infrastructure&lt;br&gt;• Linux&lt;br&gt;• Java or related programming skills</td>
</tr>
<tr>
<td><strong>Network Architect</strong></td>
<td>• Architects network requirements for the Hadoop service (latency, capacity, availability, etc.)</td>
<td>• Networking architecture&lt;br&gt;• Networking engineering</td>
</tr>
<tr>
<td><strong>Hadoop Developer</strong></td>
<td>• Implements Hadoop components within the framework&lt;br&gt;• Writes MapReduce code for analysis, data movement scripts, etc.</td>
<td>• Hadoop framework &amp; components (e.g. MapReduce, Pig, Hive, etc.)&lt;br&gt;• Linux&lt;br&gt;• Java or related programming skills</td>
</tr>
<tr>
<td><strong>Data Scientist</strong></td>
<td>• Builds statistical models&lt;br&gt;• Understands business requirements&lt;br&gt;• Discovers new patterns &amp; insights from data</td>
<td>• Statistical analysis&lt;br&gt;• Programmatic knowledge in MapReduce coding&lt;br&gt;• Business knowledge of data</td>
</tr>
<tr>
<td><strong>ETL Developer</strong></td>
<td>• Understands sources and targets for data, and requirements for transformation &amp; movement&lt;br&gt;• Chooses fit-for purpose ETL solution based on BI stack and/or Hadoop stack&lt;br&gt;• Creates ETL scripts/code within the Hadoop ecosystem and/or BI ecosystem</td>
<td>• Knowledge of source and target data systems&lt;br&gt;• Hadoop ETL components e.g. MapReduce, Flume, Sqoop, Hive, Pig, etc.&lt;br&gt;• SQL and relational technologies&lt;br&gt;• BI ETL components, e.g. Ab Initio, ODI</td>
</tr>
<tr>
<td><strong>Data Architect</strong></td>
<td>• Organizes, aggregates, and structures the data to ensure it can be usefully queried in appropriate timeframes by all users.</td>
<td>• Knowledge of source data systems&lt;br&gt;• SQL and relational technologies&lt;br&gt;• Business knowledge of data</td>
</tr>
<tr>
<td><strong>Privacy Analyst</strong></td>
<td>• Understands and communicates privacy policies around data both governmental &amp; within the company&lt;br&gt;• Approves data sharing policies</td>
<td>• Privacy regulations within the organization&lt;br&gt;• Governmental privacy regulations</td>
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The Results

New Insights from Integrated Big Data & Traditional Sources

- Results of this Data Strategy included:
  - New insights & increased value from data as a corporate asset
  - Better alignment between BI and Infrastructure teams
  - Improved education & governance for Big Data use cases
  - Clearer understanding of value propositions for Big Data and BI
### Data Strategy – International Telco

Covering most areas of the Strategic Framework w/ Focus on Big Data, BI, & Analytics

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#### Data Governance

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#### Master Data Management

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<th>Data Architecture &amp; Modeling</th>
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#### Data Asset Planning & Inventory

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#### Databases, Big Data, Unstructured Data, Semi-Structured Data

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"Top-Down" alignment with business priorities driven by Big Data Use Cases

Governance & policies around fit-for-use technology. Roles defined for current & future staffing.

Analytics & BI were a key driver for the initiative.

Asset inventories & "heat maps" were crucial for integration.

Management of disparate data sources was key.

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Global Data Strategy, Ltd. 2015
An international Pharmaceutical company was looking to make better use of its data to streamline its Clinical Development, Commercial Processes, and R&D.

Business alignment was a key first step
- Created “blueprints” of how the business runs—then how data maps to that
- Data models, process models, & mappings
- Identified opportunities for business efficiencies
- Greater understanding how data was used by and critical to key business activities

Streamlining IT Services was a core parallel activity
- Solution Planning & Definition
  - Defining “who we are & what we do”, aka “Marketing”
- Best Practices & Architecture
  - New best practices around MDM, data modeling, etc.
- Governance
  - Models & architecture required for each new project
Business-Driven “Blueprinting”

- Detailed “blueprints” (aka models) outlined several views of the organization.
Solution Planning & “Marketing”

• A Solution Planning effort was undertaken to:
  • Clearly define services provided by IT Architecture
  • Communicate and “Market” these services to the wider organization
  • Integrated into a clearly-defined Project Governance Model

1. Clearly Define & Promote Services

2. Map Services to Specific Capabilities & Offerings

3. Integrate into Project Governance

Easier to “sell” governance when users understand “what” & “why”
Roles & Culture

• Business Acceptance: Clinical Scientists had data models on their office walls
  • “Blueprints” describing their clinical development

• Architecture team had clear direction
  • “Who we are and what we do” clearly articulated to the business
  • Best Practices for data management made processes more efficient
  • Governance driving architecture as a “must-have” for each new initiative.
Data Strategy – International Pharmaceutical Company

Strong focus on Business Alignment, Architecture & Governance

“Top-Down” alignment with business priorities via data & process modeling

Governance driven by solution planning & architecture at the project level

Data Architecture & Modeling played a key role

Metadata captured via data models & glossaries.

Relational databases were main focus of this effort.

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Master Data Management

Data Warehousing

Business Intelligence

Big Data Analytics

Data Quality

Data Architecture & Modeling

Data Asset Planning & Inventory

Data Integration

Metadata Management

Data

Big Data

Unstructured Data

Semi-Structured Data

Document & Content Mgt.

Global Data Strategy, Ltd. 2015
Consumer Energy Company

Business Transformation via Data

• For the consumer energy sector *Big Data and Smart Meters are transforming the ways of doing business and interacting with customers.*
  • Moving away from traditional data use cases of metering & billing.
  • Smart meters allow customers to be in control of their energy usage.
    • Control over energy usage with connected systems
    • Custom Energy Reports & Usage
    • Smart Billing based on usage times

• As energy usage declines, *data is becoming the true business asset for this energy company.*
  • Monetization of non-personal data is a future consideration.

• While the Big Data Opportunity is crucial, equally important are the traditional data sources
  • New Data Quality Tools in place for operational and DW data
  • Data Governance Program analyzing data in relation to business processes & roles
  • Business-critical data elements identified and definitions created
Data-Driven Business Evolution

Data is a key component for new business opportunities

**Traditional Business Model**
- Usage-based billing
- Issue-driven customer service

**More Efficient Business Model**
- More efficient billing
- Faster customer service response
- More consumer information re: energy efficiency, etc.

**New Business Model**
- Consumer-Driven Smart Metering
- Connected Devices, IoT
- Proactive service monitoring
- Monetization of usage data

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Databases

Data Governance

Data Quality

Metadata Management

Big Data

Global Data Strategy, Ltd. 2015
Defining Key Business Data Elements Crucial For Data Governance

Data Governance key to ensure that core data elements were managed correctly

- Identify required Data Definition(s)
- Identify Stakeholders
- Draft initial Data Definition
- Update metadata locations

- Group related Definitions
- Socialize with key stakeholders
- Conduct full impact assessment
- Notify all stakeholders

- Conduct initial impact assessment
- Obtain & review approvals
- Complete Data Definition process

- Build profiling & monitoring rules
Data Strategy – Consumer Energy Company

Strong focus on Governance & Data Quality

- New Business Model based on data w/ phased approach to implementation
- Governance seen as critical to manage core data assets.
- Data Quality key to driving efficiency & customer service.
- Metadata captured for key business elements as part of governance process
- Move from relational systems to Big Data ecosystem

Global Data Strategy, Ltd. 2015
As a leading professional development & certification organization, customers/members and customer service are critical to the success of the organization.

Existing systems and processes had developed in an organic, ad-hoc manner over the years resulting in:

- Duplicate member records
- Incomplete or incorrect member records
- Wasted time and money from IT resources working to rectify bad data

The corporate goal was to move to more modern, online processes

- Online, Community-based member services
- Centralized CRM system
- Automated processes

In order to reach this goal, a Data Governance initiative was implemented to improve data quality and streamline IT processes

- Both business and IT staff were involved
Data Quality & Data Governance – the Interdependency

The need for better data quality was a key driver for the data governance program.

**Data Quality**
Drives the need for

**Data Governance**
Provides the means to deliver

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**What is Data Quality?**
Data that is demonstrably fit for business purposes

**What is Data Governance?**
A continuous process of managing and improving data for the benefit of all stakeholders
Data Governance for Data Quality Improvement
Best Practices defined for Data Governance & Data Improvement

• Processes were put in place for both
  • Data Governance
  • Data Improvement

• Tools were selected to help automate manual processes
  • Data quality
  • Data profiling

• Both business and IT stakeholders were involved in governance
  • Identifying key data elements
  • Defining business rules & standards for data
Data Strategy – Professional Development Organization

Governance & Data Quality were main drivers

- Business driver of better customer management & service drove need for data governance.
- Governance was a key corporate initiative for both business and IT staff.
- Data Quality was closely linked with Data Governance.
- Integration of multiple legacy systems was required.
- Relational databases were main source of data.
Summary

Business Transformation through Data

• More & more organizations are transforming the way they do business through data
  • More efficient ways of doing business
  • New business models

• Documenting Business Drivers & Motivations is key to success
  • Mission & Vision
  • External & Internal Drivers
  • Goals & Objectives

• While it’s important to “right size” your data strategy, core components are common to all:
  • Aligning business strategy with data strategy
  • Data Governance
  • Data Management
  • Coordinating & integrating disparate data sources
  • Management and inventory of source data systems
About Global Data Strategy, Ltd.
Data-Driven Business Transformation

• Global Data Strategy is an international information management consulting company specializing in the alignment of business drivers with data-centric technology.

• Our passion is data, and helping organizations enrich their business opportunities through data and information.

• Our core values center around providing solutions that are:
  • **Business-Driven**: We put the needs of your business first, before we look at any technological solution.
  • **Clear & Relevant**: We provide clear explanations using real-world examples, not technical jargon.
  • **Customized & Right-Sized**: Our implementations are based on the unique needs of your organization’s size, corporate culture, and geography.
  • **High Quality & Technically Precise**: We pride ourselves in excellence of execution, and we attract high-quality professionals with years of technical expertise in the industry.
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