



An Integrated Approach Supplier Management

Focus on Technology

Supplier Collaboration for Innovation in 21st Century Manufacturing

Raj Khoshoo



Topics

Digital transformation

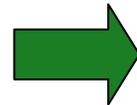
Digital maturity for supplier relationship

Collaboration technology used in PLM

Integrated SRM

Contrasting SRM systems approaches

Integration of collaboration with SRM



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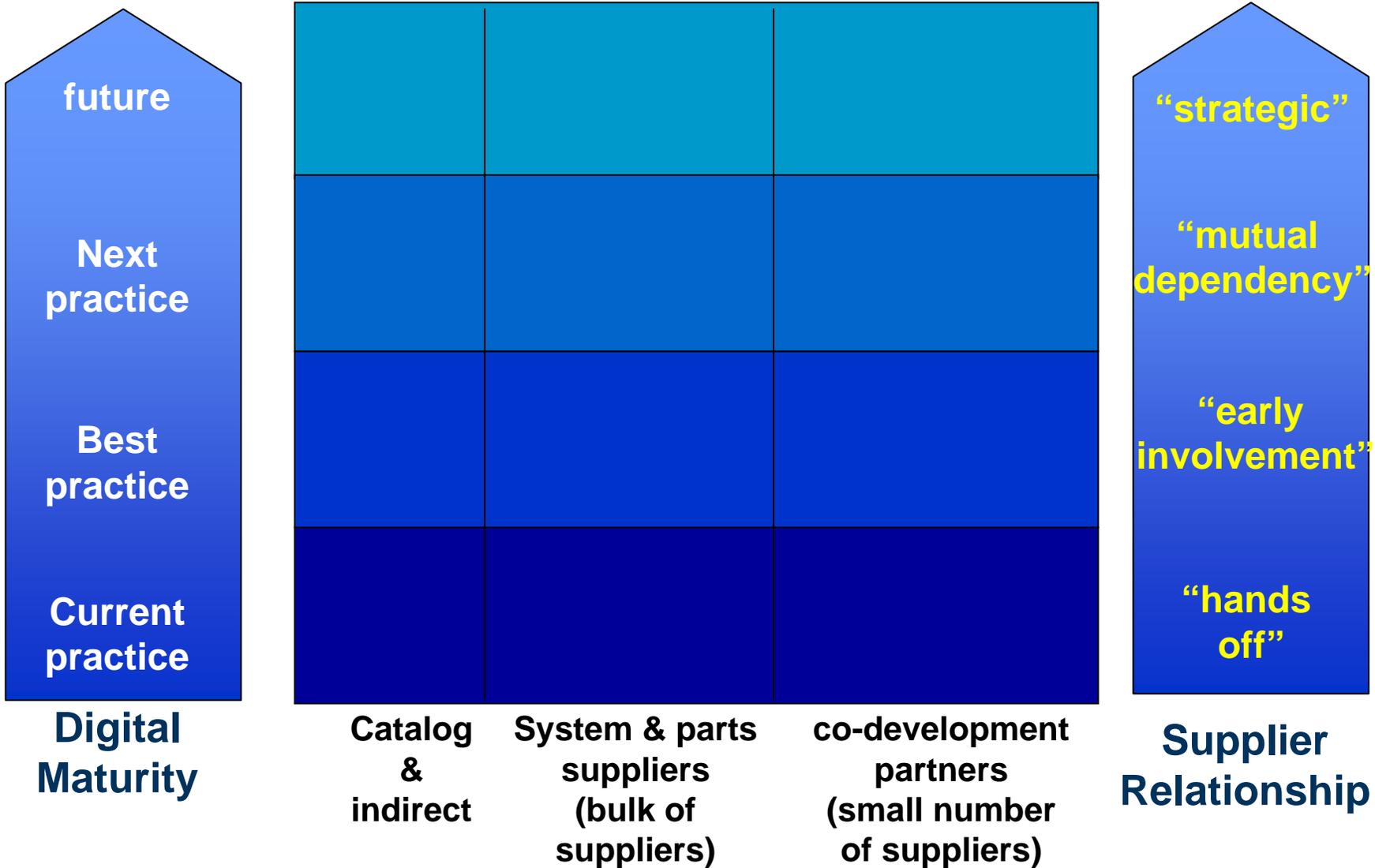
Digital Transformation

- ▶ Digital transformation is the ability to understand what business trends and technologies are at hand that can be of great value to a corporation, and then to have a systemic and rapid way of adopting those trends, building them into a sustainable business model and making competitive use of them.
- ▶ Three principles used to determine whether a capability is a good choice for digital transformation
 - ▶ The capability must be more attractive in digital form.
 - ▶ Potential must exist to leverage the capability beyond existing company boundaries.
 - ▶ The target business model must be strategically attractive.

(“The Digital Springboard” by Gillis Jonk and Bruce Klassen)

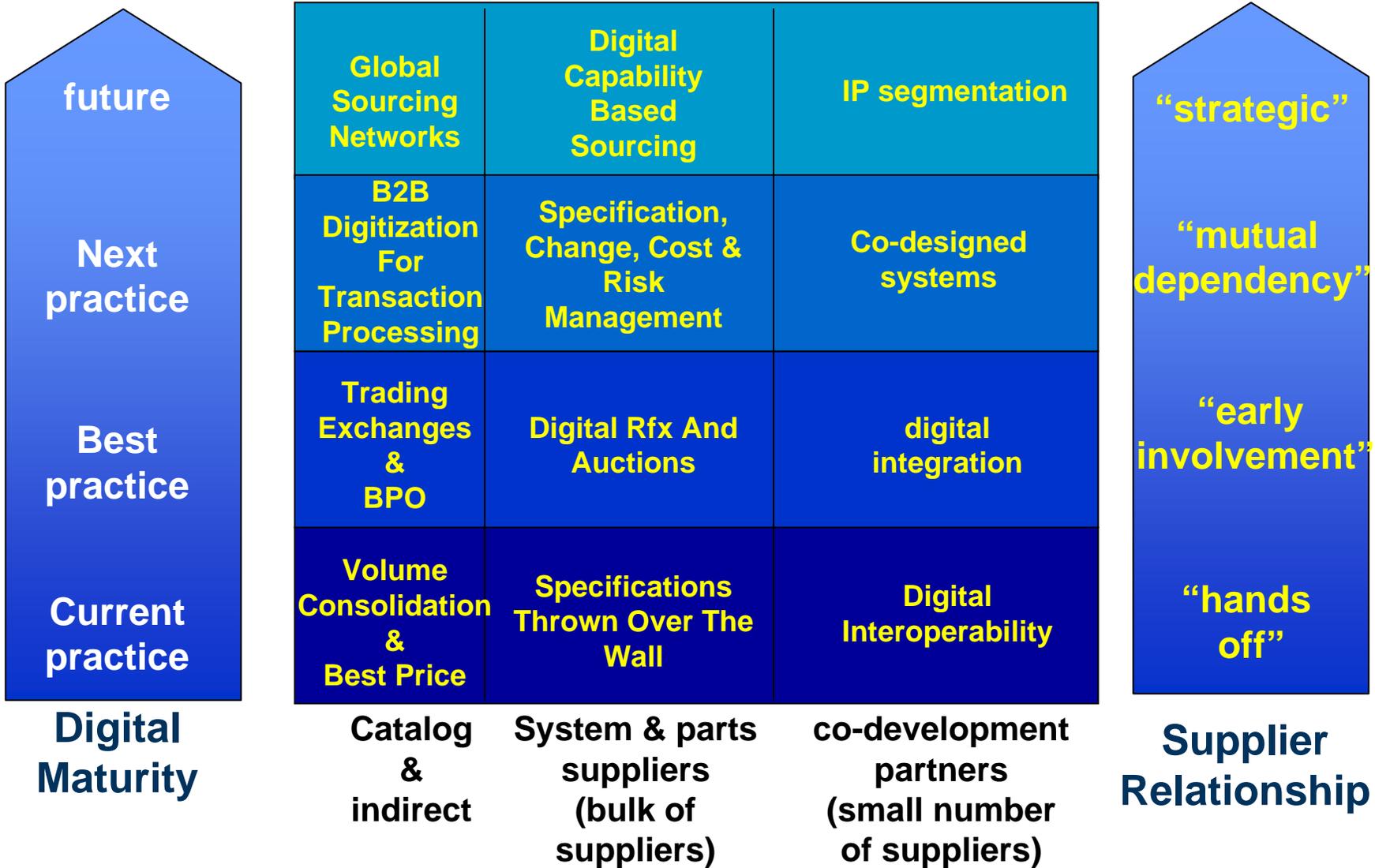


A sound indicator of the digital potential is to look at the entire spectrum of customer' supplier management initiatives generalized over broad categories of sourced systems/parts



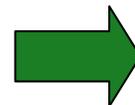


We see a mix of digital, services, consulting and custom software development initiatives in the industry





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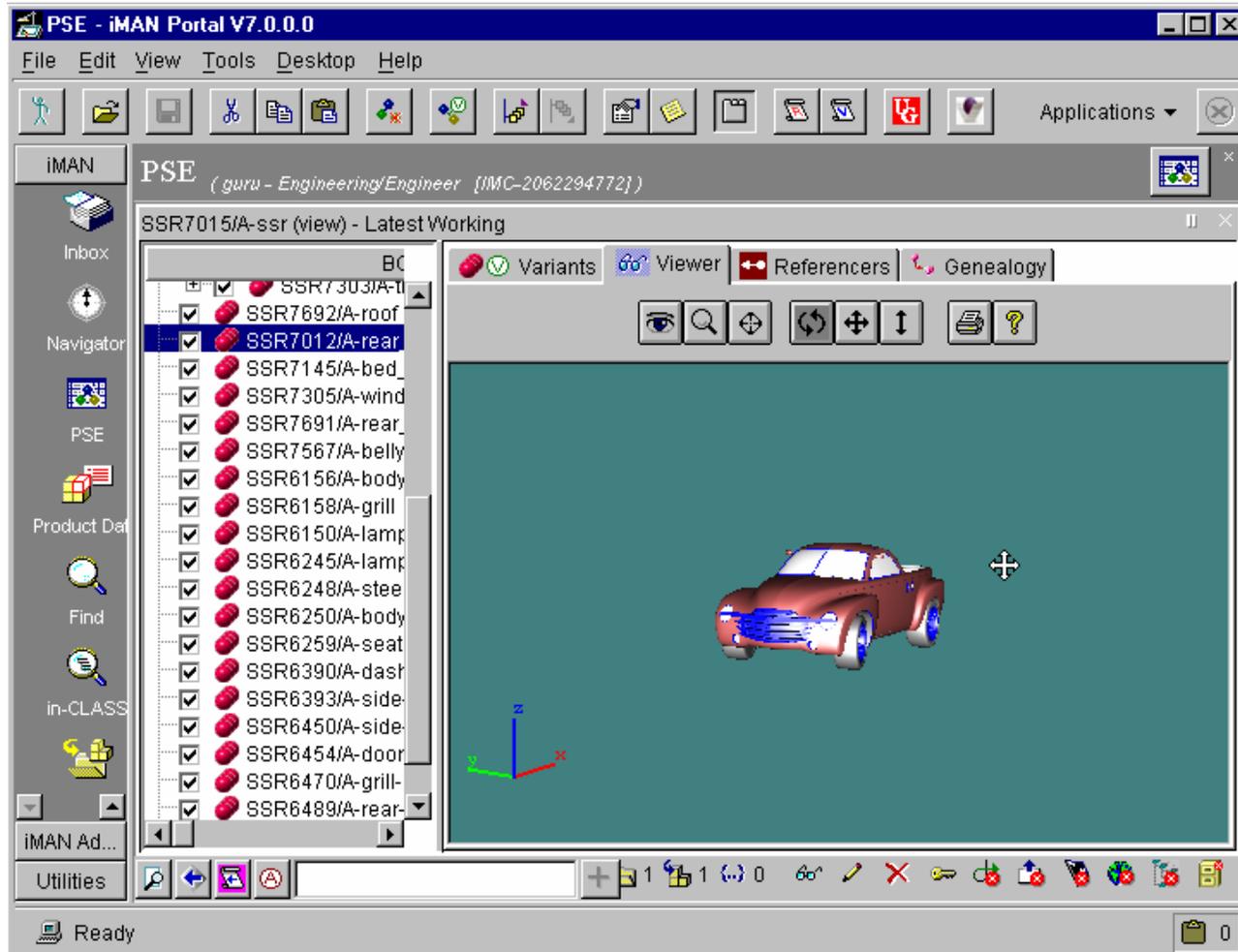
Contrasting SRM systems approaches

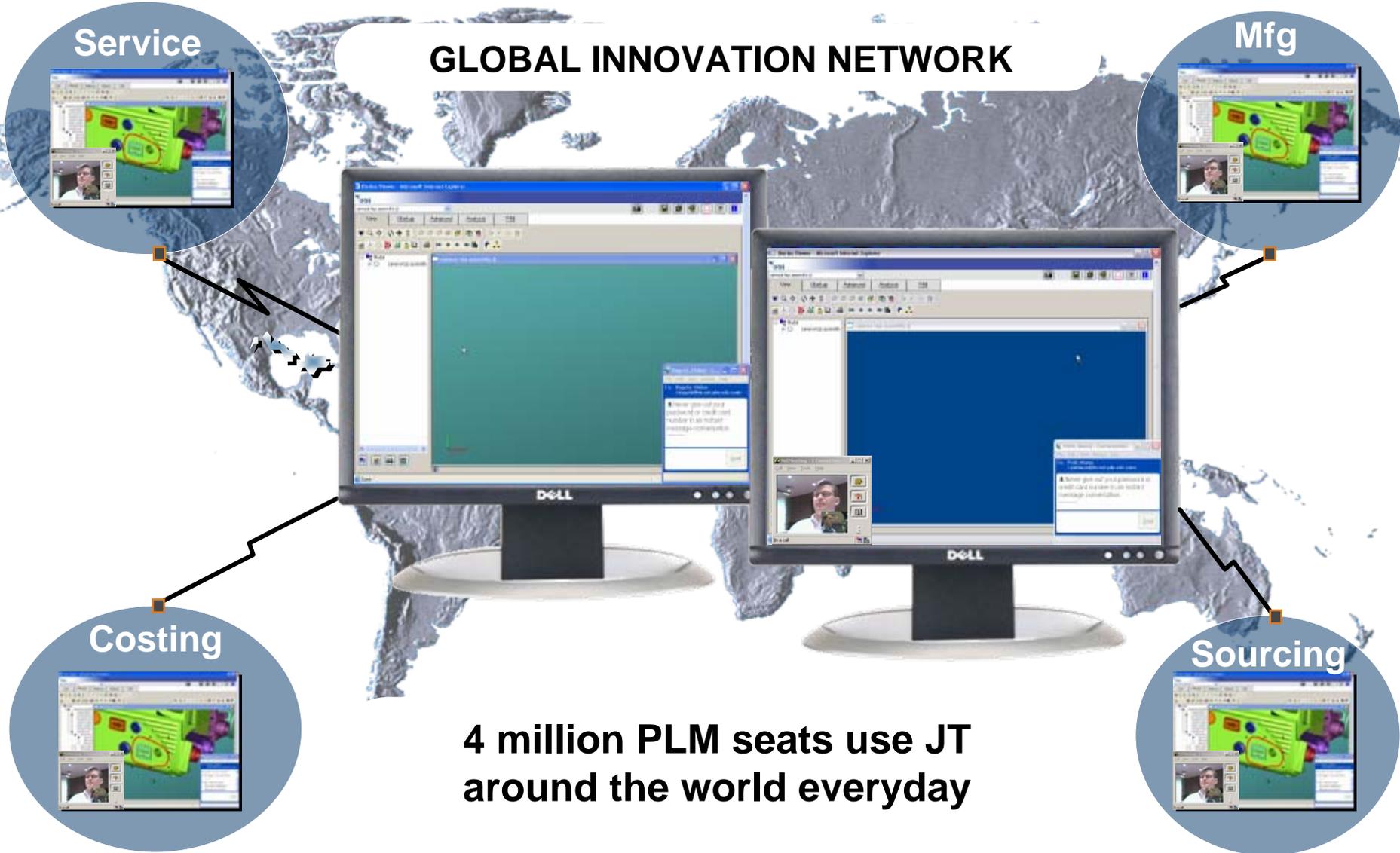
Integration of collaboration with SRM



PLM provides heavy lifting digital product and process development capability







GLOBAL INNOVATION NETWORK

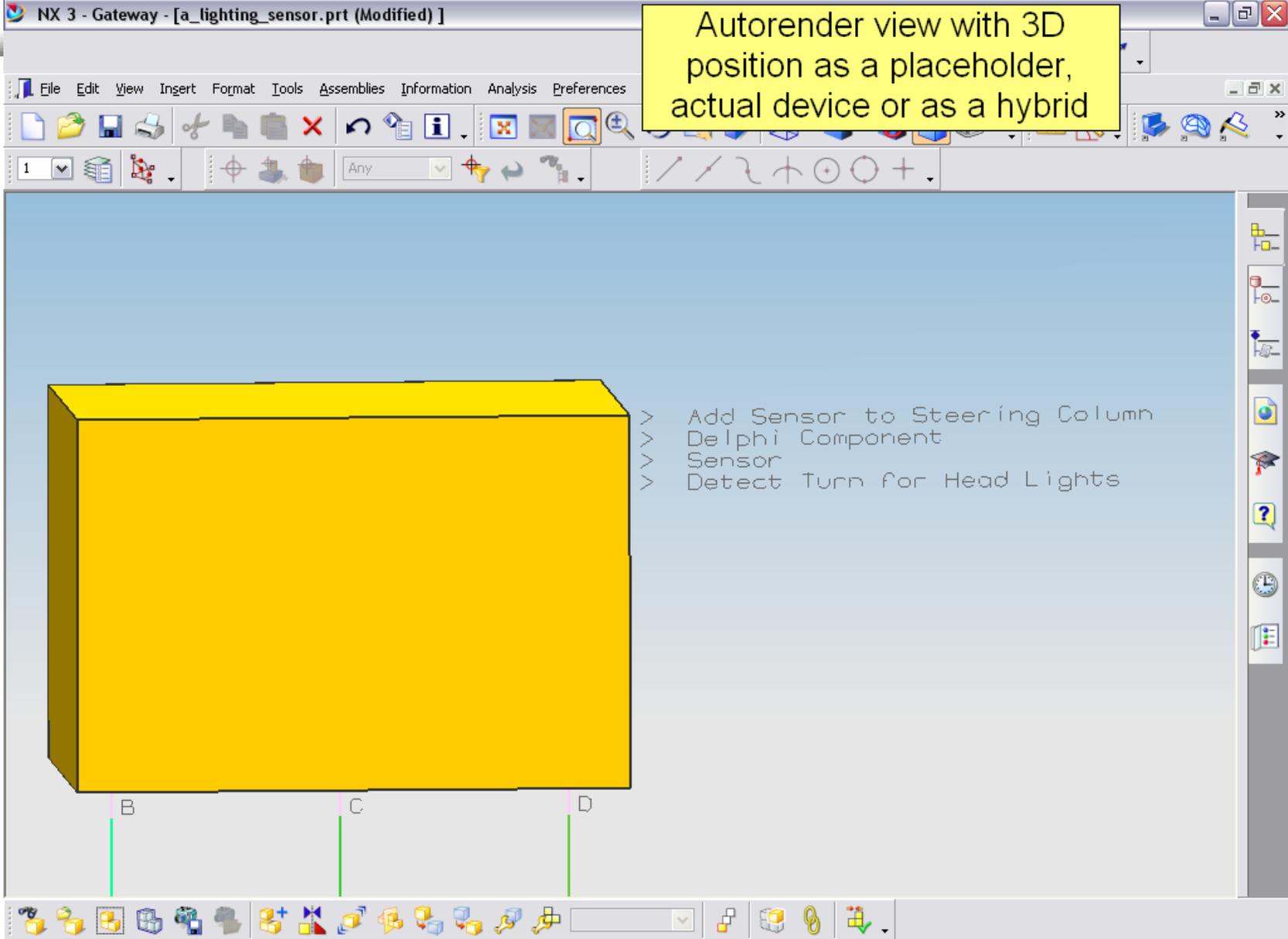
4 million PLM seats use JT around the world everyday



Co designed systems

ILLUSTRATIVE

Autorender view with 3D position as a placeholder, actual device or as a hybrid



- > Add Sensor to Steering Column
- > Delphi Component
- > Sensor
- > Detect Turn for Head Lights



IP development

ILLUSTRATIVE



JSF: One Program - - Three Variants Meeting Service Needs

Conventional Takeoff and Landing Variant (CTOL)



Short Takeoff Vertical Landing Variant (STOVL)

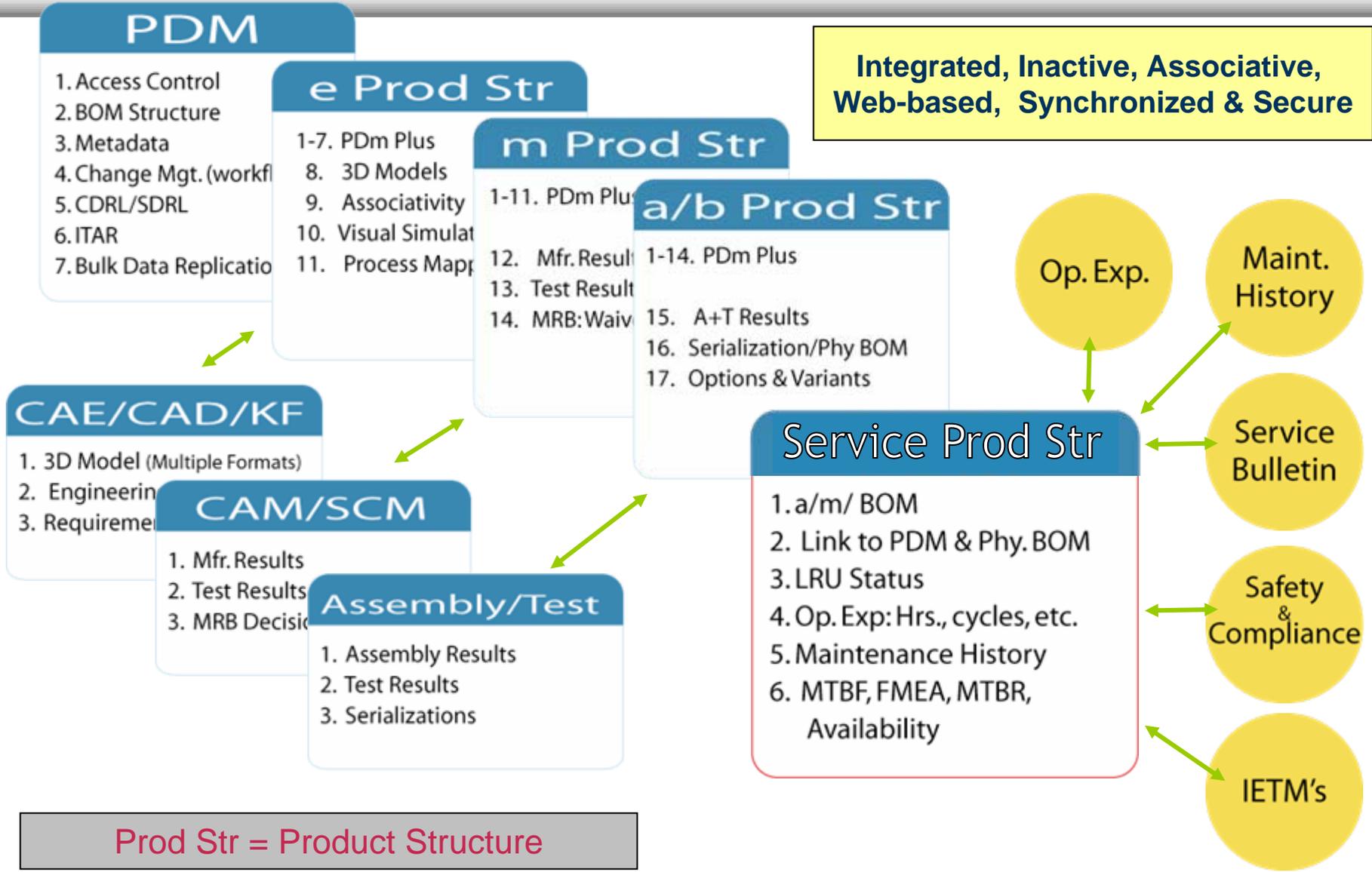


Carrier Variant (CV)





**Integrated, Inactive, Associative,
Web-based, Synchronized & Secure**



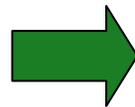
Prod Str = Product Structure



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Instant World-Wide Collaboration

Major Partners...

The image shows a person sitting in a chair, viewed from behind, looking at a large screen. The screen displays a list of partners and their login status:

BAE SYSTEMS	LOGGED IN
ALENIA	LOGGING IN
FOKKER AERO	LOGGING IN
FOKKER ELMO	LOGGING IN
GKN	LOGGING IN
LM PALMD	LOGGING IN
NORTHRO	LOGGING IN

Other floating screens show:

- Northrop Grumman (LOGGING IN)
- BAE Systems UK (LOGGING IN)
- GKN Aerospace Australia

The person's chair has the text "LM Aero Fort Worth, Texas" on the backrest.



Instant World-Wide Collaboration

Major Partners...

Northrop
Grumman

LM Palmdale
USA

BAE Systems
UK

Alenia, Italy

Fokker Aero
Netherlands

Fokker Elmo
Netherlands

LM Aero
Fort Worth, Texas

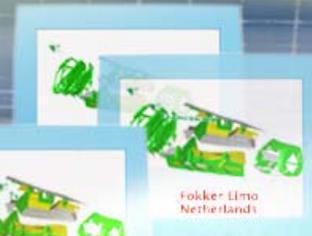
A 3D rendering of a green and yellow aircraft engine or fuselage component, displayed on a screen in front of a person sitting in a chair.

GKN Aerospace
Australia



Instant World-Wide Collaboration

Major Partners...





Instant World-Wide Collaboration



LM Aero
Fort Worth, Texas



Instant World-Wide Collaboration





Instant World-Wide Collaboration



Global Network of Suppliers...

United States

Canada

United Kingdom

Norway

Denmark

Netherlands

Italy

Turkey

Australia

Rolls Royce Allison **Hamilton Sundstrand** **General Electric** **LMNE & SS** **Bihrl** **Applied** **Applied Research** **Cytec Fiberite**

Advance **Advance Tool & Die** **McCook Metals** **Alcoa** **Goodrich** **NASA Glenn** **Research** **Marion Composites** **United Technologies** **Info Sys**

NASA Langley **Rockwell Collins** **LMNTS** **L3Communications** **Goodrich** **Info Sys** **Logicon** **Wright** **Maersk Data** **LM Aero**

Smith Industries, M&T, Visioneering **L3Communications** **RMI** **BAE SYSTEMS** **Moog** **Norway** **EDO** **Curtiss**

Ames **Logicon** **Cytec** **Fiberite** **United States** **Honeywel** **Normalair** **United Kingdom** **Veridian** **LMALC** **Wyman Gordon**

Litton **Marietta** **United States** **Garrett LTD** **Fokker-Elmo** **Aerostructure** **Netherlands** **EDO** **United Technologies**

LM Aero **Palmdale** **NG** **BAE SYSTEMS** **Martin Baker** **General Electric** **Italy** **Aermacchi** **NASA Langley** **Turkey** **BAE SYSTEMS Controls** **Marion Composite**

Honeywell **Alliant Tech** **Smith Industries** **General Electric** **NG ESSS** **Litton** **Mecaer** **BAE SYSTEMS Controls** **TRW Aeronautic**

Moog **J.C. Carter** **Logicon** **Hexcel** **VSI** **NASA** **NG ESSS** **Litton** **Mecaer** **Research** **Goodrich** **NG ESSS** **System** **Amecon**

Pilkington **Adv Tech** **Kaiser** **AEDC** **TRW Aeronautical** **Amecon** **System** **Amecon**

TRW Avionics **HI/CAT** **Progressive** **LM** **Manned Space System** **Eaton** **Cytec** **LM** **Missiles & Fire Control** **Harris Corp** **Litton**

Parker Aerospace **Alenia** **H.M. Dunn** **LM** **Manned Space System** **Eaton** **Cytec** **LM** **Missiles & Fire Control** **Harris Corp** **Litton**

Boeing Company **Fiberite** **United States** **LM** **Manned Space System** **Eaton** **Cytec** **LM** **Missiles & Fire Control** **Harris Corp** **Litton**

Weber **Sandia Labs** **United States** **LM** **Manned Space System** **Eaton** **Cytec** **LM** **Missiles & Fire Control** **Harris Corp** **Litton**

Smiths Industries **Goodrich Aerospace Hq** **United States** **LM** **Manned Space System** **Eaton** **Cytec** **LM** **Missiles & Fire Control** **Harris Corp** **Litton**

LM Aero **Fort Worth, Texas** **United States** **LM** **Manned Space System** **Eaton** **Cytec** **LM** **Missiles & Fire Control** **Harris Corp** **Litton**

Applied Research **United Technologies** **LM** **Information Systems** **Australia** **GKN Aerospace**

LM Aero **Fort Worth, Texas**



Lockheed-led Global Military Coalition

LOCKHEED MARTIN

UGS Teamcenter provides a capability that does these things:

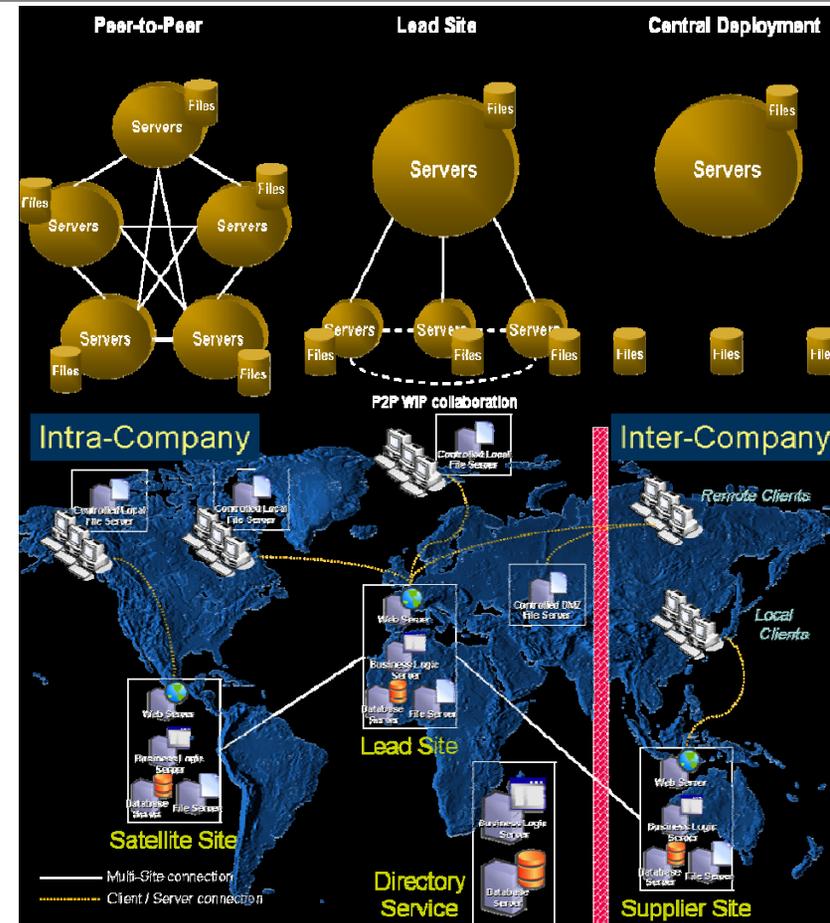
- The Master Digital Thread... from Concept through Sustainment
- Collaboration & workflows world-wide, enabling a Virtual Program
- ITAR Capability to control exports/data security
- Multi-CAD Product data & structure managed in a single system
- Config Mgmt performed throughout the Product Life Cycle
- Significant savings over traditional programs





PLM software provides flexibility in implementing global development business rules

- ▶ Centralized, distributed, federated,...
- ▶ Secure supplier access to data segmented by “need to know” basis
- ▶ Supplier hubs can be placed in the DMZ depending on customers requirement
- ▶ Distributed architecture can be implemented to reflect design partitions of the product
- ▶ Standards can be local or global or both



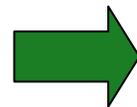


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Integrated SRM

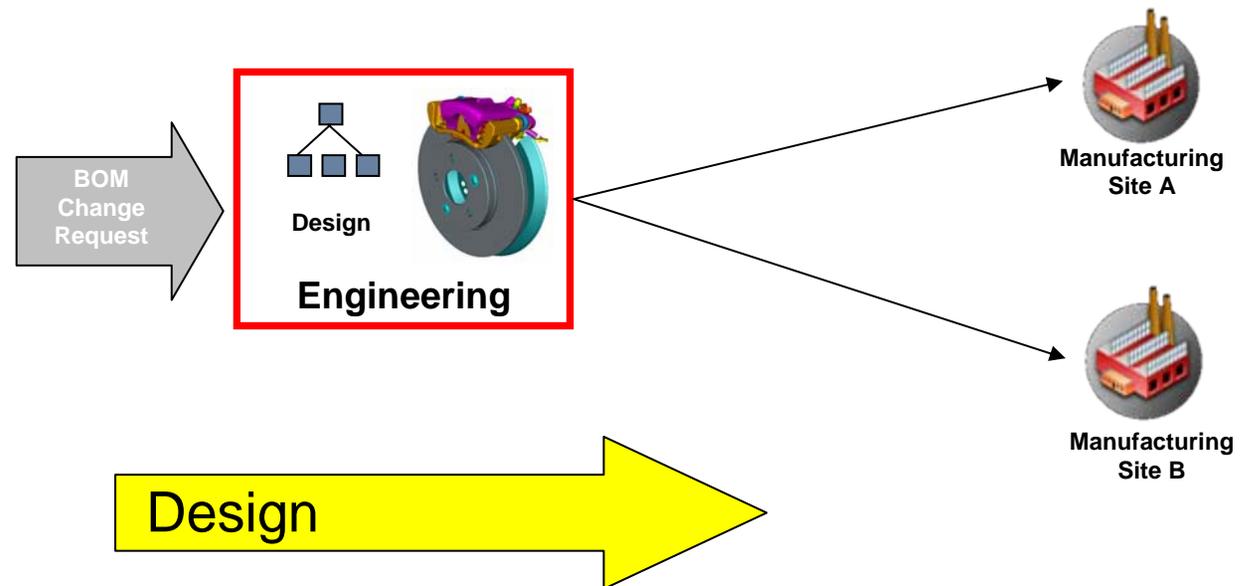
Contrasting SRM systems approaches

Integration of collaboration with SRM



Before Global Outsourcing

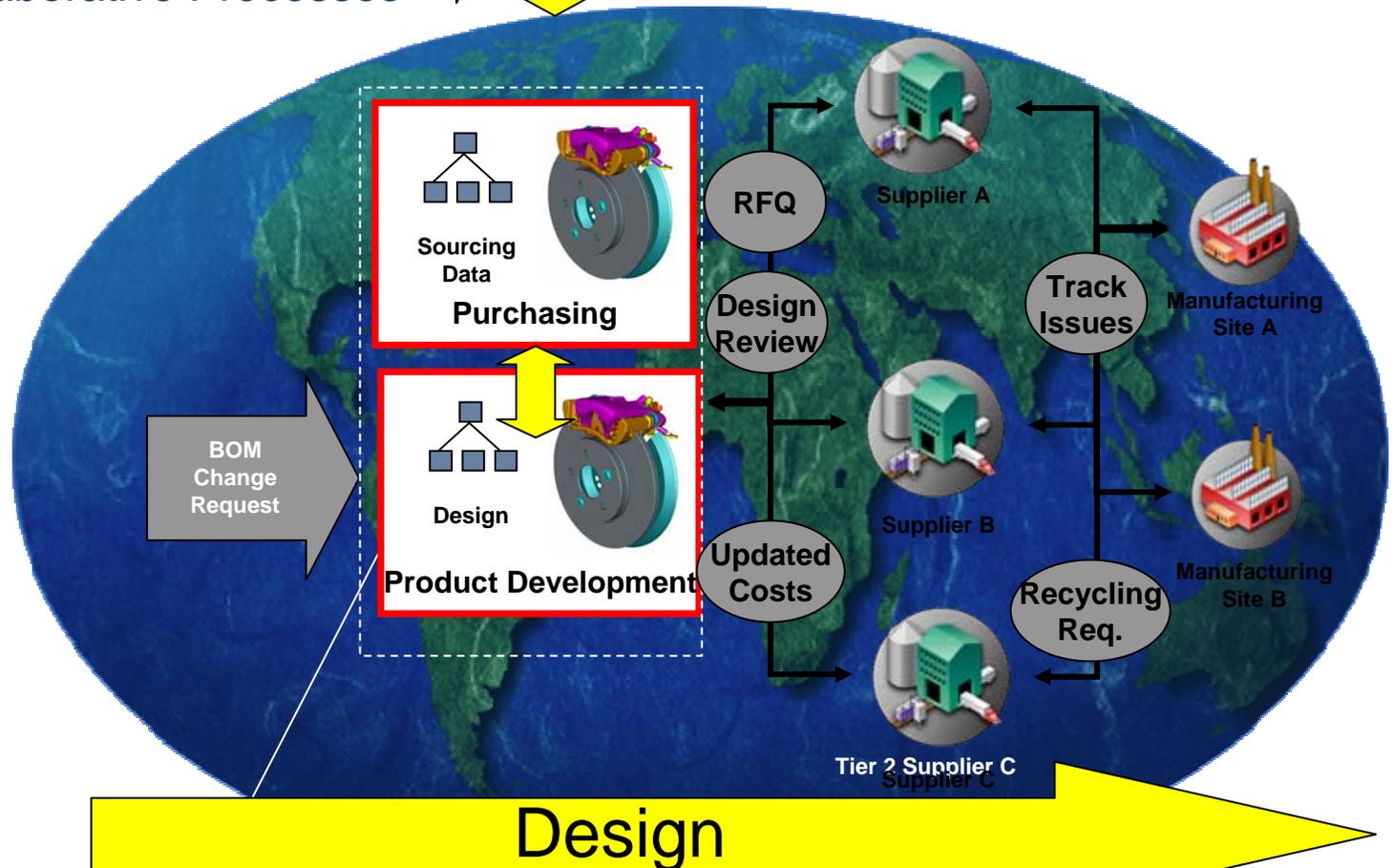
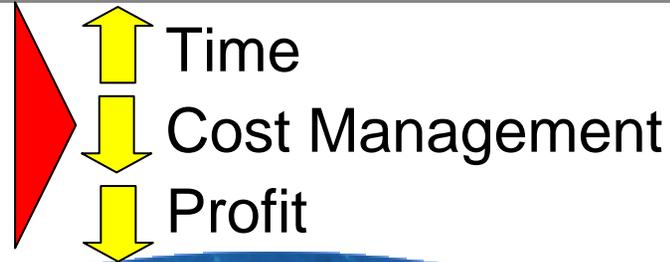
- ▶ Design In House
- ▶ Simple Supply Chain





Global Outsourcing

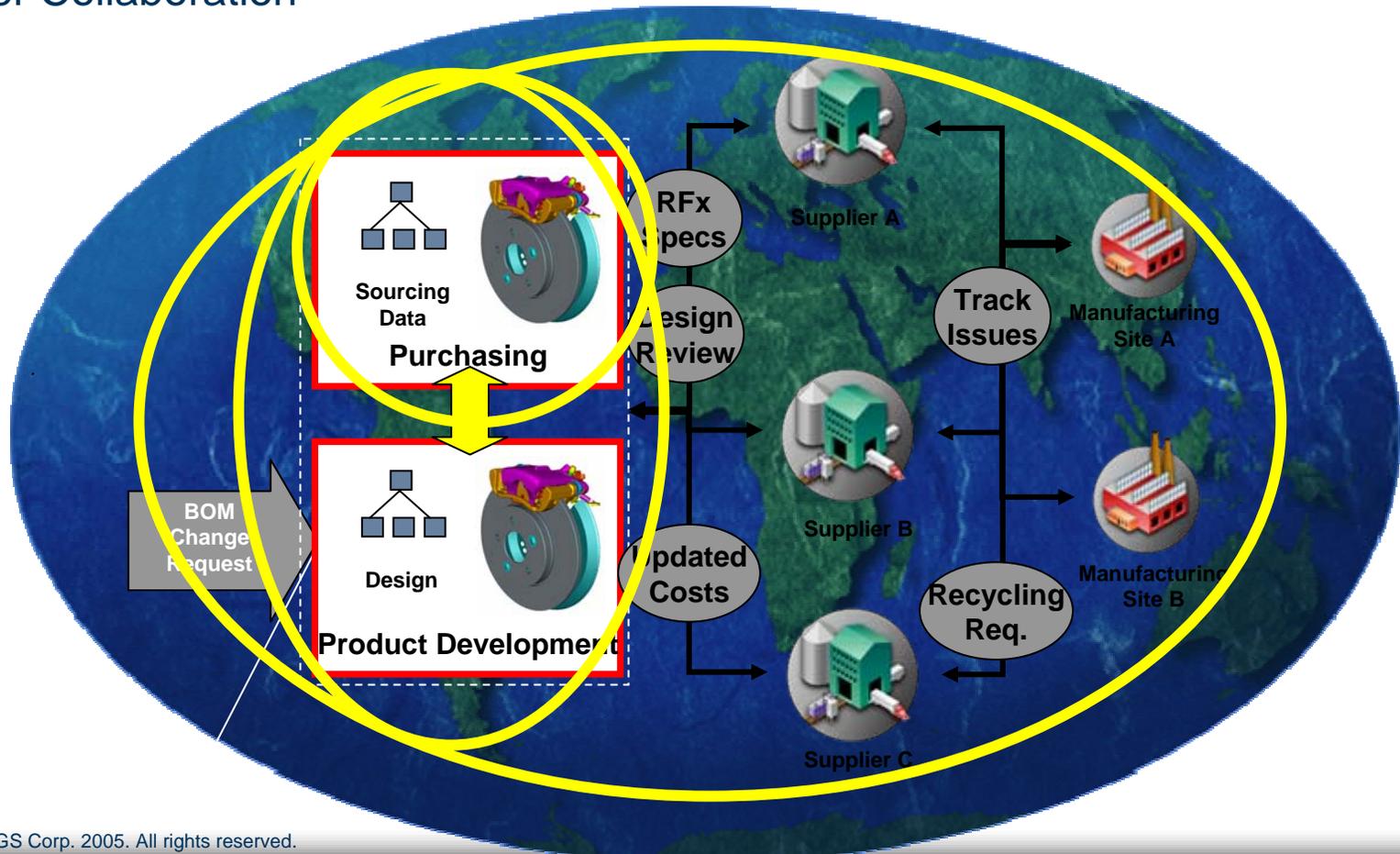
- ▶ Sourcing Team On Critical Path
- ▶ Globally Distributed Supply Chain
- ▶ Complex Collaborative Processes





Keys To Effective Sourcing

- ▶ Complete SRM Solution
- ▶ Integrated with Product Development
- ▶ Supplier Collaboration





Integrated Sourcing

The Need



Product
Development



- Which parts on this CR have been sourced?
- How much will this change impact my program cost?



Procurement

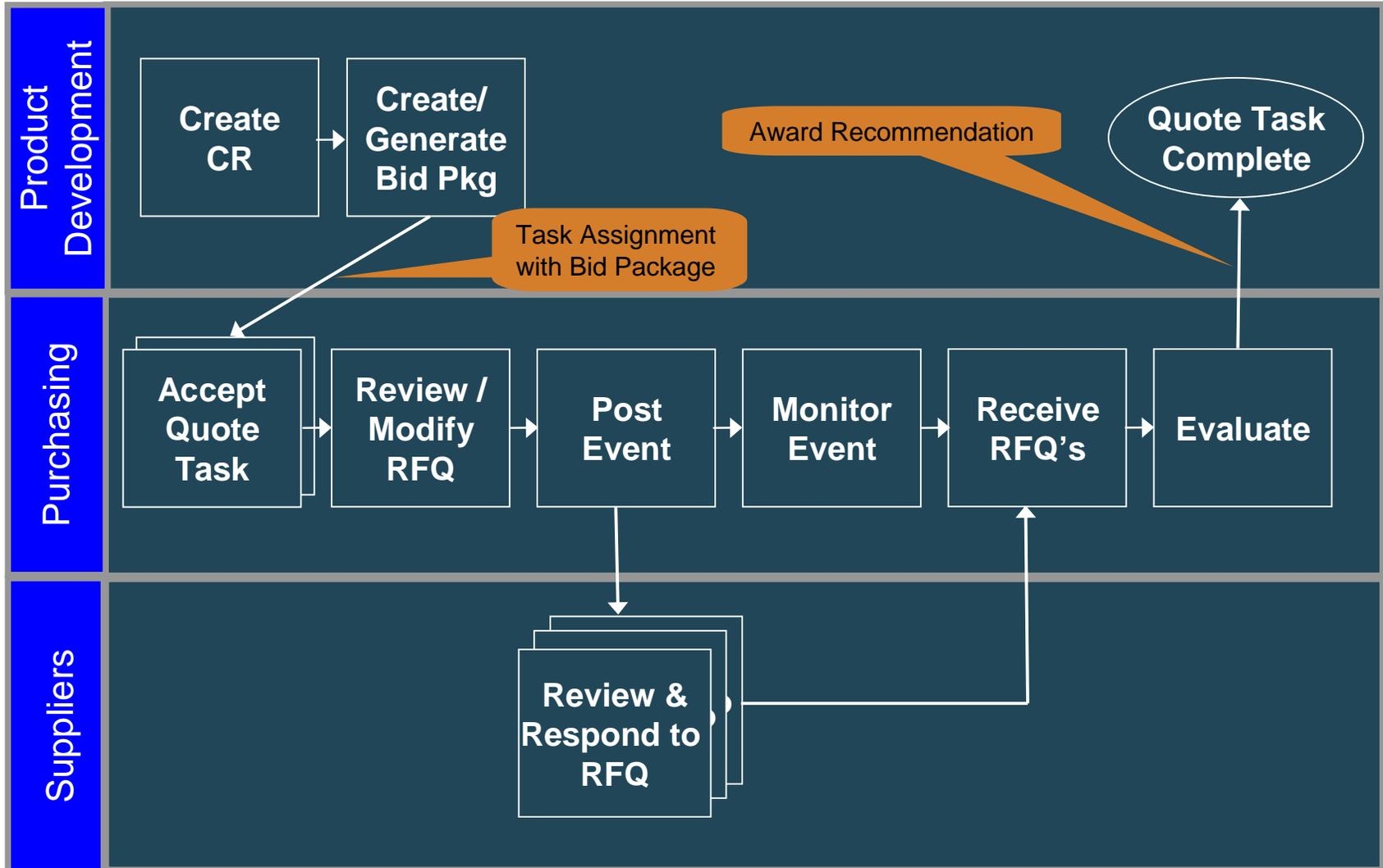


- Why does this part need to be re-sourced?
- Where is the design spec?
- Please don't ask me to re-key this info into an RFQ!



Integrated Sourcing

Bringing Purchasing into Product Development Processes

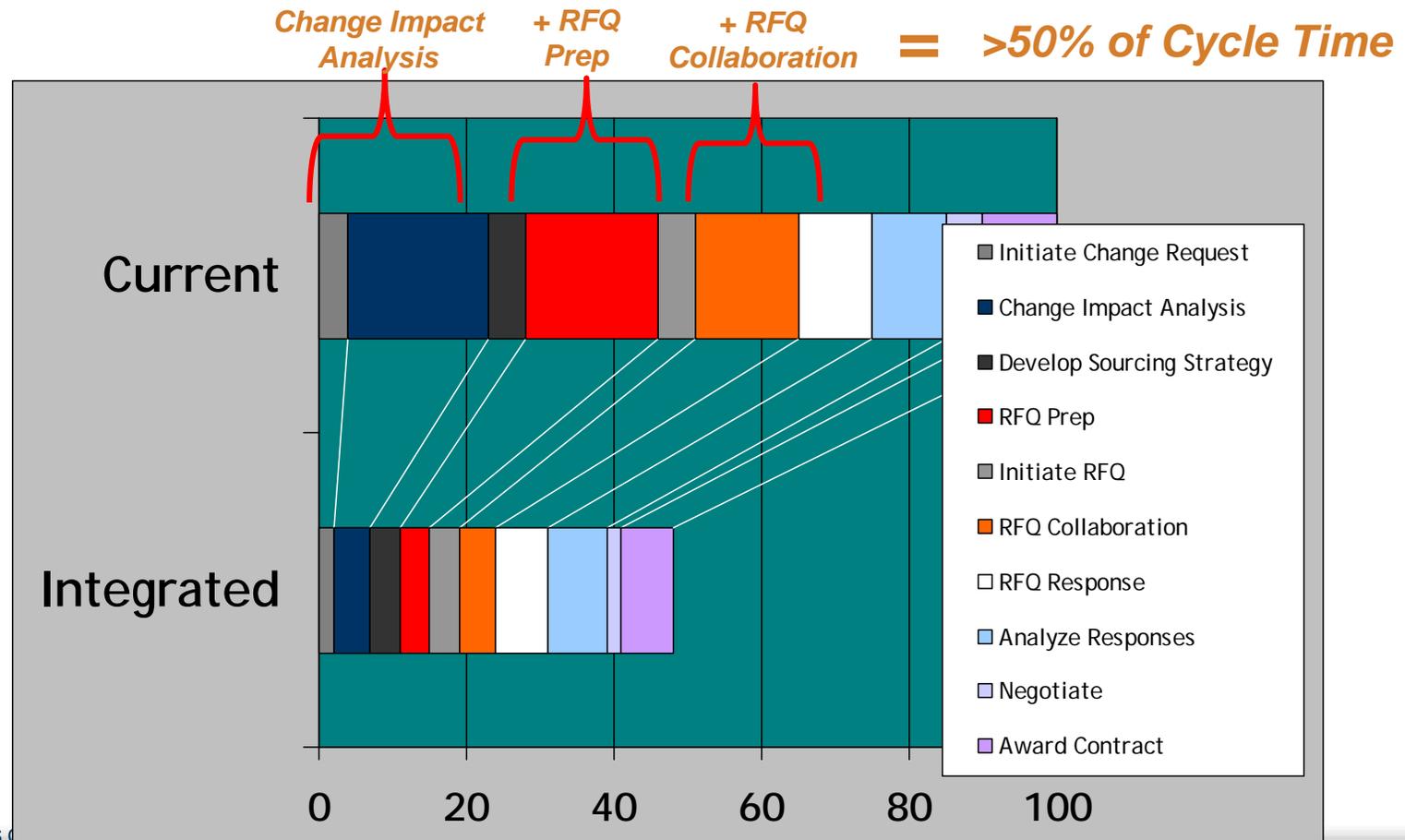




Integrated Sourcing

Value of Process Improvement

- Reduced Time to Process Change Requests
- Improved Cost Management

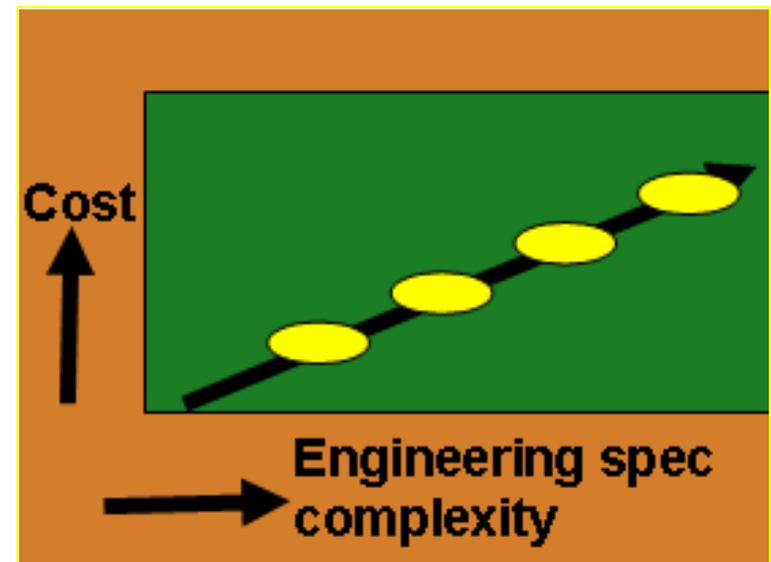
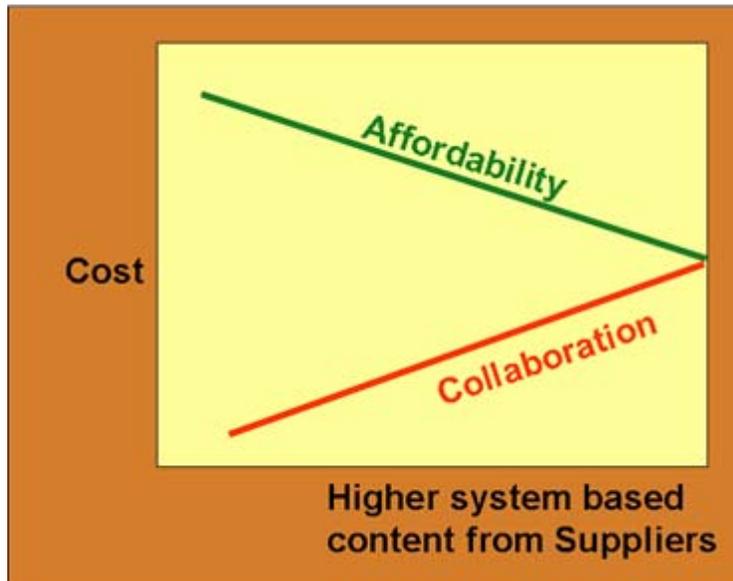




Integrated Sourcing

Value of OEM and Partner Collaboration

As the OEM drives higher content from the suppliers, the cost of collaboration and coordination rises while improving affordability as long as both are collaborating and iterating to an optimum specification complexity



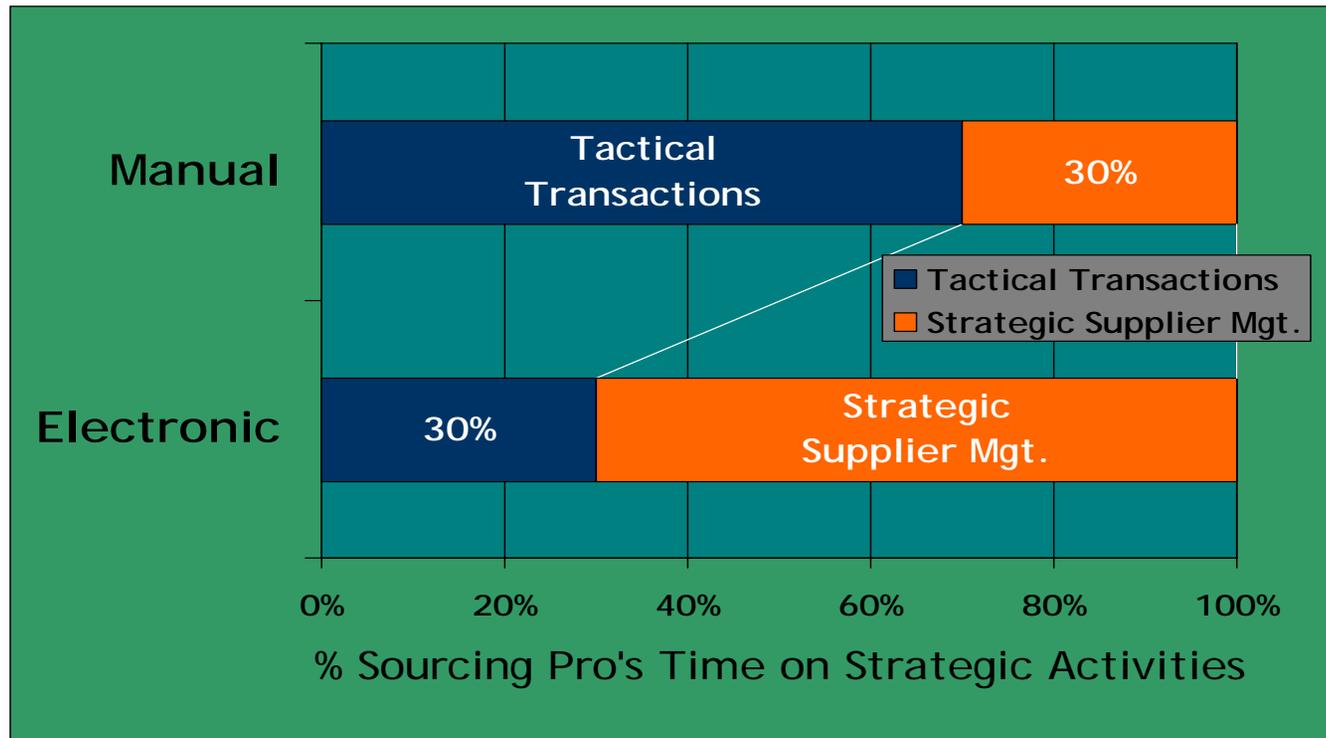
- UGS has integrated the proven and scalable Teamcenter collaboration and Program management technology with the eSourcing Tools



Integrated Sourcing

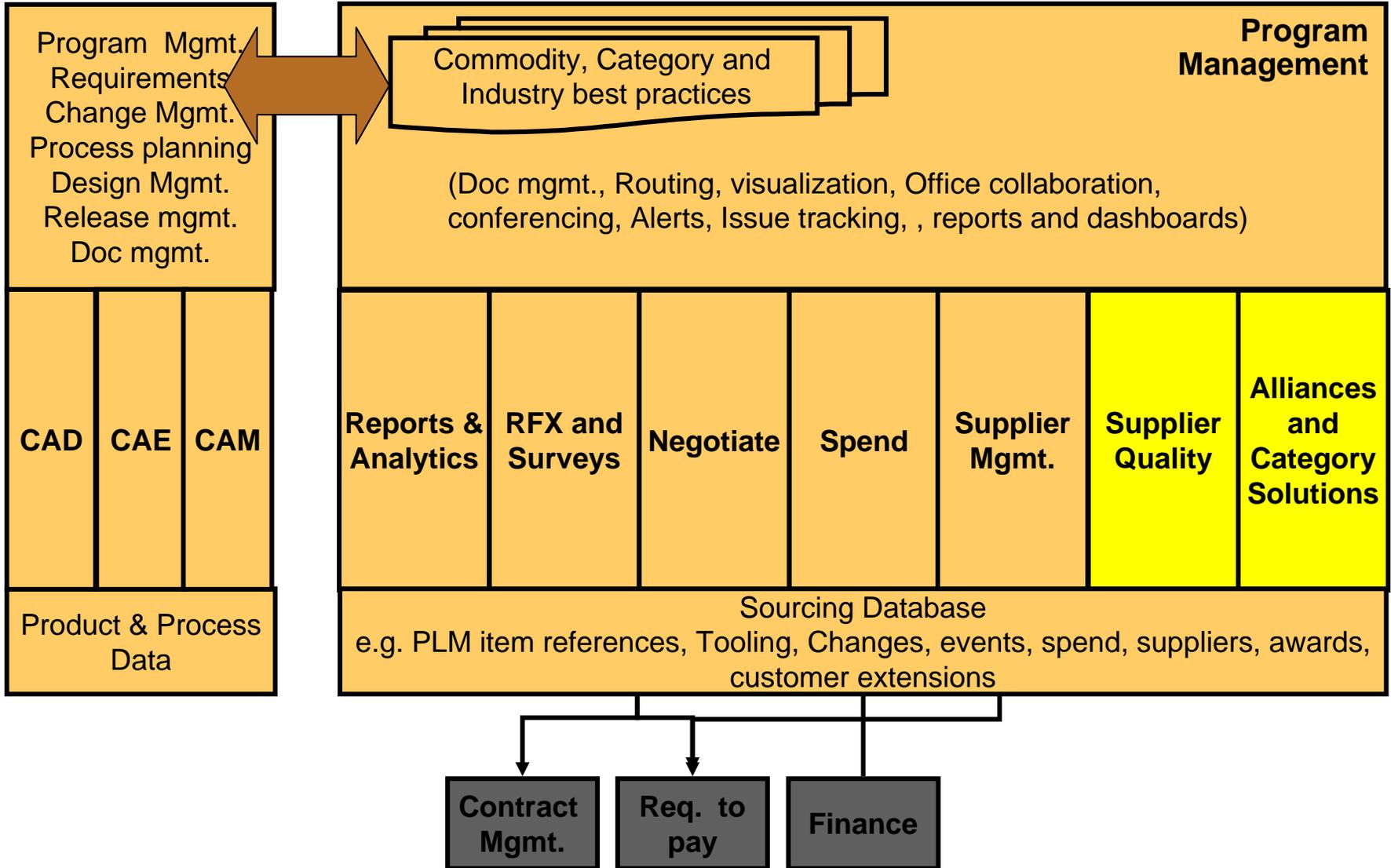
Value of Improved Purchasing Productivity

- ▶ Less time on repetitive manual tasks
- ▶ More time for strategic supplier management





The UGS Integrated SRM suite





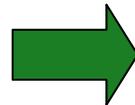
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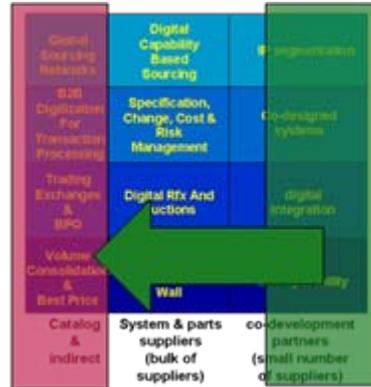
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Systems covering supplier managementextending PLM systems

ERP
eProcurement
&
Trading
exchanges



PLM

Suppliers collaborate with their customers to concurrently develop specifications ✓

Suppliers collaborate with their customers to concurrently develop systems ✓

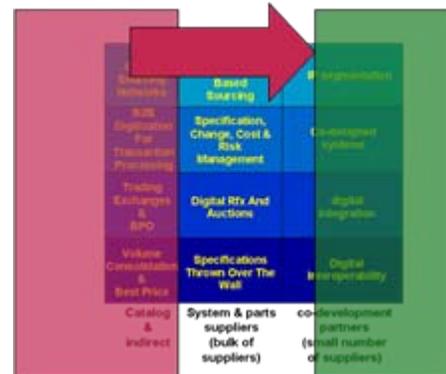
Suppliers collaborate with their customers to provide information early in the design cycle to integrate the digital product definition ✓

- ▶ PLM systems successfully manage the co-design relationship today
- ▶ Extending this capability by integrating strategic sourcing tools provides significant value:
 - ▶ Avoiding errors which are discovered later in the lifecycle by managing the entire lifecycle including day to day changes
 - ▶ Taking full advantage of the supplier innovation
 - ▶ Bringing the supplier selection, on-boarding early on the product development process by linking the specifications to the category/supplier structure
 - ▶ Enabling supplier quality / performance to be linked to supplier capability



Systems covering supplier managementextending ERP systems

ERP
eProcurement
&
Trading
exchanges



PLM

- ▶ Extending ERP and other indirect Sourcing systems to handle engineered systems/parts has the advantage of:
 - ▶ Integration with business data warehouse, R2P and contract management
 - ▶ In some cases of engineered goods, particularly in the domain of “order to re-order” business process, this approach may be suitable



Systems covering supplier management

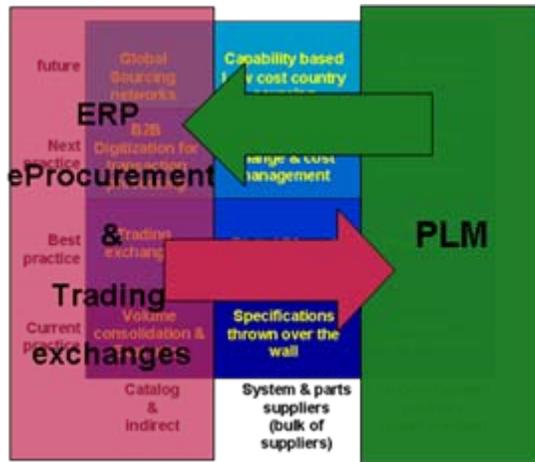
.... Should SRM be an independent system in the middle?



- ▶ Having another backbone system for Sourcing is not a long term viable proposition
- ▶ The coverage of such systems today is limited, with little or no interfaces with PLM and ERP systems and will end up maintaining costly integrations
- ▶ Specialty “open” applications will evolve in this space
 - ▶ which will need to be integrated into the backbone systems.
 - ▶ Specific capability based category solutions (e.g. Vykor) are a great example of this trend



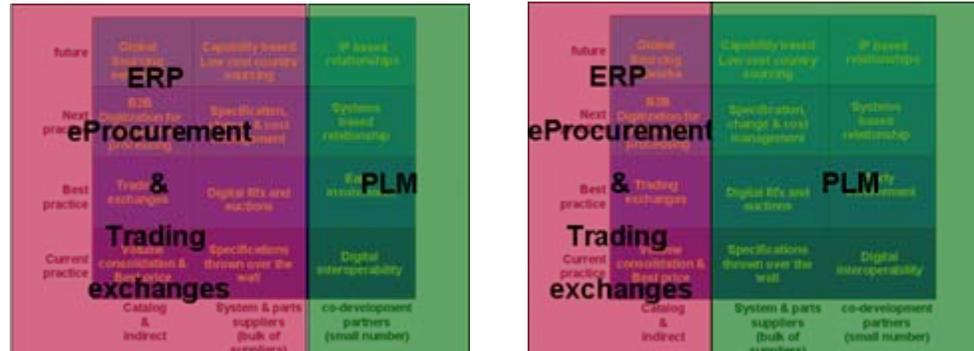
Two distinct directions for digital sourcing



<u>Transaction based systems</u>	<u>Model based systems</u>
Centralized monoliths	Distributed architecture
Evolved from Finance, HR	Evolved from product development
Flat BOM based	Product structure based
The technical basis of collaboration is EDI	Collaboration and change management is integral
Understanding of People, BOM, payables and receivables	Understanding of parts, systems and assemblies at a model level
Integration of contract management and R2P	Integration of ME/EE/SW
Link supplier to its delivery?	Link supplier capability and quality to specification
Expensive to customize, maintain and extend	Model based approach lends itself to easy on-site extensions



Summarizing the two approaches



SRM category coverage	Transactional and well suited to indirect	Suitable for both direct and indirect
Core SRM Business Processes supported	Order to re-order	Build to stock, engineer to order and assemble to order
System/Part model and lifecycle	Item master is limited in knowledge of the part or system	PLM contains extensible part and or system information
Sourcing Driver	Price driver; consolidation of indirect spend	Collaboration; early involvement of suppliers; focus on complexity reduction and specification improvement
Supplier Relationship	Arms length relationship with suppliers	Collaboration with suppliers
Key Sourcing Process	R2P	"design to source":



Topics

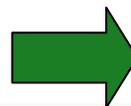
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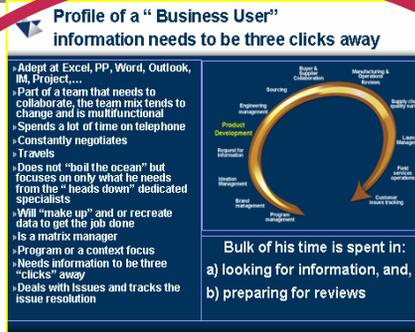
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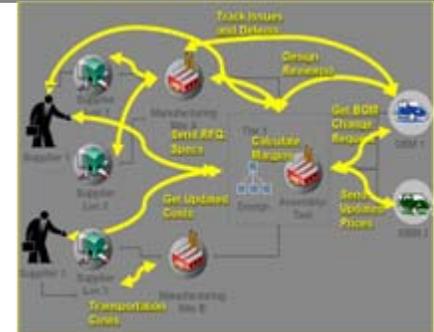
Next generation Sourcing is based on 6 key technologies



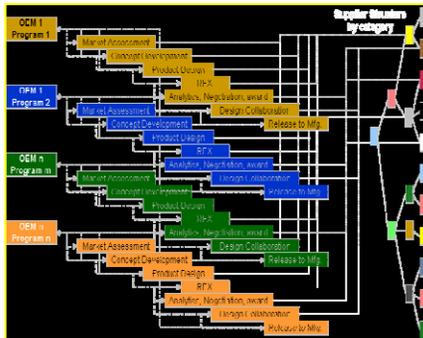
eSourcing Tools integration



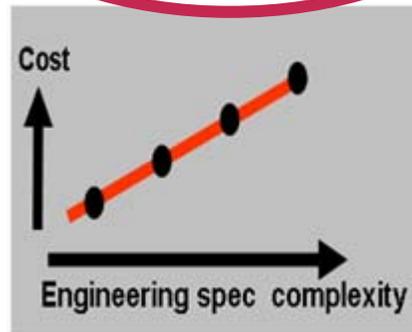
Program Management & collaboration



PLM integration and change management



Supplier capability & risk model



Analytics and lifecycle cost



Quality driven improvements

+ OPEN ARCHITECTURE



Program Management & Collaboration

Welcome Malloni, Joe

- Main
- My Projects
- My Events
- My Tools
- Knowledge Center
- My eMail

Modify Shared Page

Leadership Corner

Welcome China Team! 10/31/2005 4:47 PM
by
Welcome to the members of the China Purchasing Team. You can use the **My Projects** tab to start sourcing strategy work on goods and services.

Delays due to Hurricanes 10/28/2005 8:08 AM
by Malloni, Joe
Hurricane Katrina and Rita have impacted the delivery of raw materials. Please watch for future messages on this topic

Add new announcement

Getting Help

- Got an Improvement IDEA????
- eRfx Web Based Overview
- Job Aids - Common Tasks
- Job Aids - Getting Started with One Window
- One Window Training Workshops
- One Window Training Presentation (ppt)
- AVIs - Common Tasks
- One Window User Manual

Add new link

Link documents from other Document Libraries

Rollup - All Announcements

Filter | Refresh List | Export Results

Title	Modified	Site
Re-organization Announcement	10/28/2005 12:00:00 AM	New Laptops
New Laptop project has been started	10/28/2005 12:00:00 AM	New Laptops
Alternator project has been accelerated	10/31/2005 12:00:00 AM	Next Generation Alternator
Manufacturing project initiated	10/28/2005 12:00:00 AM	Servo Motors

Purchasing Links

- CombineNet
- SAP BW
- Cost Analysis
- Supplier Management
- Contract Management
- Lexis Nexis Publisher
- Payment Tracking

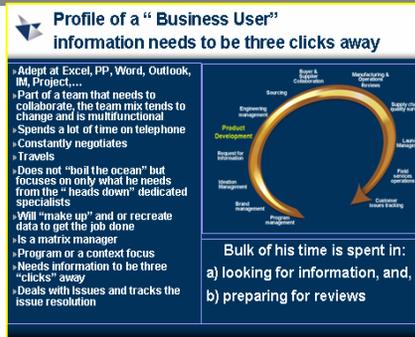
Rollup - All Tasks



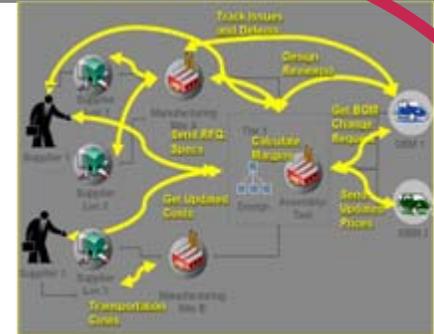
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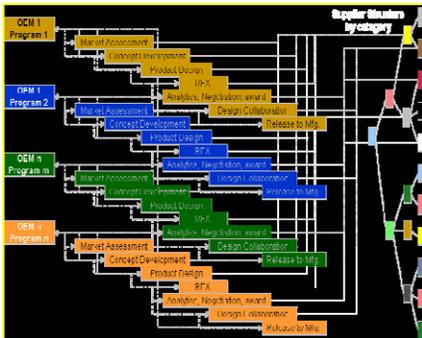
**eSourcing
Tools integration**



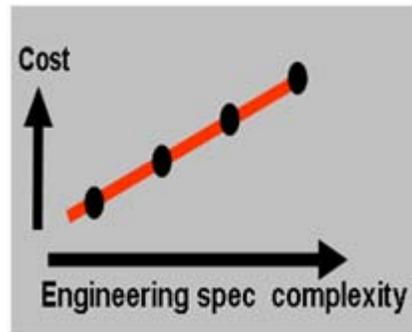
**Program
Management &
collaboration**



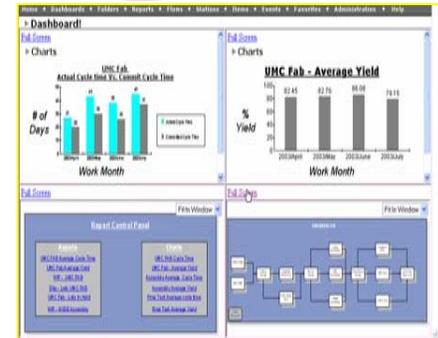
**PLM integration
and change
management**



**Supplier
capability & risk
model**



**Analytics and
lifecycle cost**



**Quality driven
improvements**

+ OPEN ARCHITECTURE



Designer

Mail

Favorite Folders

- Inbox
- Unread Mail
- For Follow Up
- Sent Items

All Mail Folders

- Mailbox - Supplier
 - Deleted Items
 - Drafts
 - Inbox
 - Junk E-mail
 - Outbox
 - Sent Items
 - Search Folders

Mail

Calendar

Contacts

Tasks

Inbox

Arranged By: Date

Newest on top

Today

- Designer@Simpsons.net 1:48 PM
Routing slip task waiting on your review: Sup...
- Designer@Simpsons.net 1:48 PM
Routing slip initiated: Supplier Approval

Routing slip task waiting on your review: Supplier Approval

Designer@Simpsons.net

To: Supplier

A routing slip assigned to you by Designer (SIMPSONS\Designer) is ready for your review. Your reviewer type is "Required".

Please review the attached data...

Use this link to view the task:

<http://lisa:8080/brake/ layouts/tcc/wfDispForm.aspx?wid=aa853400-f8a7-49b9-ba5f-39d07094ba9b>

Use this link to view your task list on this site:

<http://lisa:8080/brake/ layouts/tcc/wfAllItems.aspx>



Summary

- ▶ Digital transformation
 - ▶ Understanding what business trends and technologies are at hand that can be of great value to a corporation and then to have systemic and rapid way of accepting those trends, building them into a sustainable business model and making competitive use of them.
- ▶ Digital maturity for supplier relationship
 - ▶ Key to understanding your business environment...and your understanding next step
- ▶ Collaboration technology used in PLM – Instant World-wide Collaboration
 - ▶ PLM software provides flexibility in implementing global collaboration...which is required!
- ▶ Integrated SRM
 - ▶ Integrated SRM, with PLM, for maximum data re-use, process automation, sharing, and collaboration with your suppliers.
- ▶ Contrasting SRM systems approaches
 - ▶ The integration from PLM offers critical advantages...takes full advantage of the supplier innovation, capability, and performance...integrated with the supplier database
- ▶ Integration of collaboration with SRM
 - ▶ The full suit of integrated tools are required to receive maximum value.
- ▶ To be continued....



Analytics in Supplier Relationship Management

Focus on Technology

Analytics in Supplier Relationship Management

Raj Khoshoo



- Search**
- Category Management
- Users
- Usage Reports
- Manage Groups
- Reports

Search by Supplier | Search by Category | Search by Contact | Search by Groups | Add Supplier

Search by Supplier

Search Reset

<input type="checkbox"/> Search by Company Name:	<input type="text"/>
<input checked="" type="checkbox"/> With the following Supplier Status:	<input type="text" value="Registered"/> <input type="checkbox"/> Changed
<input type="checkbox"/> With the following Category Status:	<input type="text"/> <input type="checkbox"/> Changed
<input type="checkbox"/> With Minority/Women Owned:	<input type="checkbox"/>

Search by Supplier | Search by Category | Search by Contact | Search by Groups | Add Supplier

Search Results

Manage Company |
 Disable/Enable |
 View Supplier Data |
 Export to Excel |
 Notify on Change |
 Add to Group |
 Add to New Group |
 Email to Company Admins |
 Email to Company Users

in Suppliers/Users

H/S	<input type="checkbox"/> Select All	Suppliers/Users	Supplier Status	First Name	Last Name	Email	Phone	Contact For
	<input type="checkbox"/>	Global Factory	Registered					
	<input type="checkbox"/>	UGS	Registered					
	<input type="checkbox"/>	UGS98	Registered					
	<input type="checkbox"/>	UGS2	Registered					
	<input type="checkbox"/>	Comp3	Registered					
	<input type="checkbox"/>	comp5	Registered					
	<input type="checkbox"/>	Suppliers	Registered					
	<input type="checkbox"/>	JP	Registered					
	<input type="checkbox"/>	Itai Company	Registered					
	<input type="checkbox"/>	WH Supplier	Registered					
	<input type="checkbox"/>	New Supplier	Registered					
	<input type="checkbox"/>	Just Plus Inc.	Registered					
	<input type="checkbox"/>	Unspecialized Packaging Group	Registered					
	<input checked="" type="checkbox"/>	Stone-Eleven	Registered					
	<input type="checkbox"/>	LaubertsS_x		Siuryan	Laubertson	supplier_management_hay@yahoo.com	111-222-3333	...
	<input type="checkbox"/>	Trucking, Inc	Registered					
	<input type="checkbox"/>	Mouse Trucking	Registered					
	<input type="checkbox"/>	Blue Box	Registered					
	<input type="checkbox"/>	UGS Corp	Registered					

Search

Category Management

Users

Usage Reports

Manage Groups

Reports

Search by Supplier ▾ | Search by Category ▾ | Search by Contact ▾ | Search by Groups ▾ | Add Supplier ▾ |

Search Results

Data for: Stone-Eleven

[Back to Search](#) [View/Edit Data](#) [View Contacts](#) [Add User](#)
 in Category ▾ Find Set Filter Remove Filter

H/S	Category	<input type="checkbox"/> Select All	Category Status
<input type="checkbox"/>	Company General Data		Registered
	Company Financial		Not Registered
<input type="checkbox"/>	Company General		Registered
<input type="checkbox"/>	Company Data		Registered
<input type="checkbox"/>	Product & Package Films		Not Registered
<input type="checkbox"/>	Substrates & Componentry		Not Registered
<input type="checkbox"/>	Pulp & Pulp Derivatives		Not Registered
<input type="checkbox"/>	Edible Ingredients		Not Registered
<input type="checkbox"/>	Global Packaging		Registered
<input type="checkbox"/>	Printed Packaging		Registered
	Inks	<input type="checkbox"/>	Not Registered
	Pkg-Cans	<input type="checkbox"/>	Not Registered
	Pkg-Cartons	<input checked="" type="checkbox"/>	Registered
	Pkg-Corrugated	<input type="checkbox"/>	Not Registered
	Pkg-Labels	<input type="checkbox"/>	Not Registered
<input type="checkbox"/>	Pkg-Other Printed		Not Registered
<input type="checkbox"/>	Plastic Packaging Materials & Components		Not Registered
<input type="checkbox"/>	Global Chemicals		Not Registered
<input type="checkbox"/>	Devices		Not Registered



Dataset Data for : Stone-Eleven

[Back to Company Data](#) [Contacts](#) [Verify Company](#)

Dataset Name: General Data *The selected supplier has not submitted data for this category! [No Change] [OK] [Previous] [Next] [Save] [Cancel]

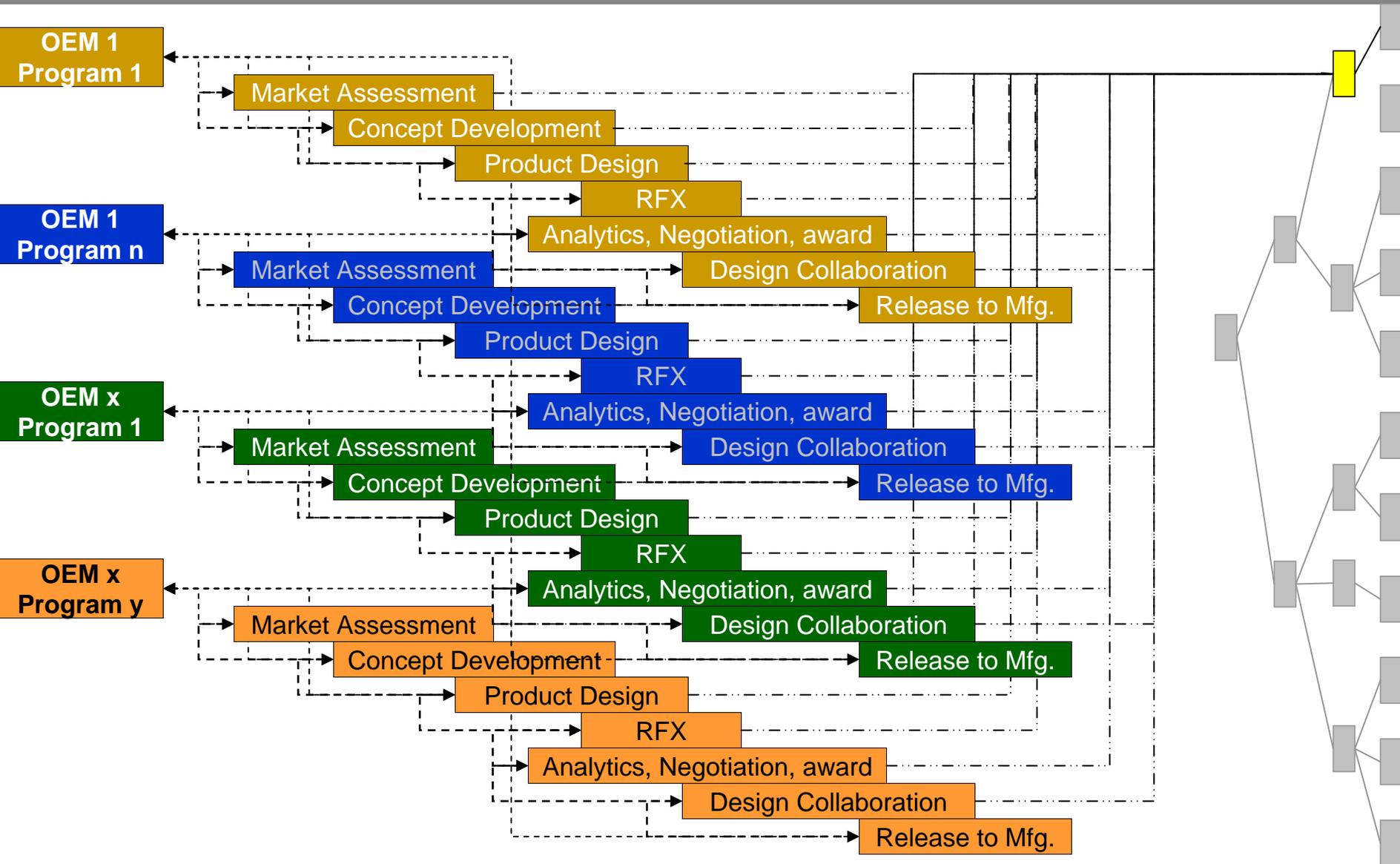
- Sections
- 1 [Company Profile](#)

11. Company Profile *The data can be changed from Profile by supplier administrators only

Supplier Main Contact Person		Company Information
First Name	Phone	DUNS
<input type="text"/>	<input type="text"/>	<input type="text"/>
Last Name	Mobile	<input type="text"/>
<input type="text"/>	<input type="text"/>	
Title	Fax	Notes
<input type="text"/>	<input type="text"/>	<input type="text"/>
Email		
<input type="text"/>		
Street Address		
<input type="text"/>		
City	Zip	Registration Date
<input type="text"/>	<input type="text"/>	<input type="text"/>
State	Country	
<input type="text"/>	<input type="text"/>	

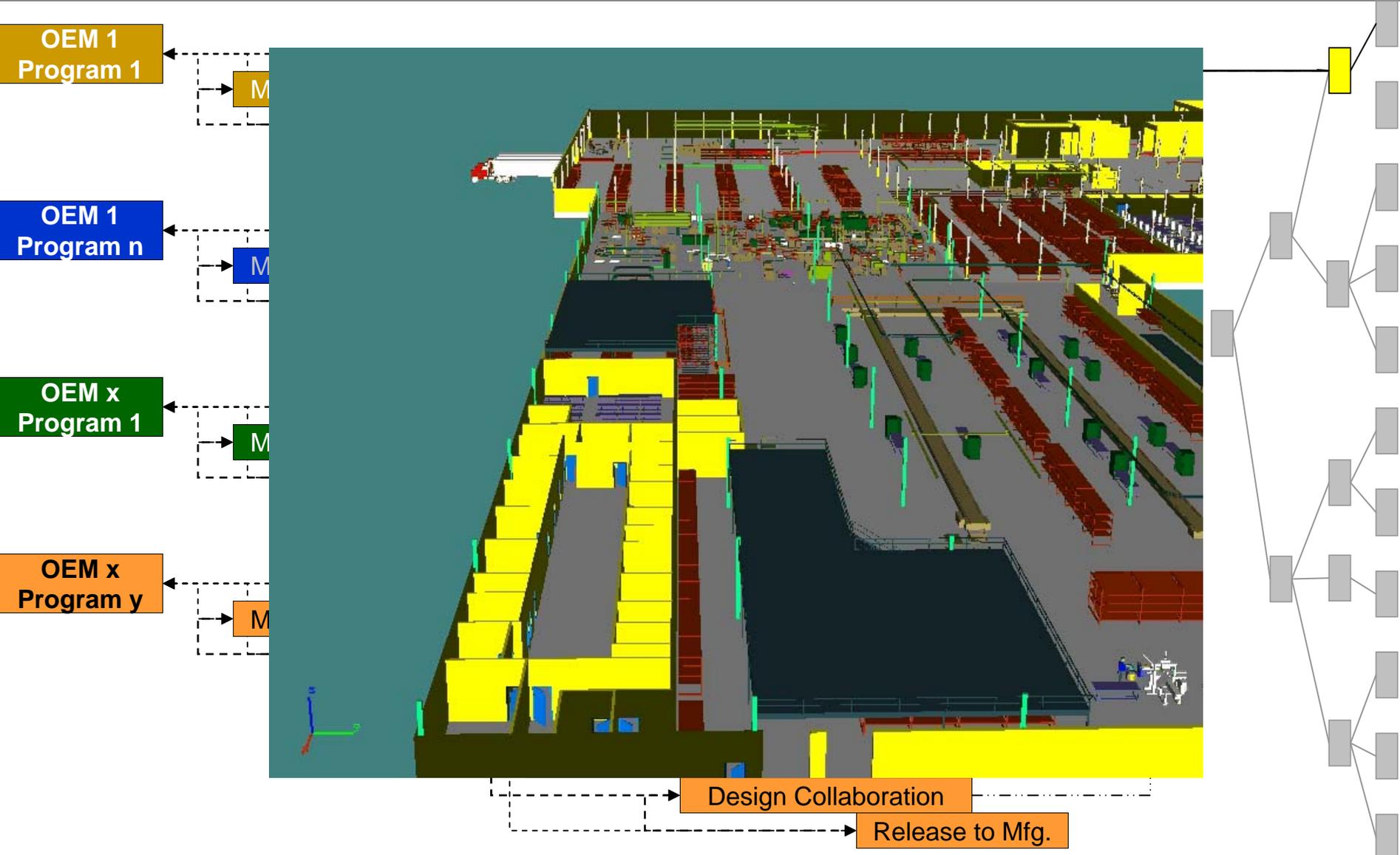


Supplier structure with capability is the basis of next generation sourcing





Supplier structure with capability is the basis of next generation sourcing

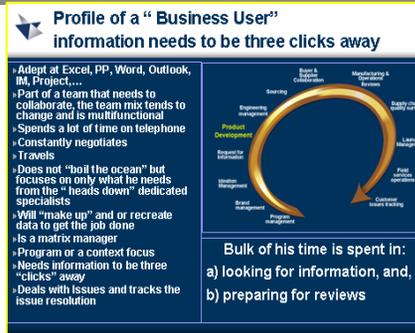




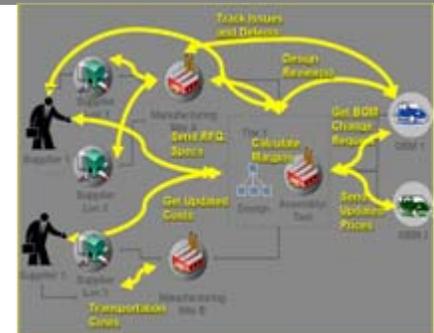
Next generation Sourcing is based on 6 key technologies with analytics occupying a key role



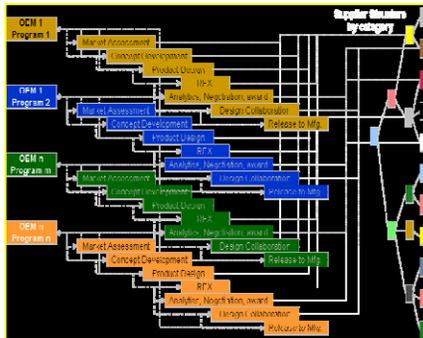
**eSourcing
Tools integration**



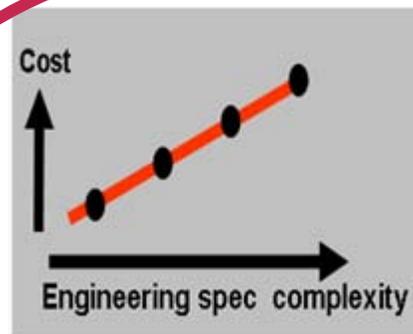
**Program
Management &
collaboration**



**PLM integration
and change
management**



**Supplier
capability & risk
model**



**Analytics and
lifecycle cost**



**Quality driven
improvements**

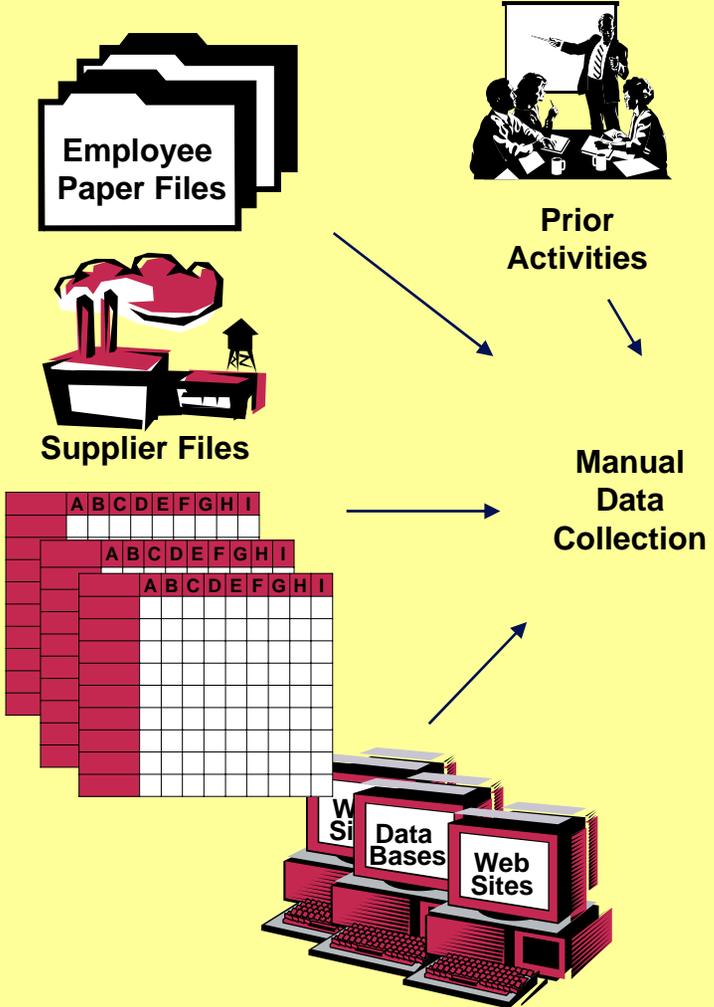
+ OPEN ARCHITECTURE



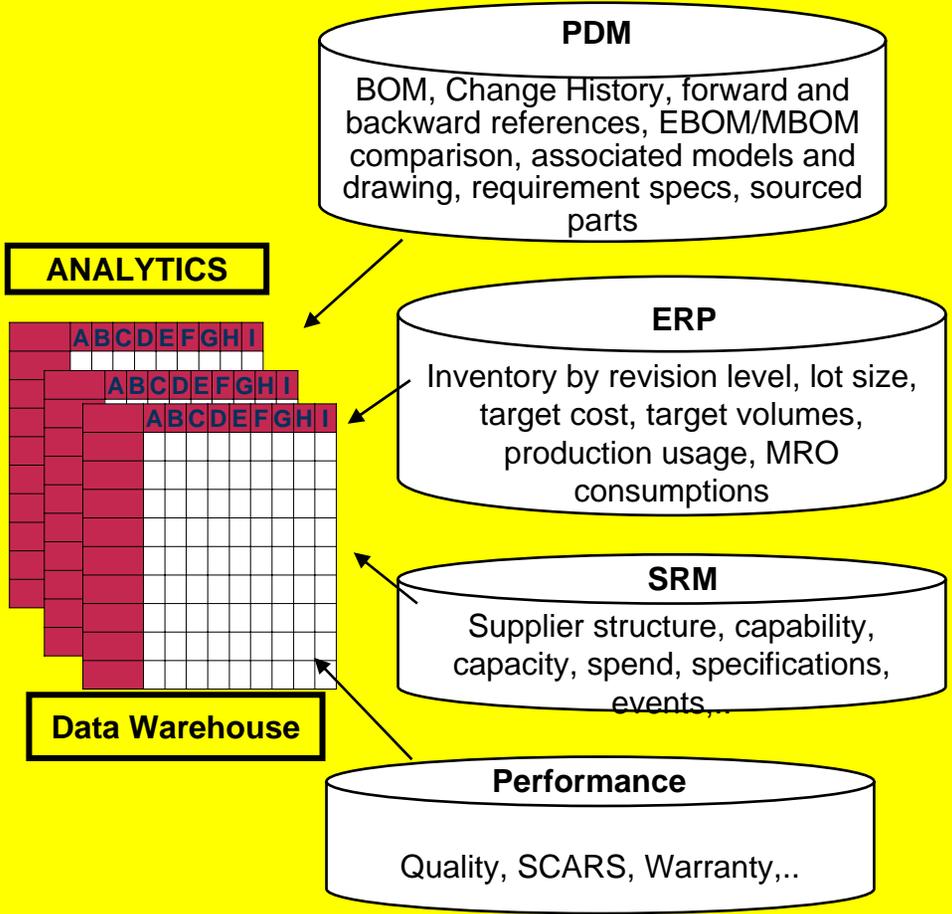
Enabling the next generation of savings

....good data basis is needed for decision making
..... data needs to be aggregated from multiple sources

Traditional Approach



Technology-Based Approach





The Case for Advanced Analytics - Optimization

Aberdeen Group
The Destination of Choice for Actionable Research

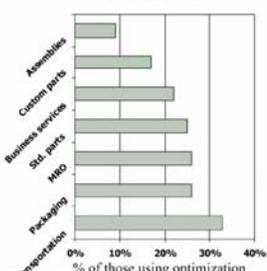
Optimization

Optimization: Use of advanced analytical tools to support simultaneously negotiate and evaluate a wide range of interdependent sourcing objectives, variables, constraints, and scenarios.

Positive early return ...but complexity limits use

- **Additional** savings achieved via optimization:
 - Range: 3%-45%
 - **Average: 12%**
 - Median: 9%
- Quickly assess/test best value allocation strategies
- Flexible bidding empowers suppliers to showcase strengths & offer best value deals

What categories have you applied optimization to?

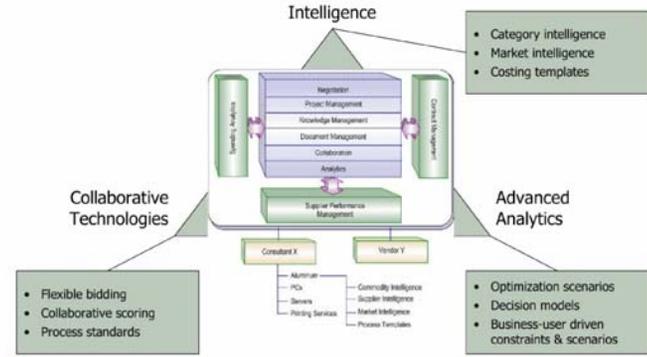


Category	% of those using optimization
Assemblies	~10%
Custom parts	~15%
Business services	~20%
Std. parts	~25%
MRO	~28%
Packaging	~32%
Transportation	~35%

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The Destination of Choice for Actionable Research

What's needed to make Optimization work?



Intelligence

- Category intelligence
- Market intelligence
- Costing templates

Collaborative Technologies

- Flexible bidding
- Collaborative scoring
- Process standards

Advanced Analytics

- Optimization scenarios
- Decision models
- Business-user driven constraints & scenarios

The diagram illustrates a central core of 'Intelligence' (negotiation, project management, knowledge management, document management, collaboration, analysis) and 'Supplier Performance Management'. This core is supported by 'Collaborative Technologies' (flexible bidding, collaborative scoring, process standards) and 'Advanced Analytics' (optimization scenarios, decision models, business-user driven constraints & scenarios). The core also interacts with 'Supplier Analysis' and 'Contract Management'. Below the core, 'Contract X' and 'Vendor Y' are shown, with associated data points like 'Aluminum', 'PCs', 'Banners', 'Printing Services', 'Contract Intelligence', 'Supplier Intelligence', 'Market Intelligence', and 'Process Templates'.

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Optimization – It's Not Just About Bid Analysis

- Sourcing strategy development
 - Lotting strategies
 - Demand and specification management
- Supply risk assessments
 - Contingency planning
 - Scenario testing
- Multi-tier supply chain assessments
 - Evaluate cost structure of sub-tier supply
 - Identify and test supply base rationalization, co-sourcing options

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Visual Analytics – Supplier Quality

Welcome to GlobalFactory.Net collaboration system. - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://cme.globalfactory.net/Dashboard.asp

Global Factory
GO execute!

NGC
Welcome Steve
Log off Version: 4.4.4.0

Home Dashboards Folders Reports Flows Stations Items Events Favorites Administration Help

Dashboard

Full Screen

Charts

Defect Pareto - Top 10 Defects

Defect Code	Defect Qty
Z001	100
W105	60
A408	30
W106	25
A158	20
A157	15
C512	10
W115	8
C514	5
W106	5

Full Screen

Control Panel

	WMP Reports	SHIP Reports	Defect Analysis - Reports	Defect Analysis - Charts
Analysis	Cable Assembly_CM1	Cable Assembly_CM1	No. of Defects By Code	Defect Pareto - Top 10
	PCB Assembly_CM2	PCB Assembly_CM2	Defects By P/N	Defect Pareto Per P/N
	PCB Assembly_CM3	PCB Assembly_CM3	Defect By P/N & Defect	Defect Pareto Per Lot #
	PS Assembly_CM4	PS Assembly_CM4	Defect Pareto - Exception	Defect Pareto Per Ops.
	PS Assembly_CM4	PS Assembly_CM4	Defect Pareto By Ops.	Defect Pareto By Ops.
	WMP /SHIP Data Summary	Commit Vs. Shipped	No. of Defects Per Ops.	

Full Screen

Charts

Shipped Vs. Commit - June

Program	Total Unit Committed to ship	Total Unit Shipped	Percentage Shipped
A	100	100	100%
D	100	100	100%
F	1000	500	50%
L	1000	500	50%

Full Screen

General "Black Box" Assembly Process

```
graph TD; CA1[Cable Assembly_CM_1 SHIP] --> FA[Final Assembly SHIP]; PCB2[PCB Assembly_CM_2 SHIP] --> FA; PCB3[PCB Assembly_CM_3 SHIP] --> FA; PS4[Power Supply Assembly_CM_4 SHIP] --> FA;
```



Visual Analytics – Supplier Scorecard

Welcome to GlobalFactory.Net collaboration system. - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://cme.globalfactory.net/Dashboard.asp

TEAMCENTER 2005

Welcome SourcingMgr Log off Version: 4.5.10.8

Home Dashboards Folders Reports Flows Stations Items Events Favorites Administration Help

Dashboard! Full Screen Fit In Window

Control Panel

- Supplier Score Card KPI
 - Score Card by Supplier
 - Score per Category
 - Score per Supplier
 - Score Card Breakdown - by Supplier
 - Score Card - by Quarter
- Supplier Score Card Chart Analysis
 - Score Card Trend - per Supplier
 - Score Card Trend - per Category
 - Score Card Breakdown - per Supplier
 - Score Card Breakdown - per Quarter
- Score a Supplier
 - Historical & Spend Data - per Event
 - Supplier Quote and Scorecard

Category Comparison 2006-Q1

Score

Category	Austin Westran LLC	Irvin Automotive	United Tool & Engineering
Cost of Quality	25	22	26
Logistics	11	11	12
Piece Price	25	25	30
Service Level	3	8	9
Strategic Alignment	10	8	8

Supplier Trend

Score

Quarter	Austin Westran LLC	Irvin Automotive	United Tool & Engineering
05-Q1	76	76	80
05-Q2	76	76	80
05-Q3	76	74	80
05-Q4	76	76	82
06-Q1	76	74	84

Points Available

Done Internet



Visual Analytics – Sourcing Dashboard

Welcome to GlobalFactory.Net collaboration system. - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://cme.globalfactory.net/Dashboard.asp

TEAMCENTER 2005

Welcome SourcingMgr [Log off](#) Version: 4.5.10.5

Home Dashboards Folders Reports Flows Stations Items Events Favorites Administration Help

Dashboard! [Set as my permanent Dashboard] [Use on this session only]

Full Screen

Charts

Spending for Item~#38575S36B

Quarter	Quantity	Spend	Avg. Unit Price
2005/Q1	~10,000	~300,000	~10
2005/Q2	~5,000	~100,000	~10
2005/Q3	~10,000	~150,000	~10
2005/Q4	~5,000	~50,000	~10

Fit In Window

Sourcing Analytics

	Event Analysis	Historical Spend Analysis	Historical Spend Analysis	Historical Spend Analysis
Analysis	Sourced Items Report	Spend per Supplier	Spend per Supplier Chart	Item spend per Supplier
	Projected Savings	Spend per Location	Spend per Location Chart	Rolling Average Spend
	Item Cost & Lead Time Analysis	Item Spend per Supplier & Location	Spend per Item	Spend per Quarter
	Bid Comparison for Specific Event	Cost of Non Compliance	Item Spend Comparison	Spend Per Month
	Detailed Quote Analytics			

Full Screen

Charts

Total Spend per Location

Location	Spend
Belkate	903588.2
Portland	824491.8
Chicago	78579.9

Internet



Summary

- Digital transformation** ✓
- Digital maturity for supplier relationship** ✓
- Collaboration technology used in PLM** ✓
- Contrasting SRM systems approaches** ✓
- Integration of collaboration with SRM** ✓



Summary

Systems covering supplier management ...extending PLM system to cover direct material

ERP
eProcurement
&
Trading
exchanges



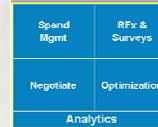
PLM

Address needs of the entire
supply chain and demand
Address needs for the entire
supply chain
Support needs of the customer
from requirements management to
supplier management

- PLM systems successfully manage the co-design relationship today
- Scaling this capability by integrating strategic sourcing tools provides significant value by:
 - Avoiding errors which are discovered later in the lifecycle by managing the entire lifecycle including day to day changes
 - Taking full advantage of the supplier innovation
 - Bringing the supplier selection, on-boarding early on the product development process by linking the specifications to the category/supplier structure
 - Enabling supplier quality / performance to be linked to supplier capability

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Next generation Sourcing is based on 6 key technologies with analytics occupying a key role



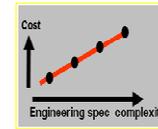
eSourcing
Tools integration



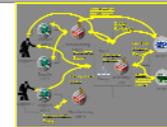
Supplier
capability & risk
model



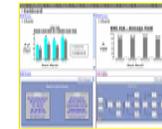
Program
Management &
collaboration



Analytics and
lifecycle cost



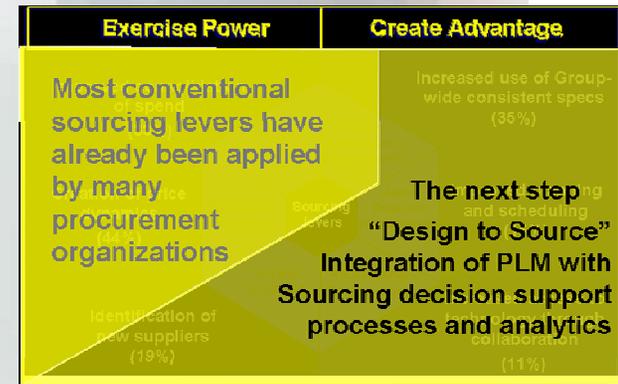
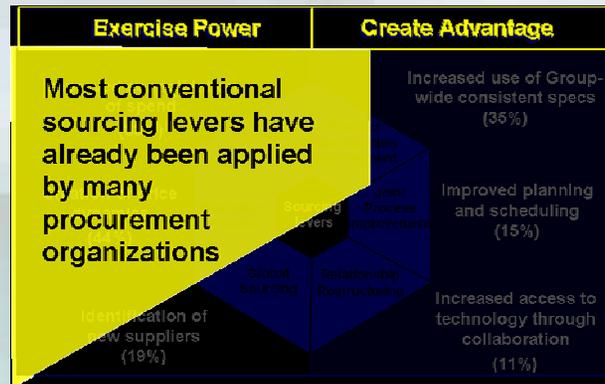
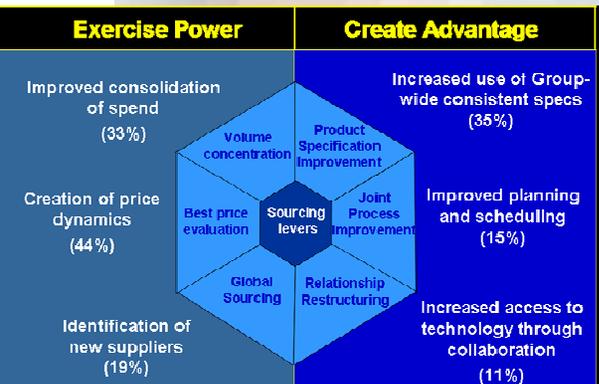
PLM integration
and change
management



Quality driven
improvements

+ OPEN ARCHITECTURE

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“ the sourcing diamond ” (AT Kearney)