

***Strengthening Product Stewardship Throughout
The Supply Chain-
A Full Lifecycle Approach***

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3E Company

Who is 3E Company?



- Leading provider of EH&S compliance and risk information management solutions
 - Most comprehensive global EH&S domain knowledgebase
 - MSDS images and product data
 - Global regulatory content
 - Hazardous substance databases
 - Provider of Choice
 - Broadest range of services
 - Delivered in multiple formats and platforms
 - Across a multitude of industries
 - Global capabilities and presence
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Agenda

- EH&S Compliance Evolution
- Essential EH&S Information
- Lifecycle Compliance
 - The Chemical Lifecycle
 - Regulatory Landscape
 - Lifecycle Approach
 - Required Data Sources
- Supply Chain Approach
 - Stakeholders
 - EMIS Components
 - Data Integration
 - Access to Current Information
 - Impact
- Evaluating Options



History & Evolution



Prior to the 70s, legislative acts addressing hazardous chemicals were few in number and specific to a handful of topics, to include:

- The Refuse Act of 1899 – Ignored and rarely enforced
- FIFRA 1947 – Originally considered an agricultural issue
- Atomic Energy Act 1954 – Exclusive to radioactive material

When it came to workplace and community safety involving the handling, storage, disposal, transportation of hazardous materials, it was assumed that companies would do the right thing.

History & Evolution



The early 1970s witnessed an environmental awakening. Most of the drivers for enacted legislation and creation of regulatory enforcement agencies was reactive.

Legislative Act

- CWA
- CAA
- SDWA
- NEPA
- CERCLA
- FIFRA amendments

- HMTA & RCRA

Drivers

- Detection of toxic substance in waterways
- Reduction of smog and air pollution
- Waterborne diseases, carcinogens, toxins
- Calvert Cliffs
- Love Canal
- Toxic effects on applicators, wildlife and consumer food supplies
- Transportation of hazardous waste to illegal dumpsites

History & Evolution



The late 70's through the early 90's saw a transition from a reactive to a proactive/preventive approach with a concerted focus on workplace safety.

- OSHA's Hazardous Communication Standard
 - State Specific Legislation and Agencies
 - CAL/OSHA
 - CAL EPA
 - CEQA
 - TSCA
 - Additional Amendments and Re-authorizations
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Compliance Today



Compliance goes far beyond conformance to EH&S laws to assume a progressive stance.

While striving to meet and exceed EH&S requirements, organizations are finding innovative ways to lessen their impact on the environment and ensure the health and safety of their employees, colleagues and the community.

To achieve these goals and increase performance, many organizations have expanded EH&S Team roles and responsibilities and supplement their internal compliance programs with outsourced solutions.

EH&S Trends



EH&S agency and regulation development

Emphasis on the letter of the law compliance

- ✓ Task list completion
- ✓ Check-list dependent

Industry responds with resources and programs

Focus extends beyond the letter of the law

- ✓ Corporate policies and procedures
- ✓ Program management

Performance improvement

Continuous monitoring
Public reporting
Peer comparisons
Risk based approach

Sustainability

Corporate Social Responsibility
Green Initiatives
Industry Best Practices
Supply chain impact

Global Harmonization

Life Cycle Management
Consolidated data exchanges
Advanced Technologies

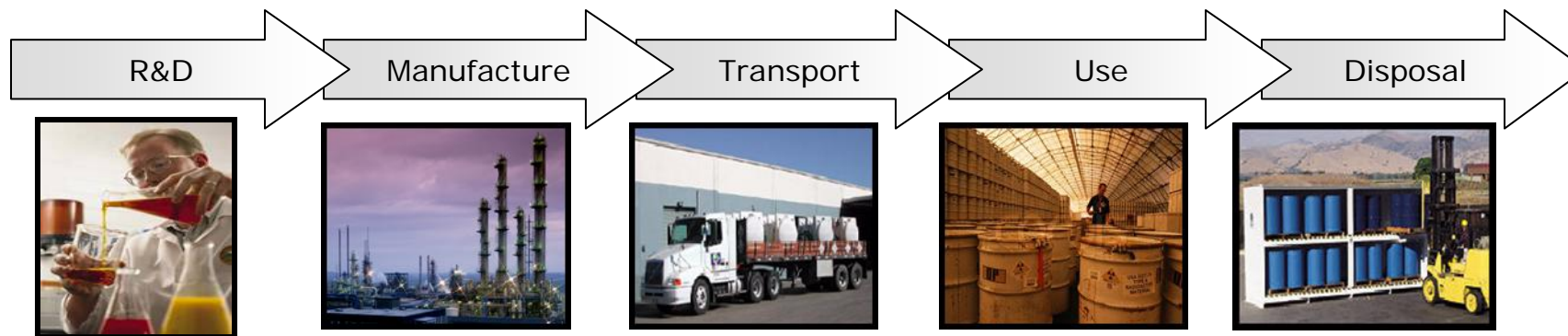
Essential Information



EH&S Foundation: Timely access to accurate information

- Regulatory Information
 - Workplace & Community Safety
 - Environmental & Health
 - Transportation
 - Global Inventories
 - Substance, RM and Product Data
 - Chemical and Physical Properties
 - Chemical hazard classifications
 - Exposure standards and regulations
 - Tox, Ecotox, and Biomedical effects
 - Safety and handling information
 - Organizational Data
 - Inventory of hazardous materials
 - Quantity and usage data
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Chemical Lifecycle



Access to Applicable Regulatory Information, Chemical Content and Product-specific Data

Global Regulatory Databases
Chemical Substance & Compound Information

MSDS Authoring & Distribution

Transportation Classification
Applicable Exceptions
Less Regulated Modes
Labels & Marking
Shipping Papers

Chemical Inventory Mgmt
MSDS Availability- RTK
Quantity & Usage Tracking
Labeling & Storage
IH Monitoring

Classification
Labeling & Storage
Generator Status
UHMW

Incident Management & Emergency Response

Regulatory Reporting (Research, Permits, Disclosures, etc.)

Regulatory Landscape

Hazardous chemical regulations cover the entire product life cycle.



Workplace Hazardous Materials Information System (WHMIS)



Life Cycle Approach



- Meet the hazardous material information management objectives of the entire Supply Chain
 - Account for all applicable data sources
 - Deploy EH&S tools and decision making processes to
 - Create or establish access to central repositories for required information
 - Streamline the collection and flow of EH&S information
 - Improve workflows (operational, technical and administrative)
 - Integrate regulatory and chemical content with chemical inventories (RM, intermediates, finished goods)
 - Identify actionable regulatory data, proactively when possible
 - Establish control points to maintain compliance
 - Internal Operations
 - Procurement Practices
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Data Sources



Material Safety Data Sheet (MSDS)

Basic Requirements

- Product Name/Identity
- Chemical Names (haz ingredients)
- Physical & Chemical Characteristics
 - Physical & Health Hazards
 - Primary Routes of Entry
 - OSHA PELs & ACGIH TLVs
- Applicable Carcinogen Listings
- Appropriate Control Measures
- Emergency & First Aid Procedures
- Complete Supplier Contact Info
 - Emergency Contact Info
- Date of Issue/Revision Date

ANSI 16-Section Format

- Basic Requirements, AND
- Fire-fighting measures
- Accidental release measures
- Handling and storage
- Exposure controls/personal protection
- Stability and reactivity
- Toxicological information
- Ecological information
- Disposal considerations
- Transport information
- Regulatory information
- Other information

Data Sources



Raw Materials & Use Chemical Data

- Hazardous Chemical Inventory Lists (location specific)
 - Chemical Approval Standards (internal review procedures)
 - Product Information
 - Composition data (indexed from MSDS)
 - Physical characteristics and properties (indexed from MSDS)
 - Quantities (data entry at the site-level)
 - Product Classifications (interpreted data)
 - Chemical (NFPA, HMIS, SARA Hazards)
 - Transportation
 - Waste
-

Data Sources



Manufactured and Distributed Chemicals

- Raw Material Data (indexed or interpreted from MSDS)
 - Chemical Substance Information Sources
 - Agency for Toxic Substances and Disease Registry
 - Chemical Carcinogenesis Research Information System
 - Chemical Hazards Response Information System
 - GENE-TOX
 - Hazardous Substance Data Bank
 - Integrated Risk Information System - EPA
 - National Institute for Occupational Safety and Health
 - NTP Chemical Repository
 - OSHA Comments on PELs
 - REPROTOX
 - Registry Toxic Effects Chemical Substances
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Data Sources



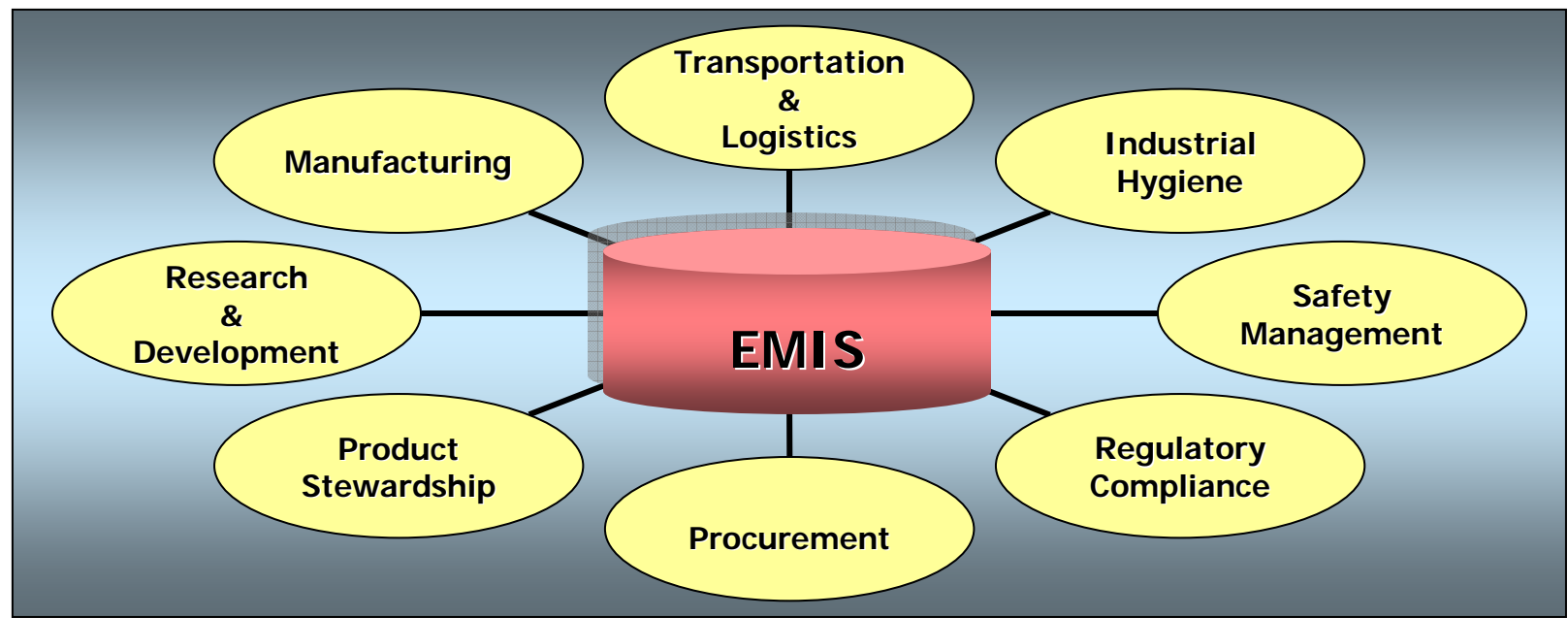
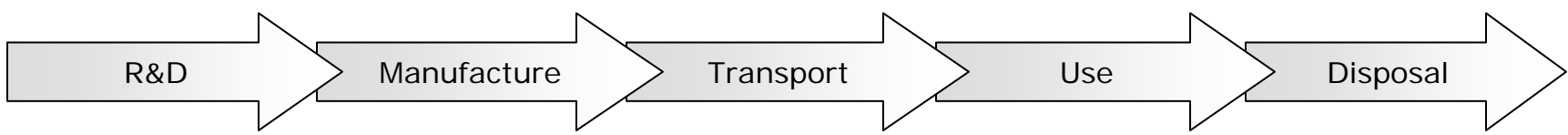
Regulatory Content

- Global Regulatory Databases
 - CAS# driven lists
 - Non-CAS regulated compounds
 - Regionally applicable
 - Textual Regulatory References
 - Full regulatory text
 - Regulatory overviews
 - Applicable inspection procedures
 - Transportation
 - CAS and product level classification
 - Regionally Specific (DOT, TDG, ADR, etc.)
 - IMDG
 - IATA
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Supply Chain



Stakeholders

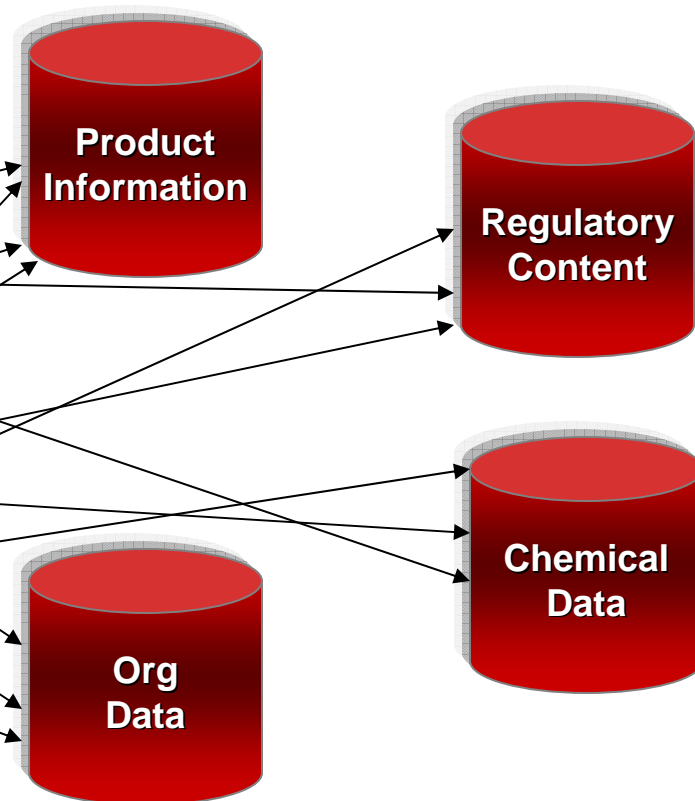


EMIS Components

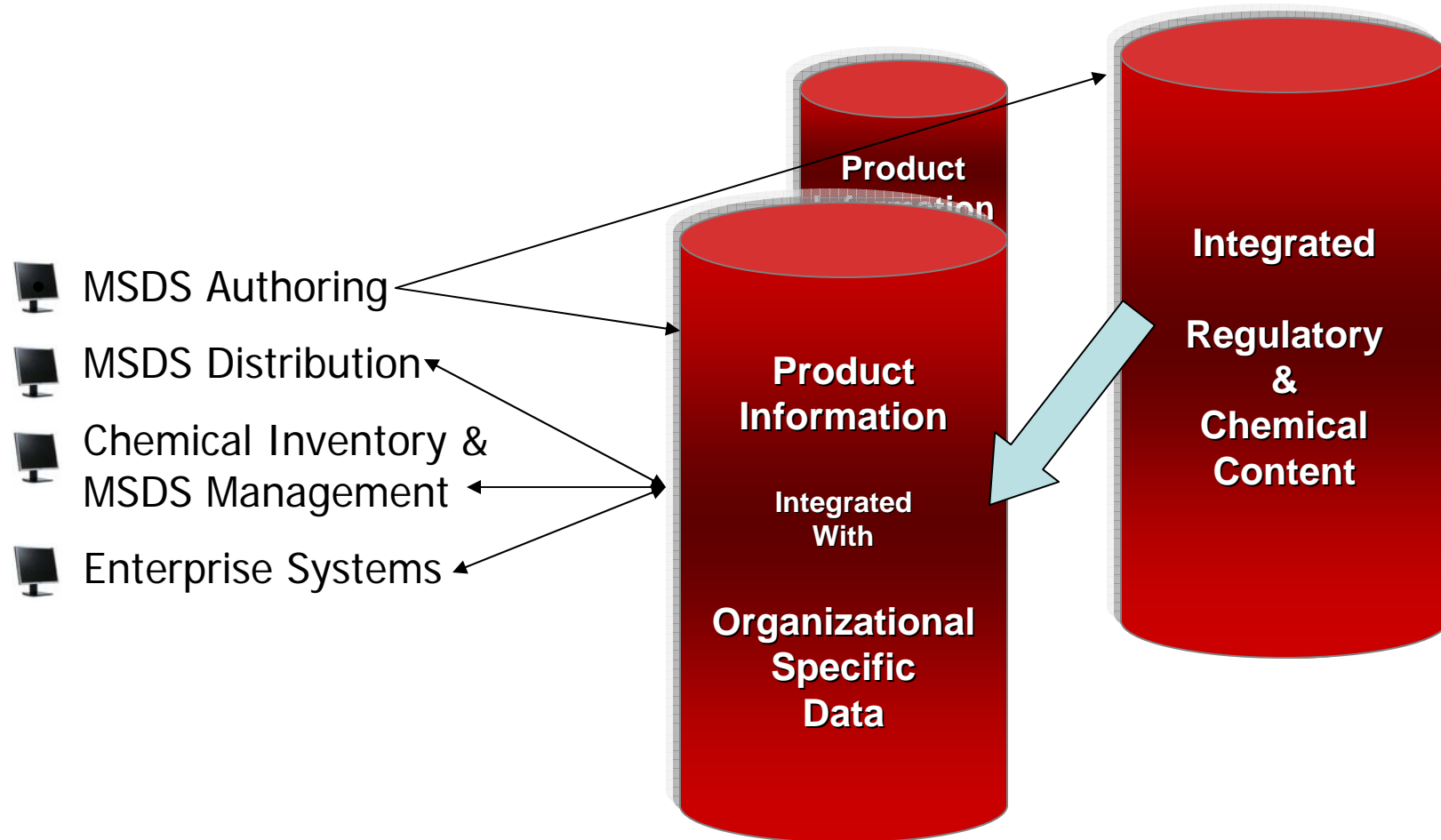
Databases

Applications

- MSDS Authoring
- MSDS Distribution
- Chemical Inventory & MSDS Management
- Enterprise Systems



Data Integration



Updated Information



Currency of information is paramount!

When Supply Chain Stakeholders access the EMIS, do they have the most up-to-date

- Chemical inventory lists
- MSDS
- Global regulations
- Chemical composition level data
- Internal EH&S protocols



If one system or process is updated, is there method to update all other affected systems and data?

Supply Chain Impact



- Provide/Improve Consistency of Process
 - Data and document management
 - Site to site / Department to department
 - QMS compliant
 - Data Leveraged Across the Supply Chain
 - Corporate EH&S Objectives
 - Internal Operations
 - External Data Requirements
 - Regulatory Compliance
 - Workplace and Community Safety
 - Improve Product Stewardship
 - Ability to react to and manage the impact of regulatory changes
 - Ability to support customers with required and requested product information
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Supply Chain Impact



- **Cost Containment and Reduction**
 - Eliminates duplicate sources of information
 - Increased efficiencies across supply chain
 - **Change Management**
 - Leverage a single change to all affected users
 - Track changes to regulations, processes and protocols
 - **Improved Quality**
 - Automation and Error Proofing
 - Accurate and Current Data
 - Simplifies Process Documentation
 - **Reduced Impact of the Human Capital Shortage**
 - Reduces dependence on tribal knowledge
 - Lessens impact of an aging EH&S workforce
 - Allows EH&S professionals to focus on technical, compliance and regulatory issues vs. data and document management
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Evaluation



To answer the questions of access to current, comprehensive integrated EH&S information throughout the chemical life cycle, an evaluation of existing tools, data repositories and internal processes will assist with a comprehensive gap analysis.

It is unlikely that all required information, updated regularly, integrated with organizational specific data and internal business rules constitutes a systems development request that most corporate IT departments are prepared to engage.

However, outsourced options may provide the most optimal solutions.

EH&S Outsourcing



A Paradigm Shift

“Not too many years ago, to outsource was to admit mistake, error, or incompetence.

Now, outsourcing is viewed as intelligent, as a recognition of the new dynamics of business.”

Larry Bossidy, Chairman,
Honeywell Corporation

EH&S Outsourcing



Managing the information associated with EH&S compliance is complex, time consuming, resource draining, technically challenging and often expensive.

From maintaining changing and growing inventory of MSDS for multiple sites, to tracking the currency and impact of hazardous material regulations to dealing with HazMat spills and waste, and regulatory reporting - **compliance can be a challenge**



Getting Started



- Define and document your EH&S information management requirements
 - Identify Stakeholder roles in the information management chain
 - Evaluate your EH&S data and solution options
 - Internally developed and managed
 - Targeted outsourcing opportunities
 - Build a high-level transition map from as-is to the Life Cycle/Supply Chain management model
 - Stakeholder Summit
 - Gain acceptance and support
 - Prioritize objectives
 - Develop CBA/ROI & and draft implementation plan
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Conclusion



The regulatory landscape domestically and globally is becoming increasingly complex and data-driven. With the phased acceptance of GHS document, classification and labeling standards, we could see significant and sweeping changes in just a few a years.

Well-managed tools and processes enabling access to critical information that spans the ENTIRE chemical life cycle and accounts for the needs of each stake holder across the supply chain are key to keeping pace with the ever-changing face of product stewardship and EH&S information management.

Questions?

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Thank You
