



MBASE Approach to WinWin, Shared Vision, and COTS Integration

Barry Boehm, CSE-USC

CS 577a Lecture

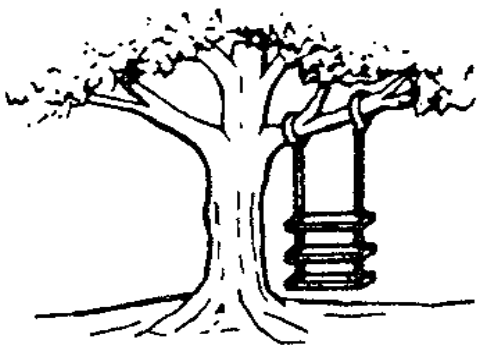
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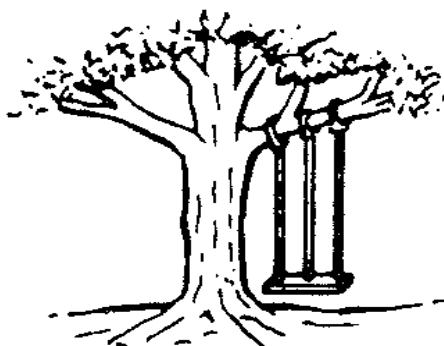
Outline

- **WinWin approach to requirements negotiation**
 - **Easy WinWin tool introduction**
- **Stakeholders' shared vision of project**
 - **Section 2 Operational Concept Description**
- **MBASE approach to COTS integration**
 - **Easy WinWin project example**

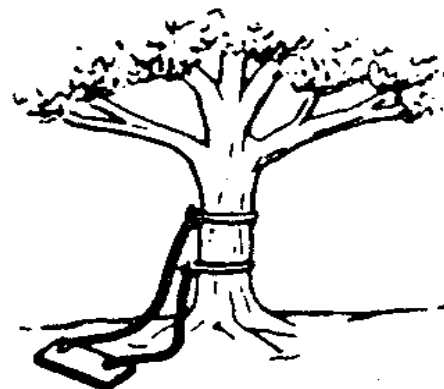
The Challenge: Avoiding Requirements Mismatches



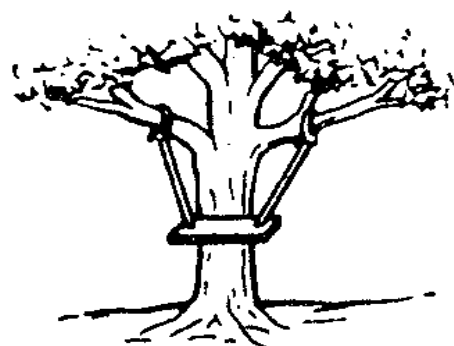
AS PROPOSED BY THE
PROJECT SPONSOR



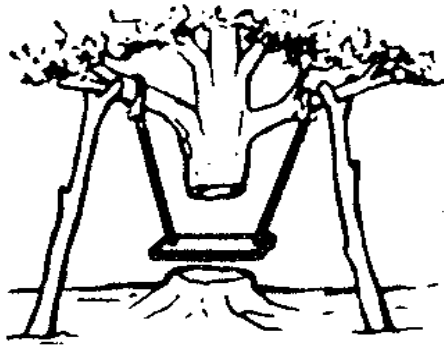
AS SPECIFIED IN THE
PROJECT REQUEST



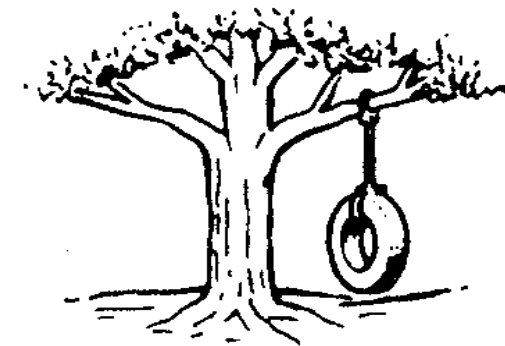
AS DESIGNED BY THE
SENIOR ANALYST



AS PRODUCED BY
THE PROGRAMMERS



AS INSTALLED AT
THE USER'S SITE



WHAT THE USER WANTED

Outline

- **What is the WinWin approach?**
- **Why use WinWin for requirements?**
 - The alternatives don't work
 - Avoids costly rework
 - Builds trust and manages expectations
 - Helps stakeholders adapt to change
- **Why use EasyWinWin online?**
 - Speed and efficiency
 - Low entry barrier for stakeholders



WinWin Definition

The win-win approach is a set of principles, practices, and tools, which enable a set of interdependent *stakeholders* to work out a *mutually satisfactory* (win-win) set of *shared commitments*.

Win-lose Generally Becomes Lose-lose

Proposed Solution	“Winner”	Loser
Quick, Cheap, Sloppy Product	Developer & Customer	User
Lots of “bells and whistles”	Developer & User	Customer
Driving too hard a bargain	Customer & User	Developer

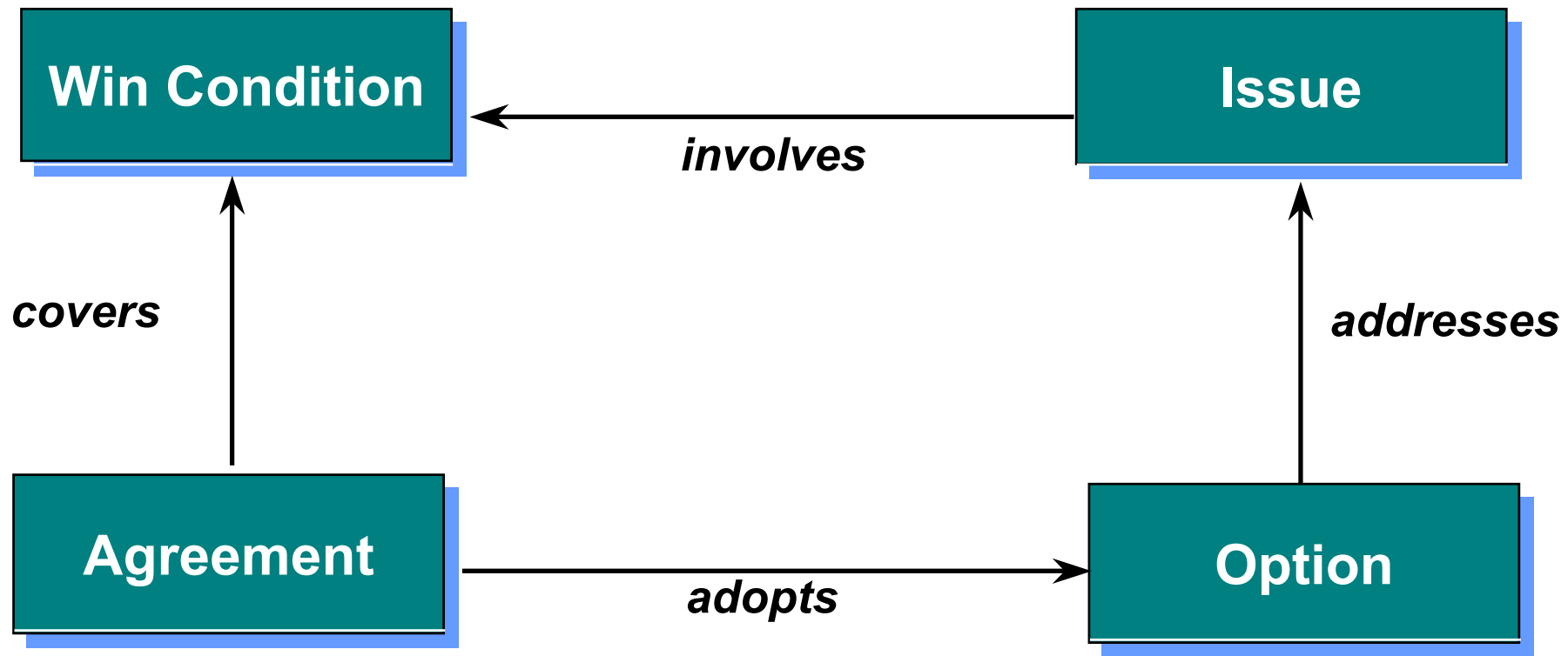
Actually, nobody wins in these situations



Key Concepts

- **Win Condition:** objective which makes a stakeholder feel like a winner
- **Issue:** conflict or constraint on a win condition
- **Option:** A way of overcoming an issue
- **Agreement:** mutual commitment to an option or win condition

WinWin Negotiation Model



WinWin Equilibrium State

- All Win Conditions covered by Agreements
- No outstanding Issues

Why Use WinWin ?

- **The alternatives don't work**
 - Win-lose often leads to lose-lose
- **Avoids costly rework**
 - 100X cost to fix requirements after delivery
- **Builds trust and manages expectations**
 - Looking out for other's needs builds trust
 - Balancing needs leads to realistic expectations
- **Helps stakeholders adapt to change**
 - Shared vision and the flexibility of quick re-negotiation

Why Use EasyWinWin OnLine?

- **Speed and efficiency for modest system, distributed stakeholders**
 - Email and telephone: 1-3 months
 - Early WinWin toolset: 1-3 weeks
 - EasyWinWin OnLine: 2-5 days
- **Low entry barrier for stakeholders**
 - Easy to learn and use
 - Intuitive, time-efficient process



Steps of EasyWinWin OnLine

- 1. Review and expand negotiation topics**
- 2. Brainstorm stakeholder interests**
- 3. Converge on Win Conditions**
- 4. Capture a glossary of Terms**
- 5. Prioritize Win Conditions**
- 6. Identify Issues and Options**
- 7. Negotiate Agreements**
- 8. Organize negotiation results**

Easy WinWin Tool Support



Review and Expand Negotiation Topics (Group Outliner)

Jointly review and define the scope of the negotiation. Identify the negotiation topics for your EasyWinWin activity.



Brainstorm Stakeholder Interests (Electronic Brainstorming)

Collect ideas about Win Conditions for your EasyWinWin activity



Converge on Win Conditions (Categorizer)

Jointly craft and organize a succinct list of win conditions.



Capture Glossary of Terms (Topic Commenter)

Define important terms of the domain.



Prioritize Win Conditions (Alternative Analysis)

Determine the business importance and the ease of implementation of all win conditions.
Reveal issues and constraints.



WinWin Tree (Group Outliner)

Identify Issues and Options. Negotiate Agreements.



Organize Negotiation Results (Categorizer)

Categorize the results using the negotiation topics.

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- ➔ • **Stakeholders' shared vision of project**
 - **Section 2 Operational Concept Description**
- **MBASE approach to COTS integration**
 - **Easy WinWin project example**

New MBASE OCD Section 2, Shared Vision

2. Shared Vision

2.1 System Capability Description

2.1.1 Benefits Realized

2.1.2 Results Chain

2.2 Key Stakeholders

- Roles, responsibilities, contributions to Results Chain

2.3 System Boundary and Environment

- Context Diagram

2.4 Major Project Constraints

Add for Scaling Up

2.5 Top-level business case

2.6 Inception phase plan, resources required

2.7 Initial Spiral objectives, constraints, alternatives, risks

System Capability Description

- **Concise description of why system should be built**
 - For (target customer)
 - Who (statement of the need or opportunity)
 - The (product name) is a (product category)
 - That (statement of key benefit-that is, compelling reason to buy)
 - Unlike (primary competitive alternative)
 - Our product (statement of primary differentiation)
- **Should be able to pass “elevator test”**
 - **Convince executive while riding up/down elevator**

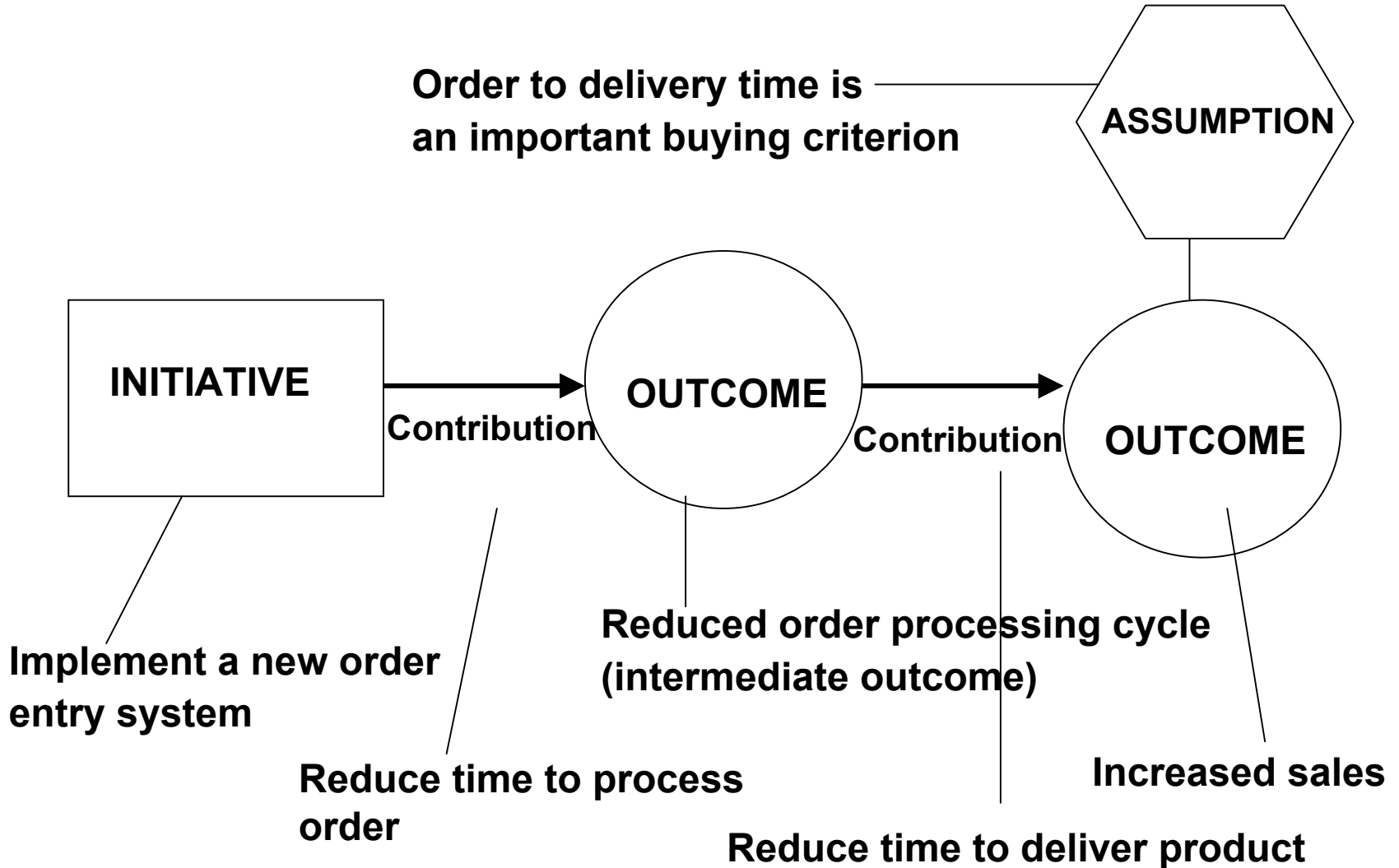
The Information Paradox (Thorp)

- **No correlation between companies' IT investments and their market performance**



- **Field of Dreams**
 - **Build the (field; software)**
 - **and the great (players; benefits) will come**
- **Need to integrate software and systems initiatives**

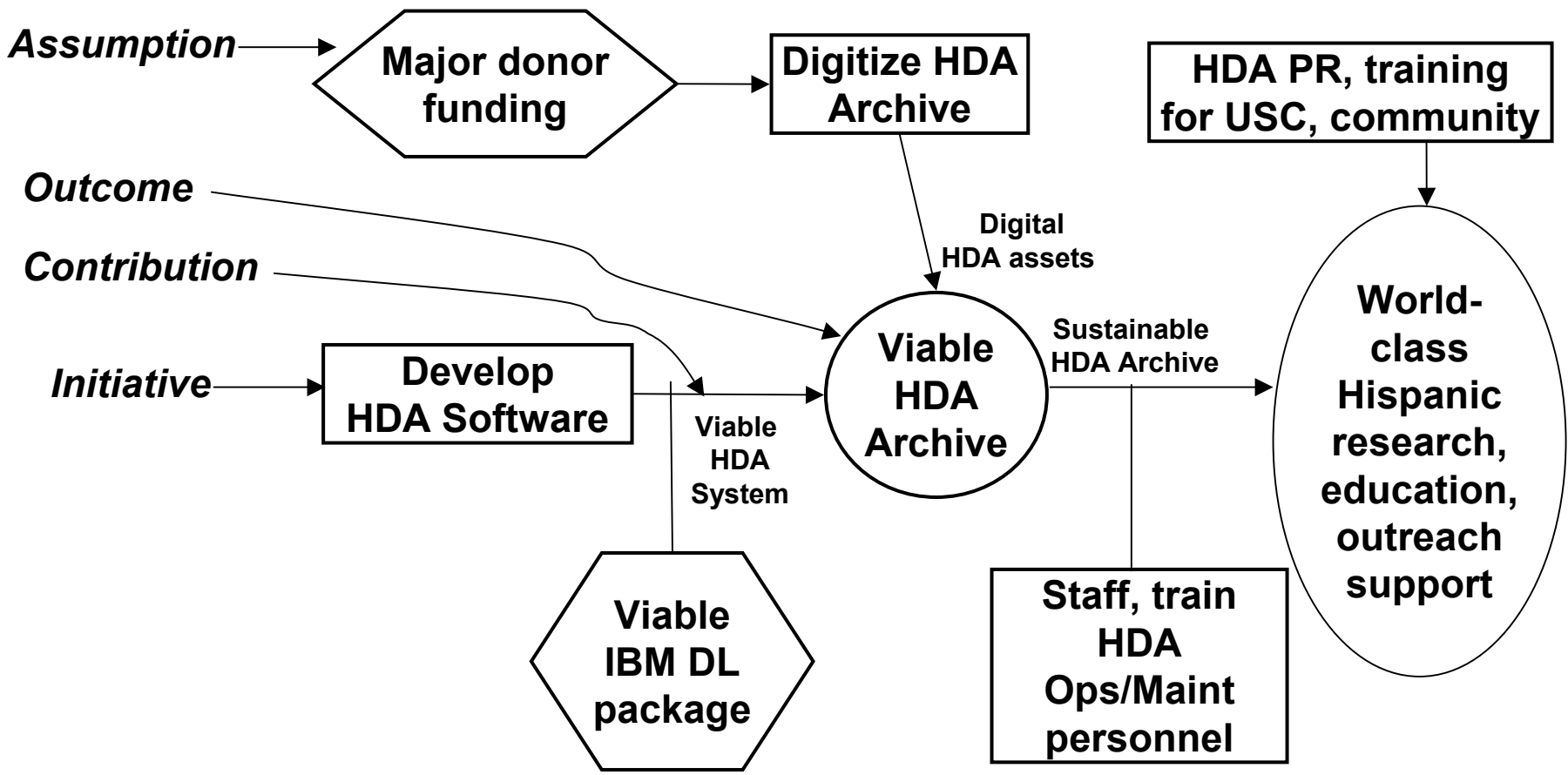
DMR/BRA Results Chain



Critical Success Factors for Adoption

Application	Client Characteristics					Transition Preparation			Outcome		
	Focused	Representative	O & M Resources	Collaborative	Domain Knowledge	Software	Site	People	Stable Envir.	Client Success	Adopted
1996-97											
EDGAR Business Data	+	+		+	+	+			+	+	
Medieval Manuscripts	+			+	+	+			+	+	
Technical Reports	+	+		+	+	+				+	
Latin American Pamphlets	+	+		+	+	+			+	+	
Cinema-TV	+	+	+	+	+	+	+	(+)		+	(+)
Image Archives				+		+			+		
1997-98											
S-Charts	+	+	+	+	+	+	(+)	+	(+)	+	(+)
Global Express	+	+	+	+	+	+		+		+	
Hancock Virtual Museum	+	+	(+)	+	+	+	+	+		+	
Serial Control Records	+	+	+	+	+	+	+	+	(+)	+	(+)
B-School Working Papers	+	+	+	+	+	+	+	+	+	+	+
1998-99											
Data Mining	+	+	+	+	+	+	+	+	(+)	+	(+)
Dissertations	+	+	+	+	+	+	+	(+)	+	+	(+)
Hispanic Archive	+	+	+	+	+	+	+	+		+	
WWI Archive	+	+	+	+	+	+	+	+		+	(+)

Results Chain: Hispanic Digital Archive (HDA)

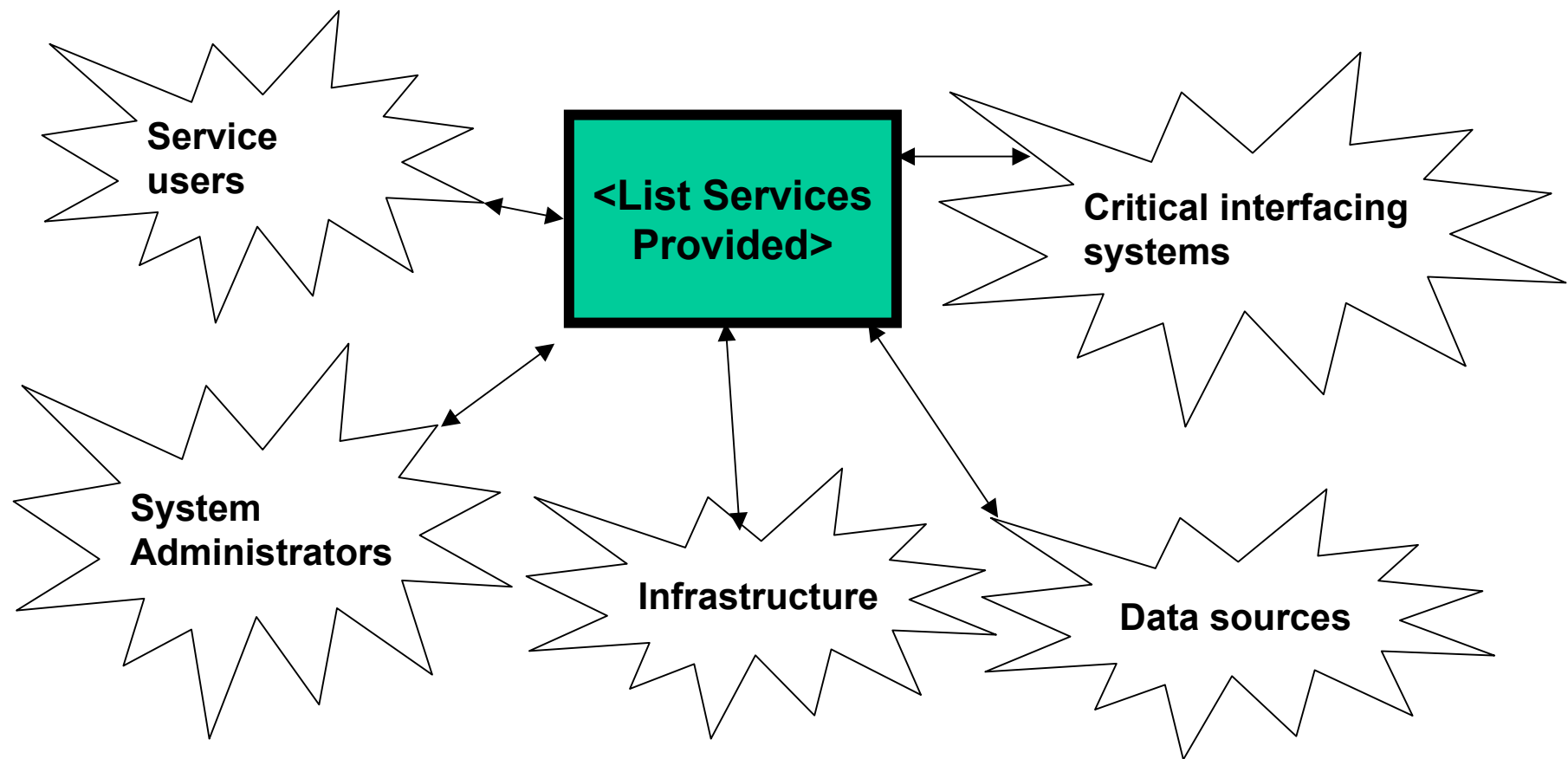




Key Stakeholders

- **Frequently users, Customers, Developers, Maintainers**
- **Sometimes Interfacers, Subcontractors, Supplier's,**
Venture Capitalists, Testers, General Public
- **Identify each stakeholder by**
 - **Home organization**
 - **Authorized project representative**
 - **Relation to Results Chair**

Context Diagram



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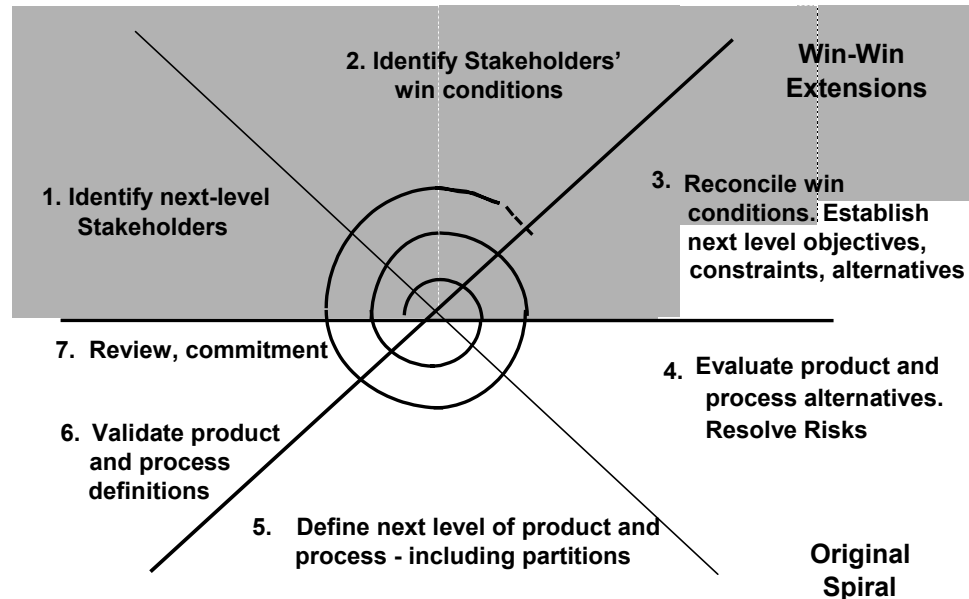
MBASE Approach to COTS Integration

- **Preconditions**
- **Strategic Steps**
- **Tactical steps are situation-dependent**
 - **Primary situation categories**
 - **Easy WinWin example**

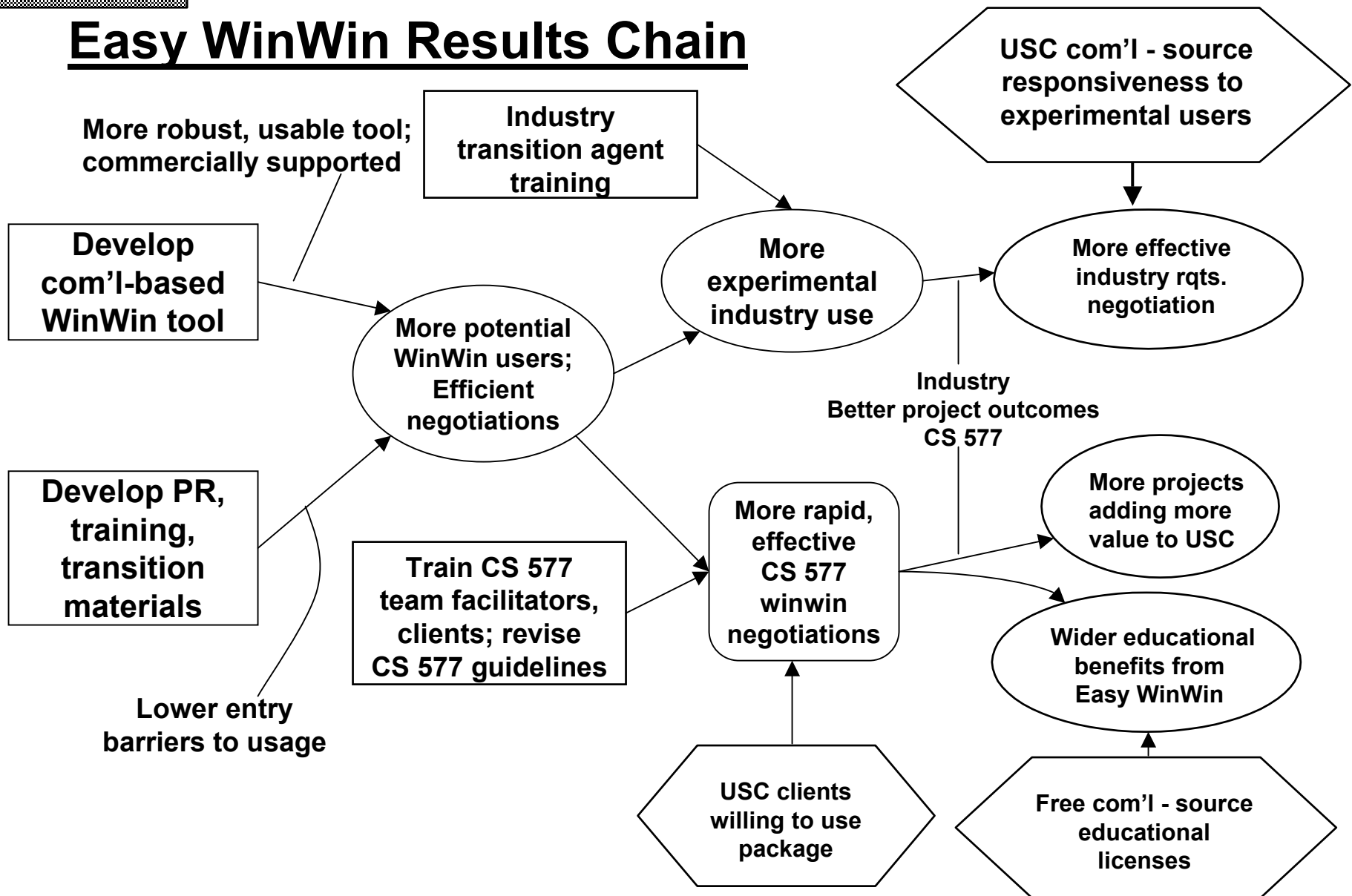
MBASE COTS Integration: Process Preconditions

- **Success- critical Stakeholders**
- **Shared vision**
 - as described above
- **Stakeholders have negotiated some primary**
 - Objectives
 - Constraints
 - Alternatives
 - Some COTS

The WinWin Spiral Model



Easy WinWin Results Chain





Easy WinWin Example: Initial OC&A's

- **Objectives**
 - Results chain
 - “Requirements” list
- **Constraints**
 - Low budget
 - High likelihood of commercial support
 - Runs on Windows platform
- **Initial Alternatives**
 - USC WinWin
 - Columbia/USC WinWin Lite
 - GTE Info Work Space - based
- **Added Alternative**
 - Group System.com - based



Easy WinWin Requirements List

“Must-Haves”

- W-I-O-A negotiation model
- taxonomy and terms support
- ease of use, learning by non-CS users
 - too inflexible, keyboard-oriented
- fewer crashes and lockups
- more flexible ownership, artifact-locking models
- Windows platform support
- distributed, asynchronous operations support
- basic project-file operations

Strongly Desired

- many-many artifact relationships
 - rationale graph; taxonomy elements/artifacts
- attachments for tools and relevant files
- ease of commenting on artifacts
- priorities as artifact attributes
- voting on Agreements
- interoperability with other groupware capabilities
- commercial support
- negotiation status tracking

Some What Desired

- similar operational treatment of capabilities above (WinWin API)
 - Composed, author-identified artifacts
- multi-attribute artifacts displayed in windows
- messages on asynchronous negotiation updates

MBASE COTS Integration: Strategic Steps

- **Identify most critical objectives and constraints**
 - **Frequently: properties (cost, schedule, performance, ...);**
enterprise architecture;
legacy interoperability or replacement;
core capabilities
- **Search out more likely alternatives**
- **Screen alternatives with respect to critical constraints**
 - **Try using screening matrix**
 - **If no satisfactory alternatives, rework OC&A's**
- **Take most feasible alternative(s), work into LCO package**

RATING SCALE		
	CRITERIA	ALTERNATIVES
-	unimportant	unacceptable
•	optional	marginal
**	important	acceptable
***	critical	strong

		Importance	Existing system	In-house development	Vendor development					
COST										
Dollars - acquisition	***		**	**						
Dollars - operation	***		**	**						
Schedule	**		**	*						
Key personnel	**		*	***						
Other:										
EFFECTIVENESS										
Functions:										
<i>Diagnostics</i>	**		**	***						
<i>Performance Measurement</i>	**		**	***						
<i>Accounting System</i>	*		**	***						
Throughput	***		**	**						
Response time	**		**	**						
Accuracy	*									
Ease of use	**		**	**						
Ease of maintenance	***		***	*						
Staff morale and growth	***		***	*						
Sales potential	*									
Reputation	*									
Side effects/Other:										
RISK										
Technology	*									
Availability/Reliability	***		**	**						
Controllability	***		***	*						
Other:										

FIGURE 18-1 Feasibility phase screening matrix

Strategic Steps: Easy WinWin Example

- **Most critical objectives & constraints**
 - WinWin negotiation model preserved (W-I-O-A)
 - Ease of use
 - Low cost
 - Commercial support
 - Windows platform
 - Less important: Unix WinWin API compliance
- **Search out new alternatives**
 - Paul Gruenbacher, GroupSystems.com
- **Screen alternatives: see next matrix**
- **Work into LCO package**
 - Later chart



Easy WinWin Screening Matrix

	<i>Importance</i>	<i>Unix WinWin</i>	<i>WinWin Lite</i>	<i>GTE IWS</i>	<i>Gsys.com</i>
W-I-O-A model	***	***	***	***	***
Ease of use	***		**	**	***
Low cost	***	**	**		***
Commercial Support	***		*	*	***
Windows platform	***		***		***
Unix WinWin API	*	***	***	*	*
Win C brainstorming	***			*	***

MBASE Approach to COTS Integration

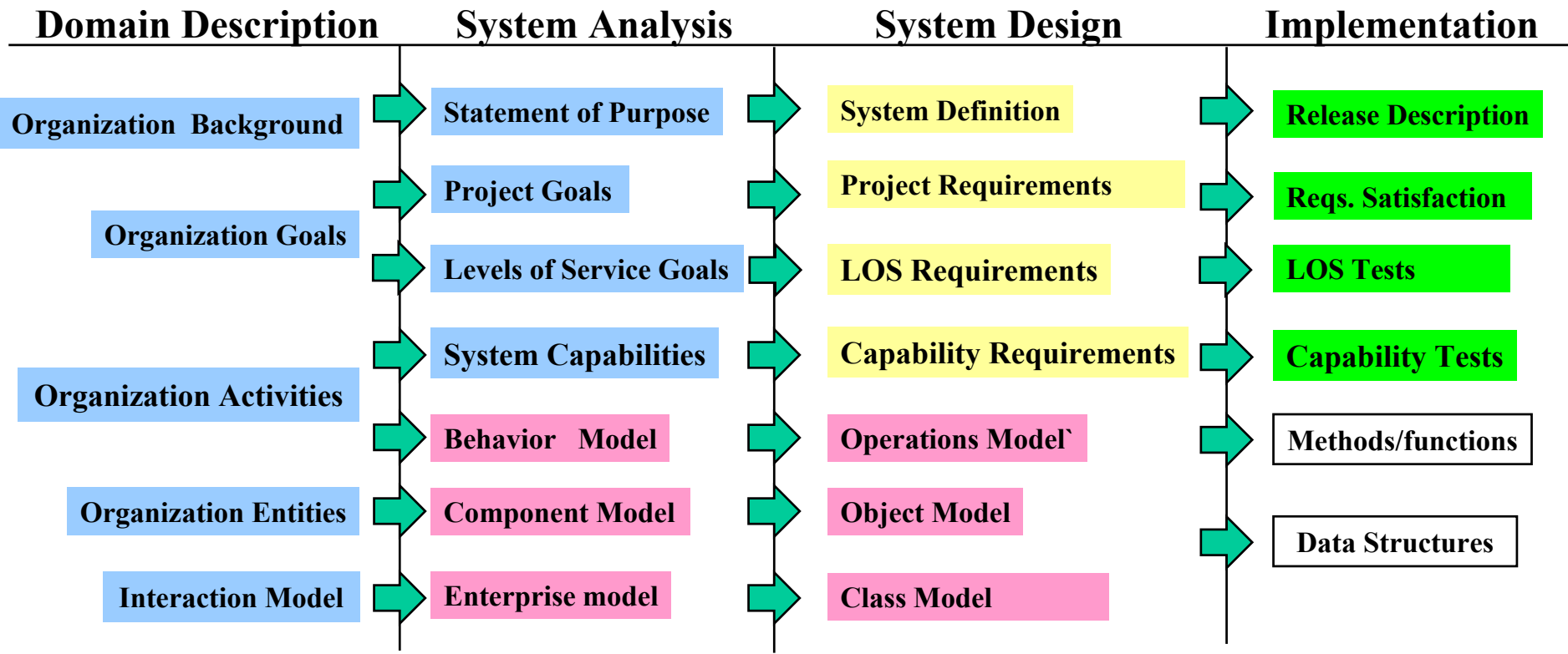
- **Preconditions**
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- ➔ • **Tactical steps are situation-dependent**
 - **Primary situation categories**
 - **Easy WinWin example**
- **Relations to other COTS integration processes**
 - **UMaryland, SEI**
- **Issues for discussion and followup**

MBASE COTS Integration: Tactical Steps

- Primary situation-dependent cases

- **Tailor and orchestrate single-COTS features**
 - **Single candidate: Easy WinWin**
 - **Multiple candidates: ERMapper/Mr. SID**
- **Tailor and orchestrate multiple-COTS features**
 - **Single candidate set: DII-COE;
Access/Cold Fusion**
 - **Multiple candidate sets: TBMCS;
Portal/Image handling/2D query**

Coverage/Traceability of MBASE Product Models*



Operational Concept Description (OCD)

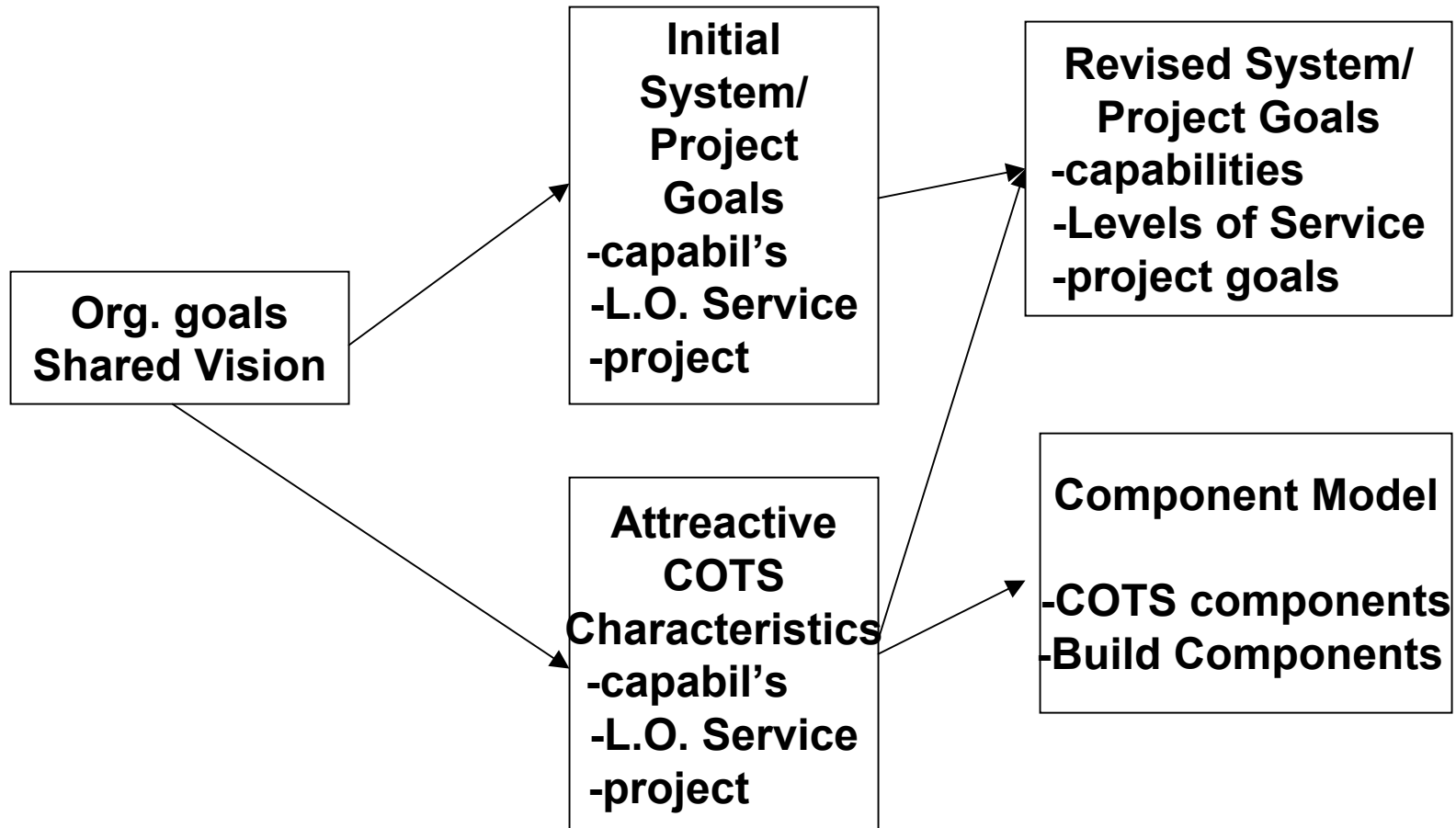
 Construction, Transition, Support (CTS)

System and Software Requirements Definition (SSRD)

 External to MBASE

System and Software Architecture Description (SSAD)
 * Does not include all MBASE models

Effect of COTS on Mapping Process



EasyWinWin Activities

**thinkLet =
collaborative
reasoning tool +
facilitation script +
tool configuration**

<i>Activity</i>	<i>“ThinkLet”</i>	<i>Tool</i>
Elaborate domain taxonomy	Could-be/ Should-be	GroupOutliner
Brainstorm stakeholder interests	Free Brainstorming	Electronic Brainstorming
Converge on win conditions	FastFocus	Categorizer
Capture domain language	TermCapture	Topic Commenter
Prioritize win conditions	MultiCriteria	Alternative Analysis
Elaborate Conflicts, Constraints, Issues	CrowBar, MultiPass	GroupOutliner
Elaborate Options	MultiPass	GroupOutliner
Negotiate Agreements	MultiPass	GroupOutliner