

Chemical Management Services: A supply-chain approach to reducing chemical use

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What is the Chemical Strategies Partnership?

- The Chemical Strategies Partnership (CSP) is a non-profit project funded by foundations, government, and private companies
- CSP is helping to promote the economic and environmental benefits of improved chemical management

The CSP Mission

To reduce chemical use, waste, and cost through transformation of the chemical supply chain

Chemical Strategies Partnership (CSP)

Funders

- Foundations
- Government
- CMS Forum companies

CSP

CSP Pilot companies

- Raytheon Company
- Nortel
- Seagate Technology
- Analog Devices
- SLAC-Stanford/DOE lab
- Dartmouth College
- UC Merced
- Hyundai Motor Company
- Metal-working co's
- Lansing School District
- Weyerhaeuser

CMS Forum

- Tier I CMS Providers
- Tier II suppliers
- Customer co's
- Other stakeholders

What are Chemical Management Services (CMS)?

- Strategic, long-term contract for chemicals *and* associated management services
- Goes beyond invoicing and delivering product; CMS optimizes processes and continuously reduces chemical lifecycle costs, risk, and environmental impact
- High quality, low cost system for expert chemical management and continuous improvement
- Aligns incentives for business and process efficiency improvements that reduce chemical volume and costs
 - From “More is More” to “Less is More”
 - Documented cost savings

Under the CMS model, formerly conflicting incentives are now aligned

Traditional relationship:
Conflicting incentives



CMS model:
Aligned incentives



Changing the supply chain model results in potential costs savings and environmental gains

The chemical lifecycle's unique requirements

Unlike other purchased materials, chemicals require specialized procedures and data at every lifecycle stage.

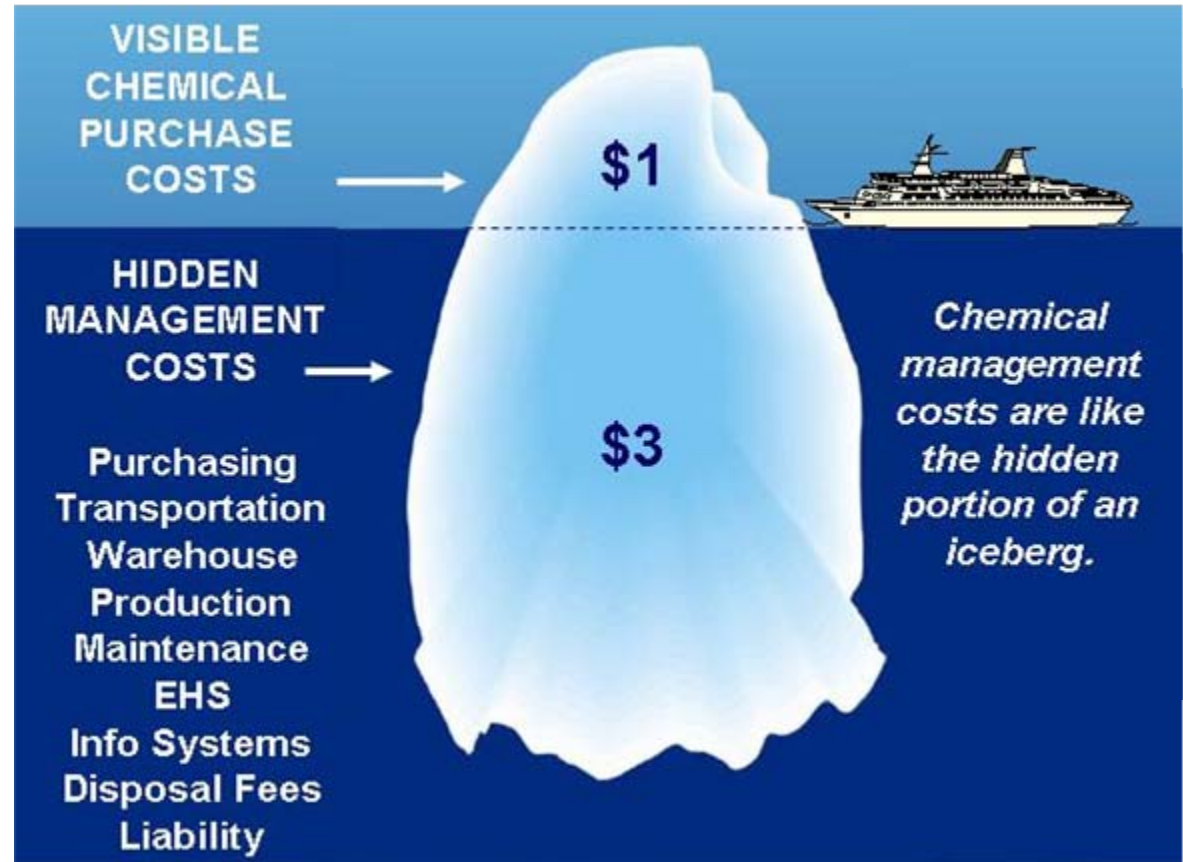
The Chemical Lifecycle



Hidden risks and costs offer opportunities for savings

These management costs can be large: up to \$3 for every \$1 spent on chemicals.

However, these are often overlooked because they are hidden among many department budgets.

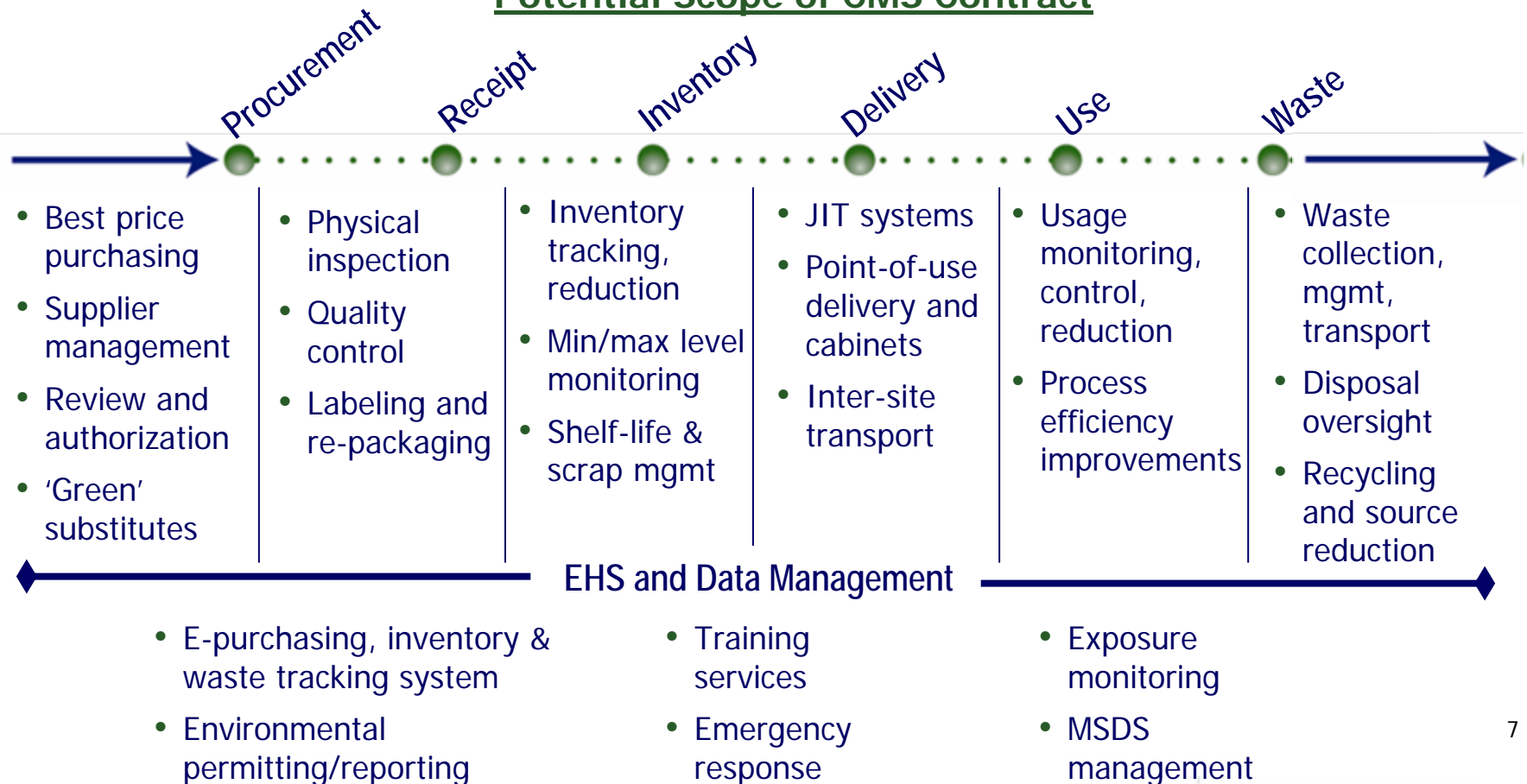


T. Bierma, Illinois State University

CMS providers improve lifecycle management

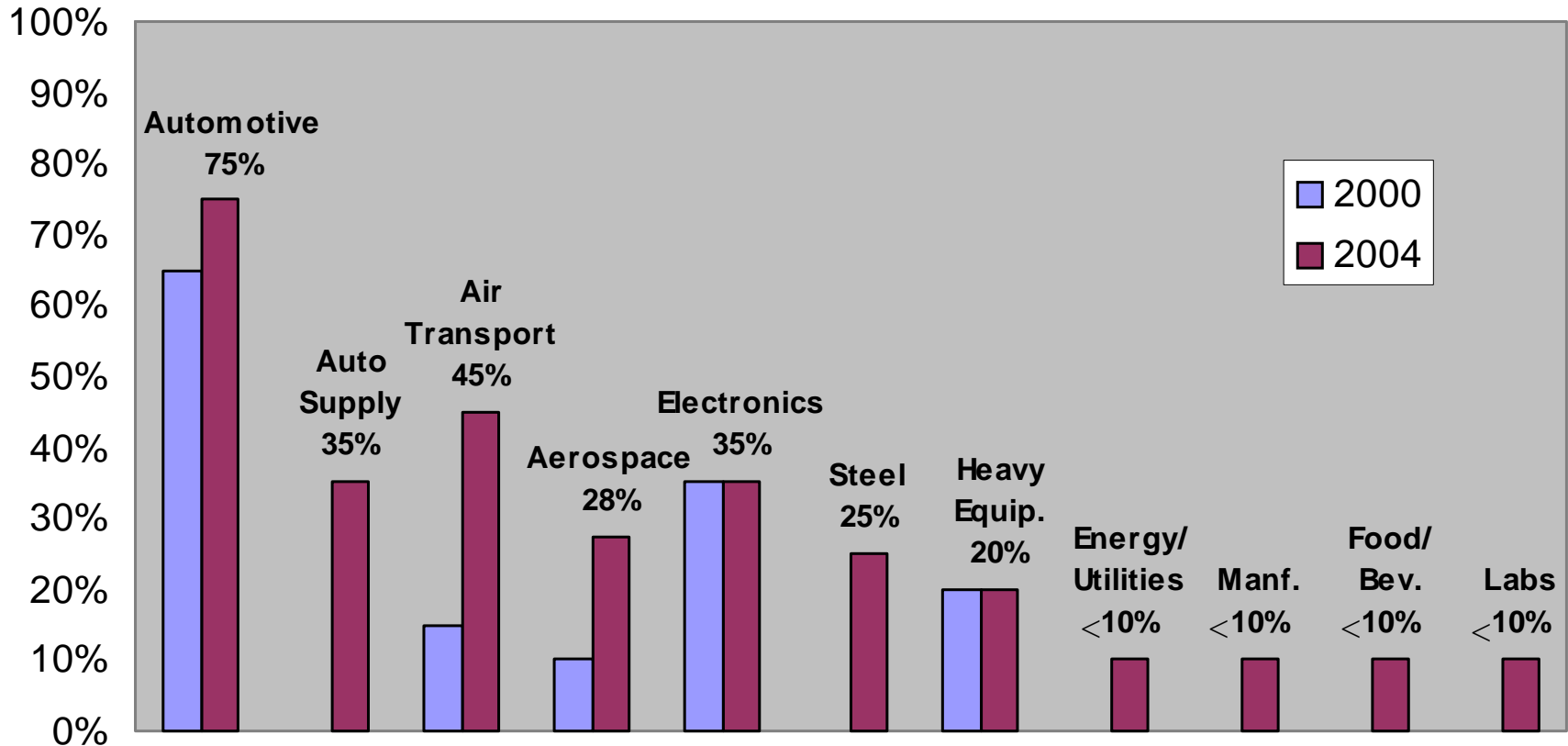
A CMS Provider not only supplies chemicals, but also delivers services and continuous improvement, often at lower total cost.

Potential Scope of CMS Contract



CMS: A Growing Trend

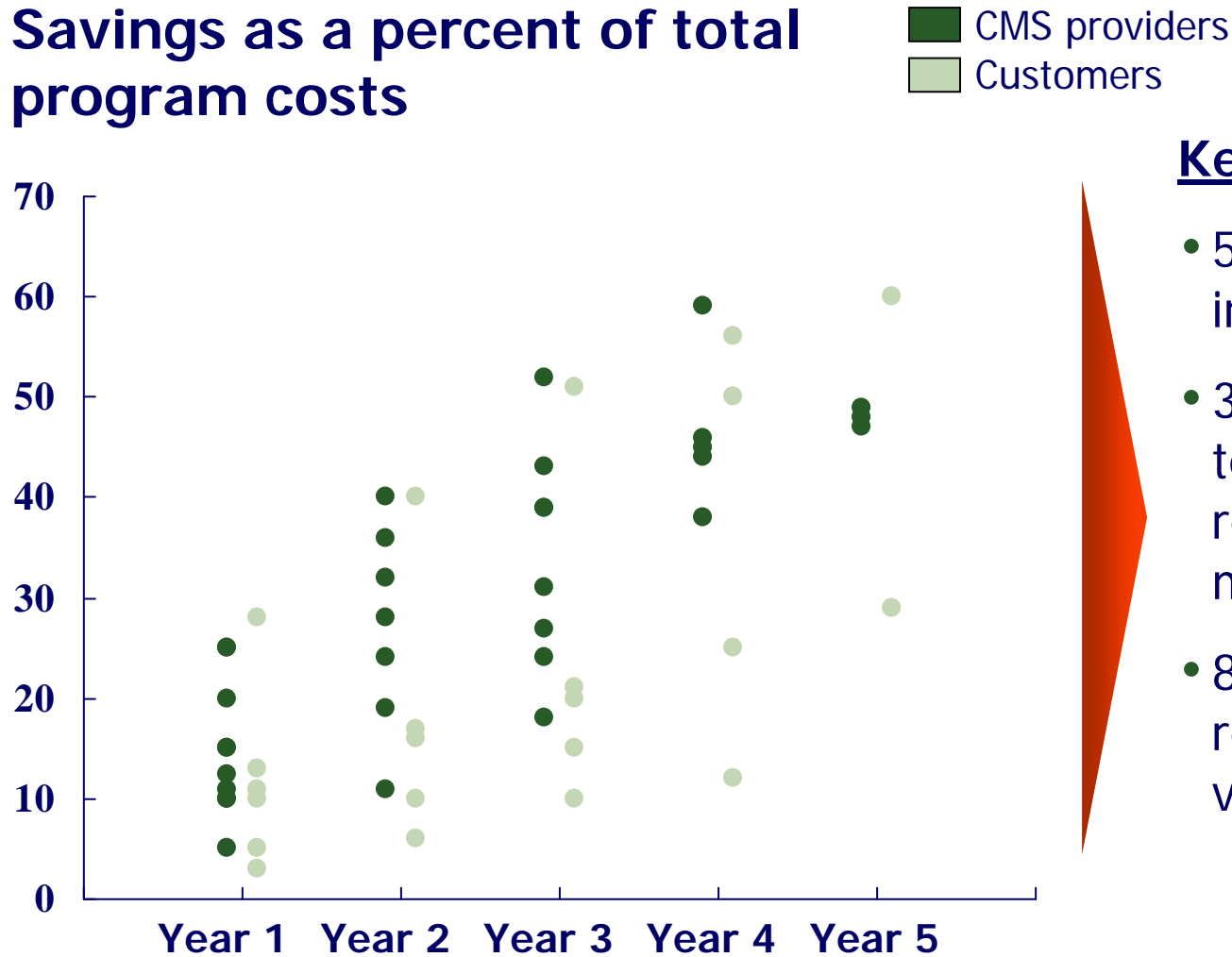
Estimated CMS Market Penetration (North America)



Source: CMS Industry Report 2004 (Provider Estimates), CSP industry surveys and estimates.

Overall cost savings reported by CMS customers are significant

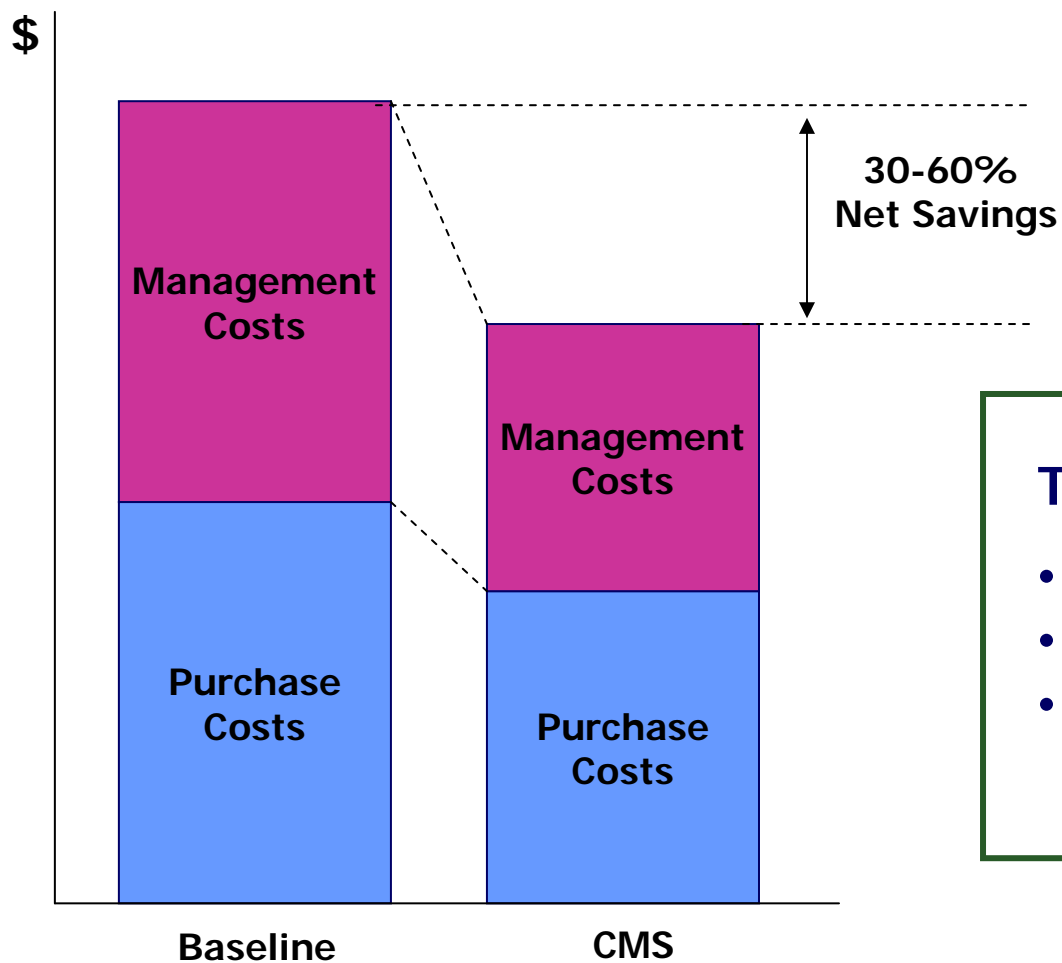
Savings as a percent of total program costs



Key results

- 5-25% total savings in first year
- 30-80% of long-term savings from reducing management costs
- 80% of customers report chemical volume reduced

Source of Savings

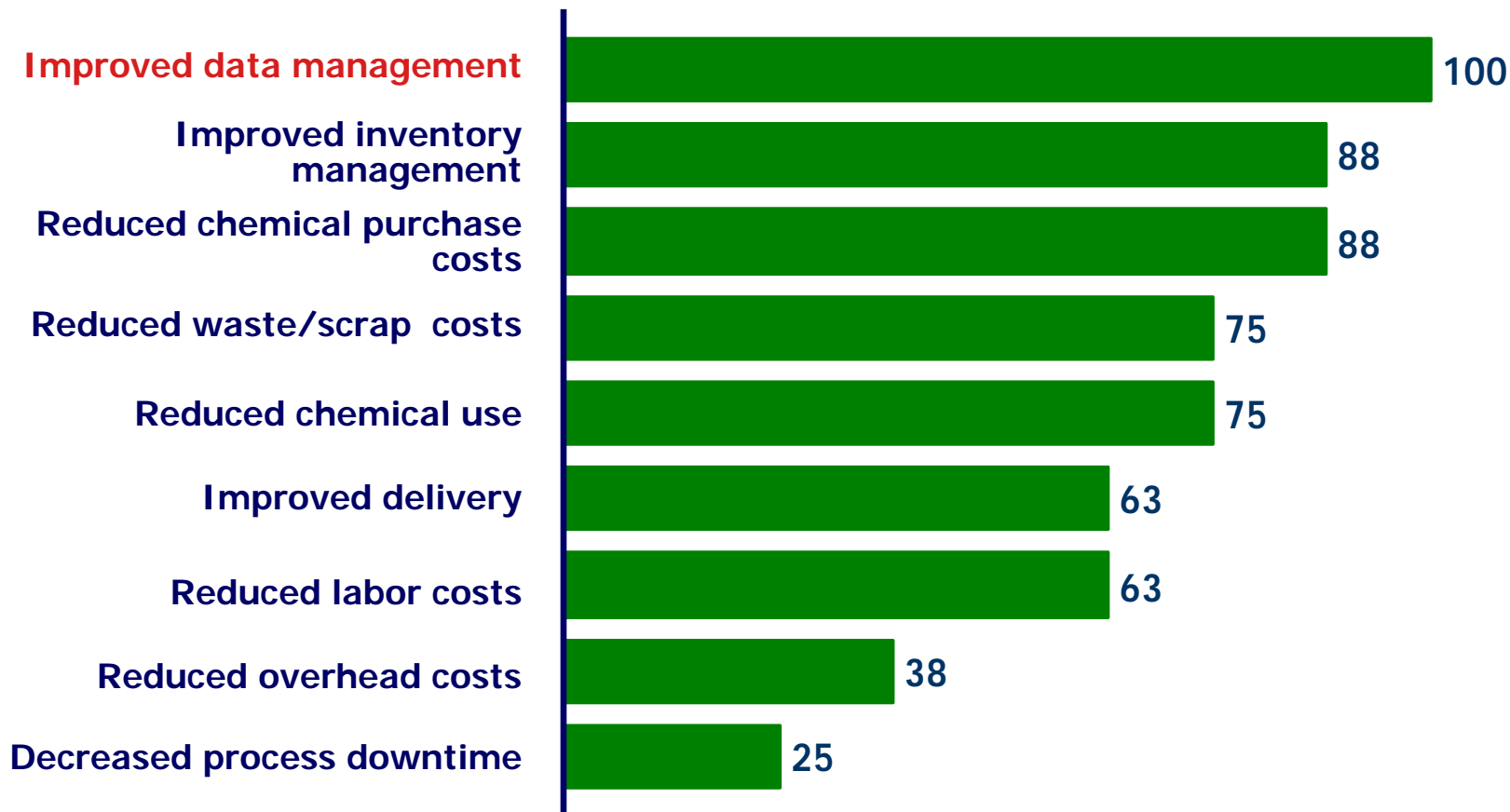


Top sources of savings:

- Chemical use reduction
- Process efficiencies
- Improved purchasing/
inventory management

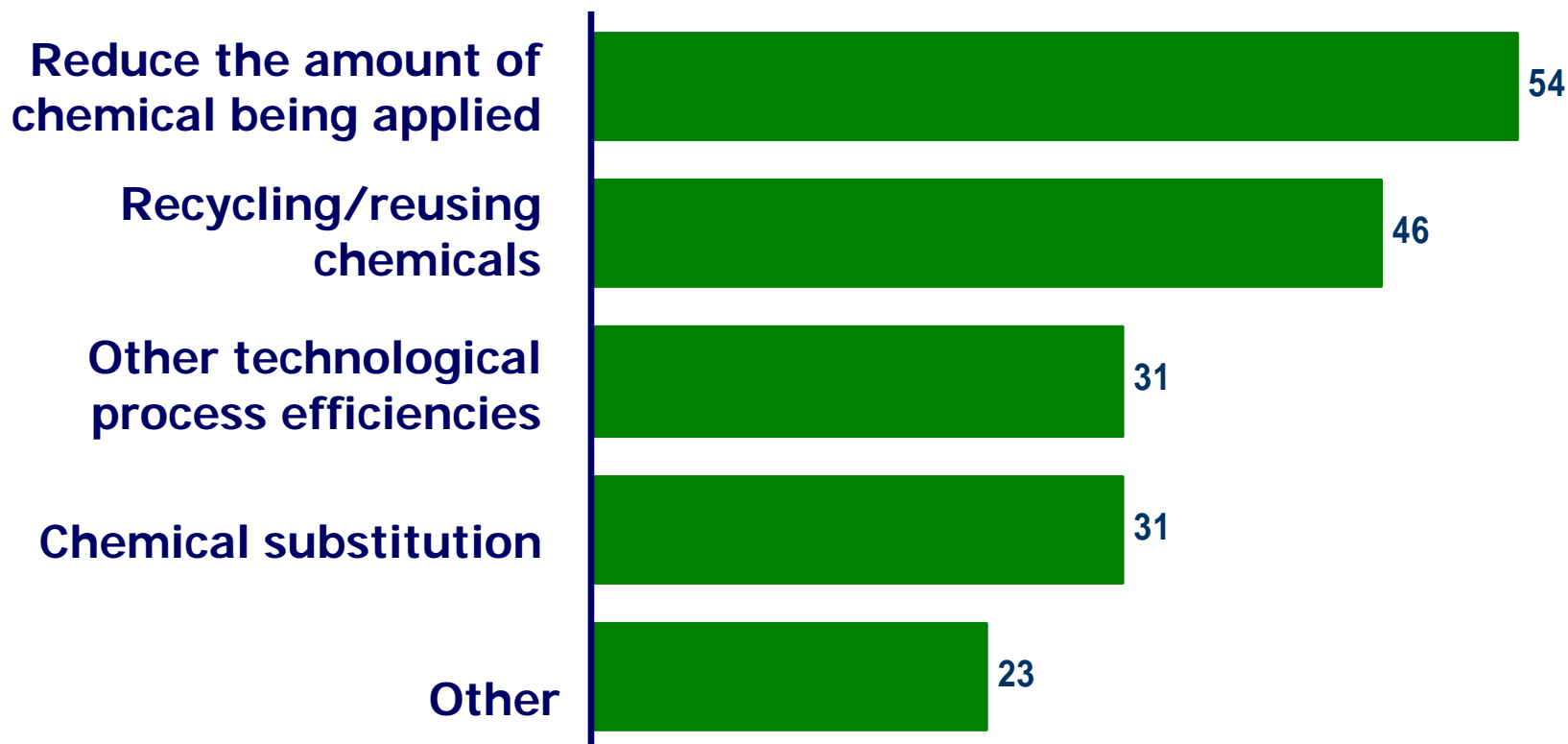
Improved data management is the benefit most widely cited by customers

Benefits cited; percent of customer respondents



Reduced chemical use is the top source of emissions reductions

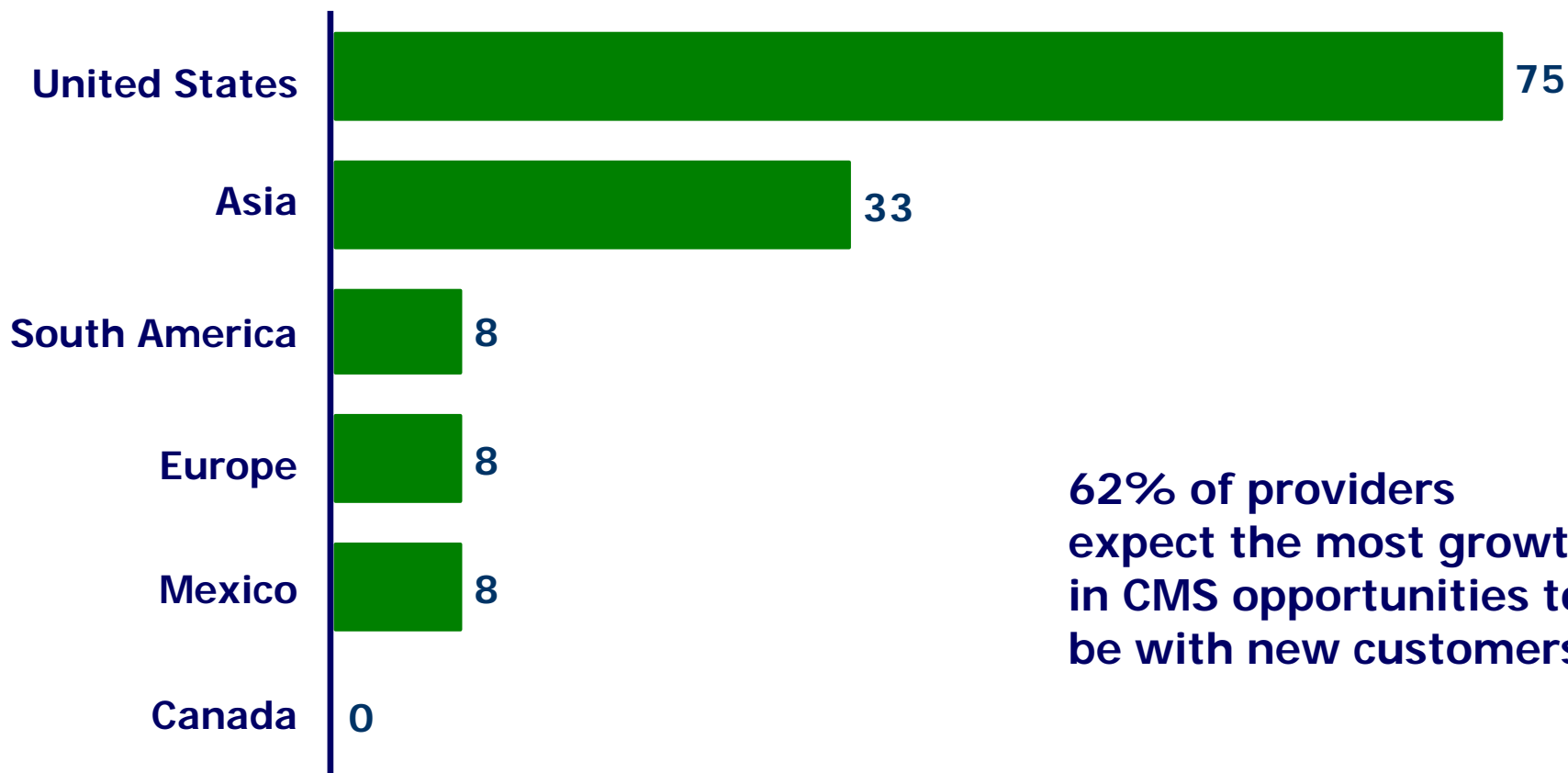
Emissions reductions; percent of customer respondents



Source: *CMS Industry Report 2004*, Chemical Strategies Partnership

Providers expect to see most growth with new customers

Growth expectations; percent of provider respondents



62% of providers expect the most growth in CMS opportunities to be with new customers.

Case study: General Motors

Programs in over 90% of plants worldwide

- Average total chemical use reduction of 30%
- Total cost savings above 30%
- Environmental benefits: Reductions achieved over 6 years in one CMS contract
 - 54% decrease in purge solvent
 - 77% decrease in paint stripper
 - 80% decrease in solvent masking
 - 75% decrease in VOC emissions
 - 83% reduction in detackification chemicals

CSP pilot case study: Raytheon Company

Streamlined Operations (~20,000 chemicals, 1000 waste profiles)

- Automated ordering, chemical gate-keeping, consolidated sourcing
- On-line MSDS and EHS data for reporting
- Chemical use and waste generation tracking
- Procurement and inventory management

Improved Service and Quality

- On-time delivery rose from a base of 82% to an average of 91% in the first 5 months
- Scrap rate reduced by 250%

Reduced Costs

- Payback of the program in the first 6 months
- 10-20% net savings in the first 2 years
- Expected savings over the 5 year contract is 30-40%

CSP pilot case study: Seagate Technology

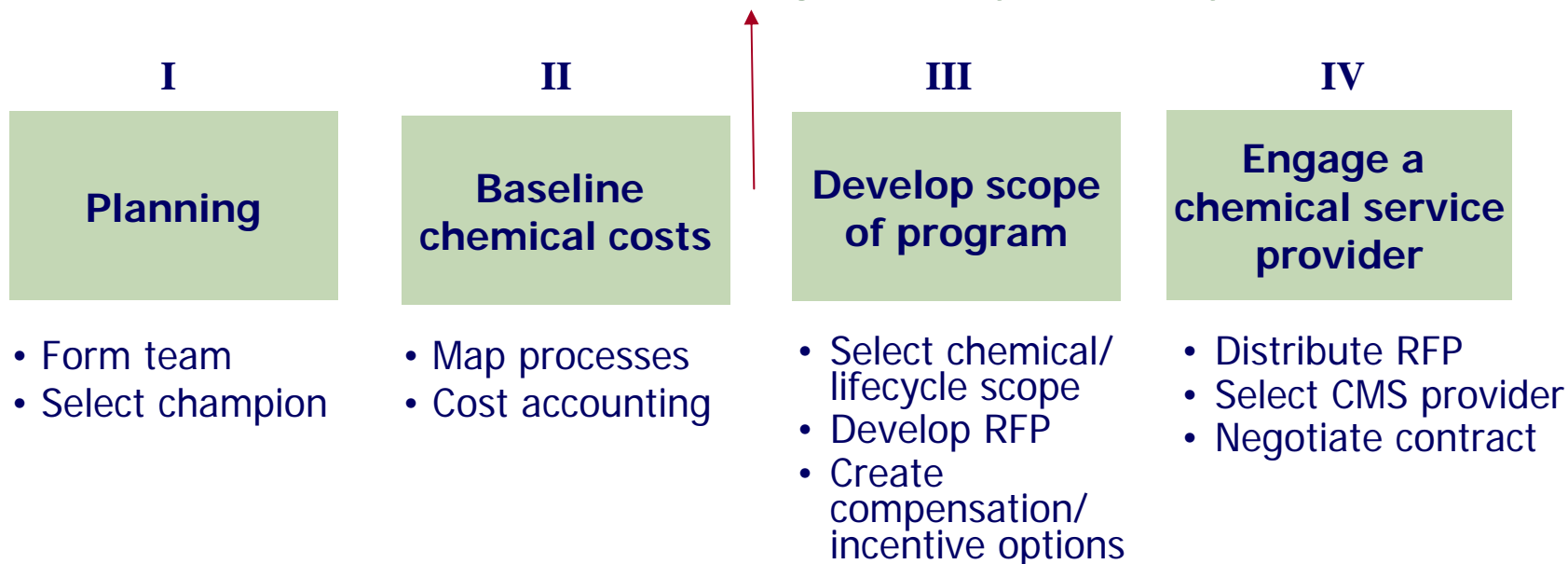
Benefits realized in first twelve months at one facility

- Aligned incentives and guaranteed savings – supplier generates no profit from volume sales
- Reduced onsite chemical inventory/handling (JIT)
 - Reduced 10,000 sq. ft. of inventory by 50%
 - Reduced \$800,000 in carrying costs of chemicals
 - Eliminated chemical scrap – approx. 7% of inventory
- Improved chemical processes/shared best practices
 - Photo-resist process: substituted more benign product and extended bath life 3-5 times, resulting in savings of \$50,000/month
- Eliminated distributor markup on chemicals

CSP approach...

CSP's Approach: Conduct pilot programs to assist manufacturing companies in assessing their total chemical lifecycle costs and developing a CMS program

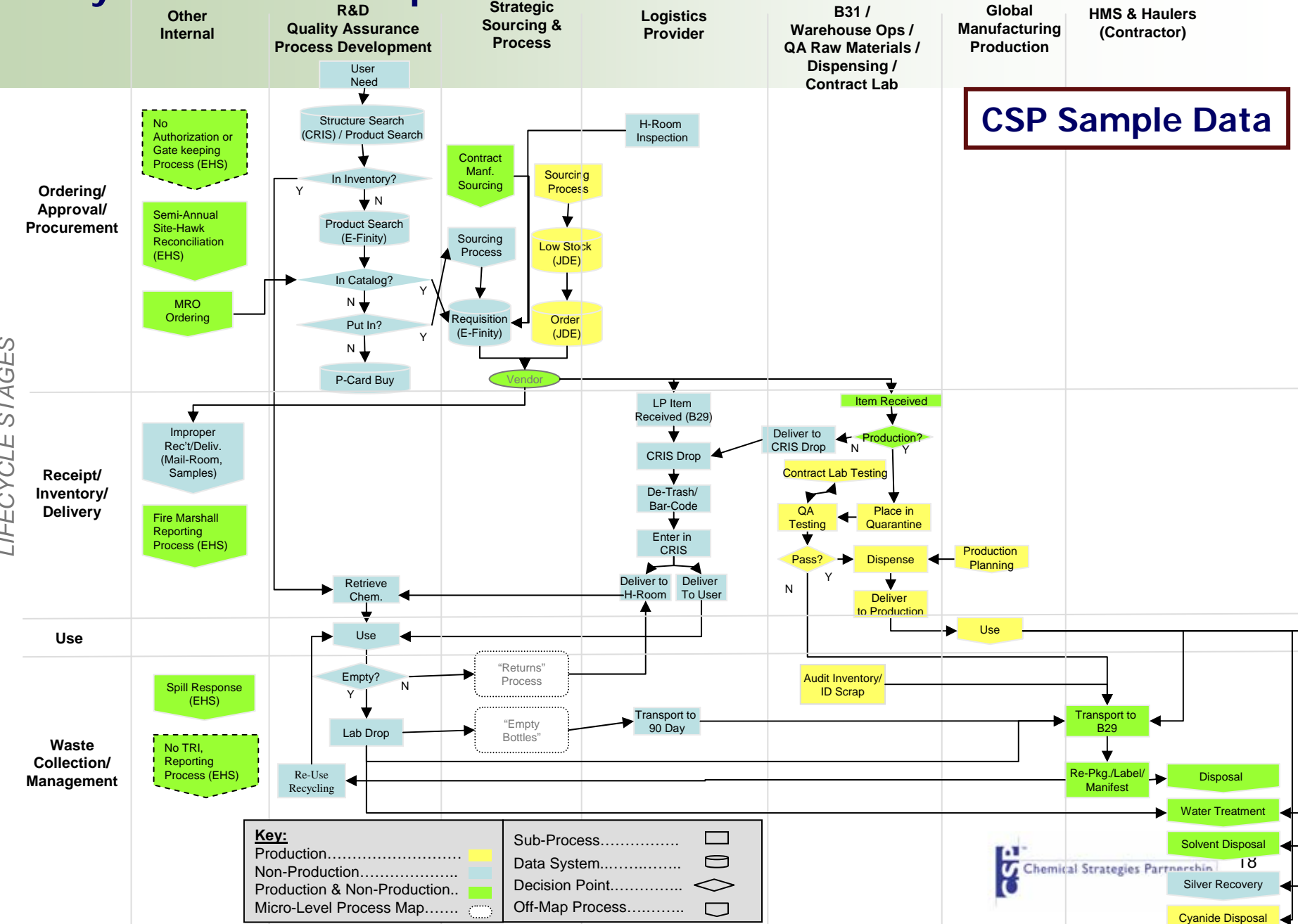
Decision Point: Is CMS right for my company?



Analysis: Process Map

PROCESS OWNER

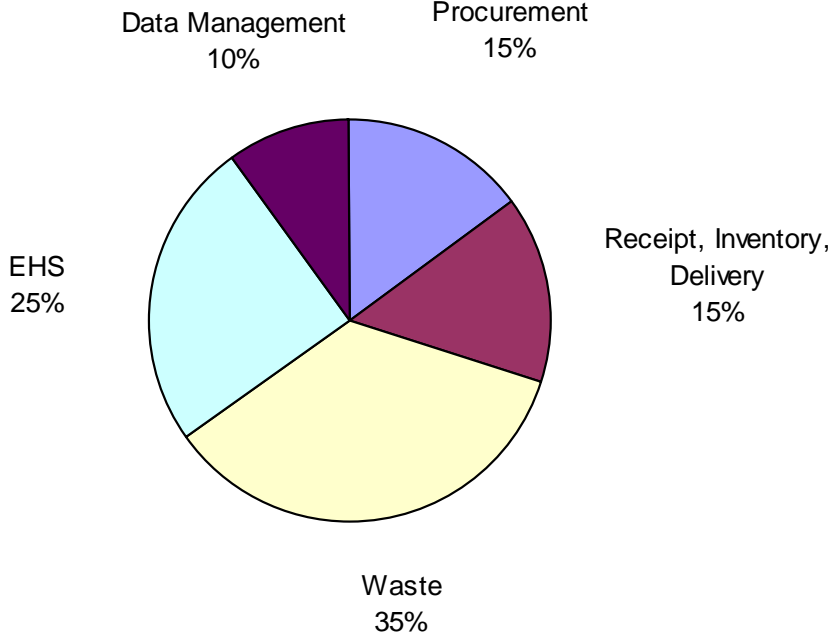
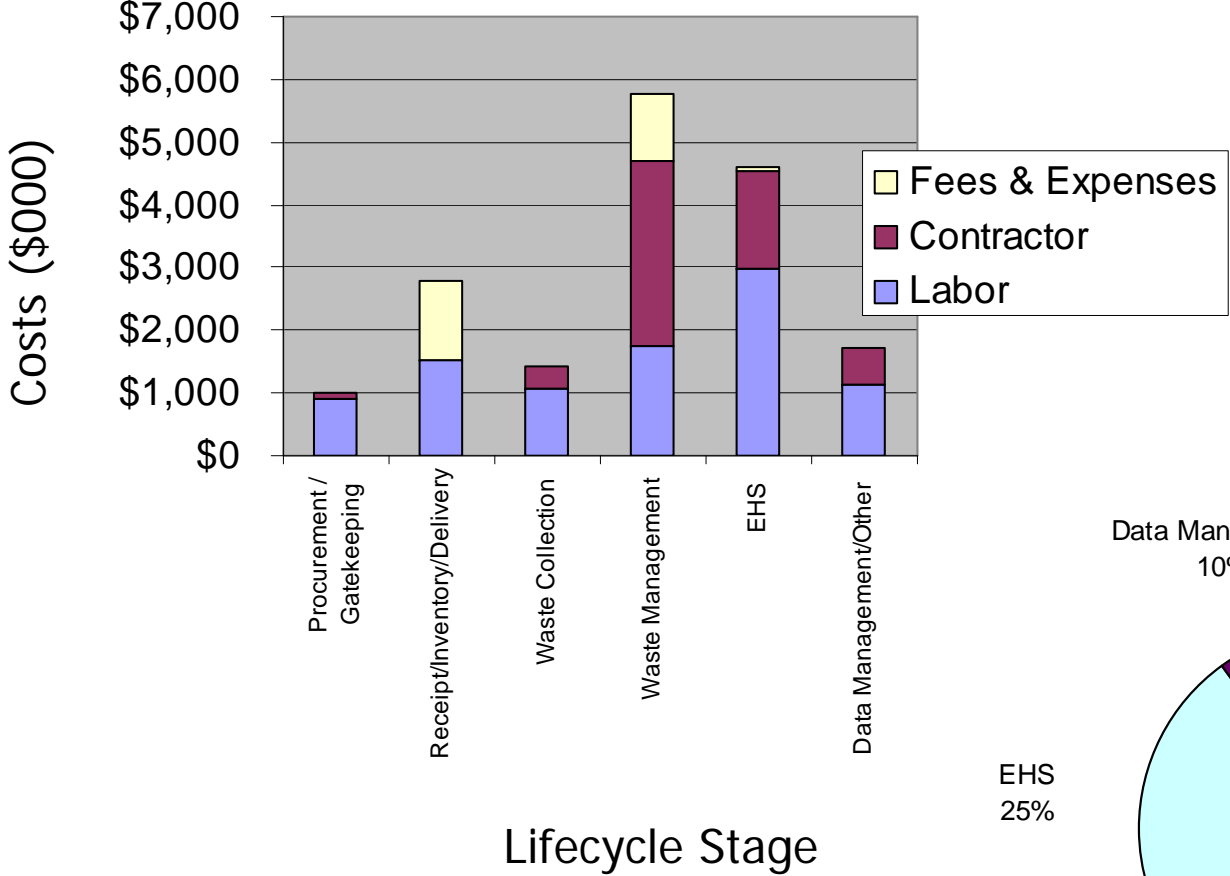
LIFECYCLE STAGES



CSP Sample Data

Analysis: Lifecycle Management Costs

CSP Sample Data



Summary Baseline Cost Analysis

CSP Sample Data

(\$000s)	Site 1	Corp (Est.)
Purchase Costs (Direct %)	\$4,558 (87%)	\$12,371 (72%)
Management Cost	\$1,359	\$6,294
<i>Management:Purchase Cost Ratio</i>	<i>0.3:1</i>	
# Chems on-site	~1050	
# Transactions	~500	~100
# Data Systems	~7	~5
"Old" Chemicals	~25%	
Availability Rate	~78%	
Avg. Delivery Time	~25%	

CSP continues to address barriers and promote CMS

- Introduce CMS into new sectors with public/private funding (university/research labs, k-12, municipalities, pharma/biotech, defense dept.)
- Assist in developing CMS programs to accelerate adoption in sectors already using CMS (electronics, aerospace, etc.)
- Develop tools (metrics, update manual, etc.)
- Disseminate information (workshops in SF, UK)
- Begin initiatives internationally (Asia, Europe)

CSP conducts these activities with support from the US EPA, state governments, foundations, and CMS Forum members