

PIPS/PIRMS

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Performance Based Studies Research Group



www.pbsrg.com

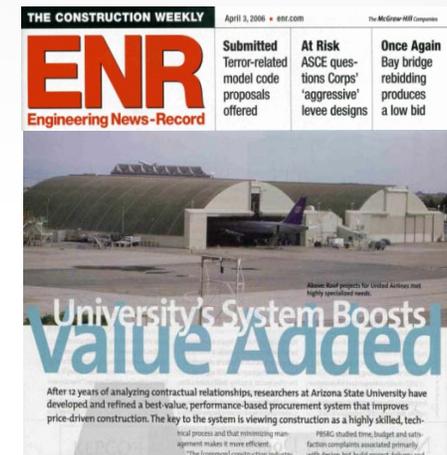
November 12, 2009



PBSRG

(Performance Based Studies Research Group)

- Conducting research since 1994
- 175 Publications
- 483 Presentations, 8,600 Attendees
- 683 Procurements
- \$808 Million Construction services
- \$1.7 Billion Non-construction services
- \$1.3B Euro (\$2B) construction test ongoing in the Netherlands
- Africa/Southeast Asia/Australia (7 universities)
- ASU procurement - \$100M over ten years
- GSA implementation in 2009
- 50 Different clients (public & private)
- 98% Customer satisfaction, 90% of PM/RM transactions minimized



"Best Value" Processes and Structures

Performance Information Procurement System (PIPS)



- Win: Minimize up to **90%** of project management/administration/busy work and minimize transaction costs by **20%**.
- Win: Increase vendor profit up to 100%
- Win: Minimize **risk to 2%** of projects not on time, not on cost, and client not satisfied
- Win: Cost does not increase with higher value

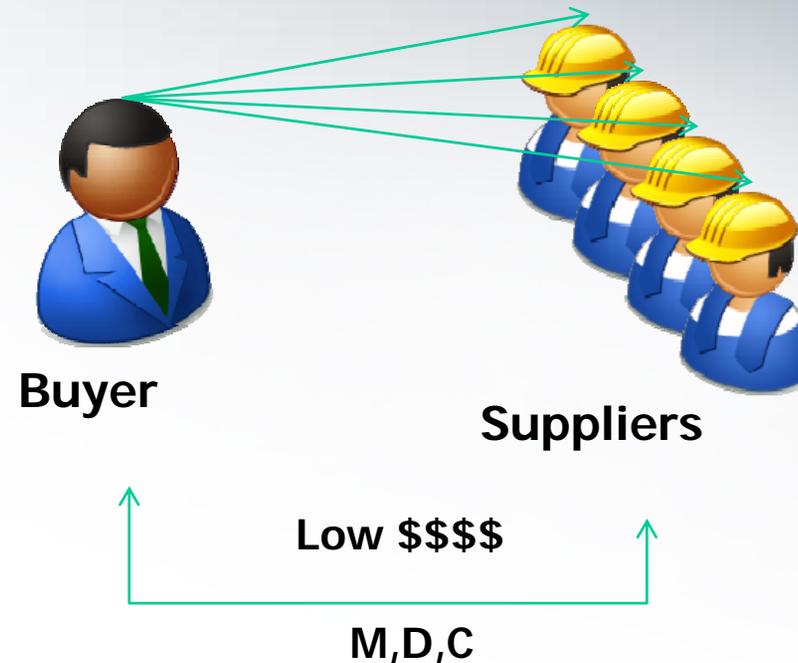


Industry Structure

Performance	High	<p><u>III. Negotiated-Bid</u></p> <p>Owner selects vendor Negotiates with vendor Vendor performs</p>	<p><u>II. Value Based</u></p> <p>Best Value (Performance and price measurements) Quality control</p> <p>Contractor minimizes risk</p>
	Low	<p><u>IV. Unstable Market</u></p>	<p><u>I. Price Based</u></p> <p>Specifications, standards and qualification based Management & Inspection</p> <p>Client minimizes risk</p>
		Low	High

Competition

Low Bid Assumptions



Buyer Assumptions:

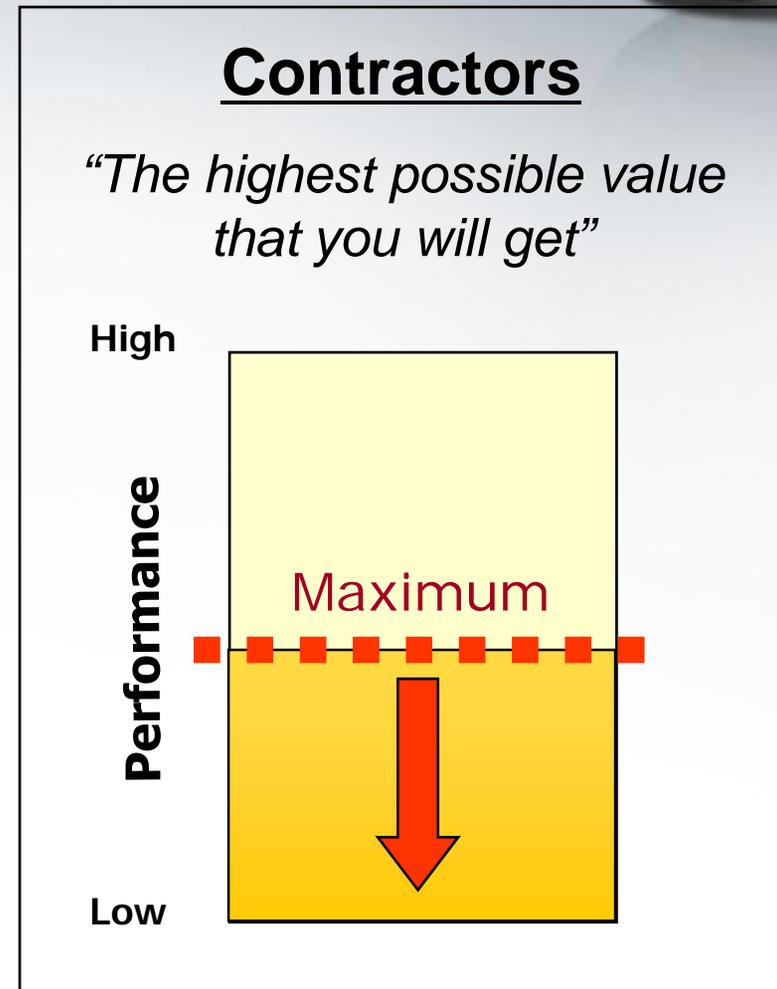
A1 – Perfect identification of requirement

A2 – Perfectly communication to suppliers

A3 – Suppliers perfectly understand

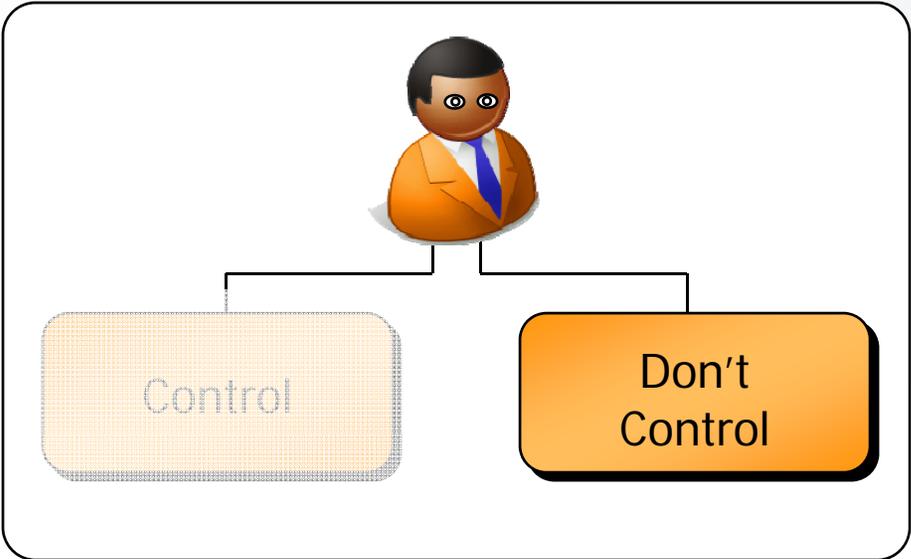
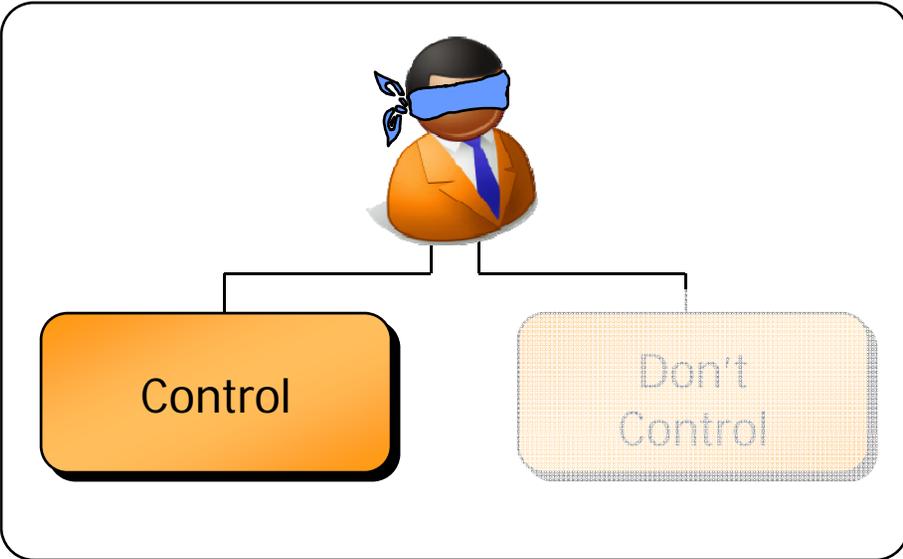
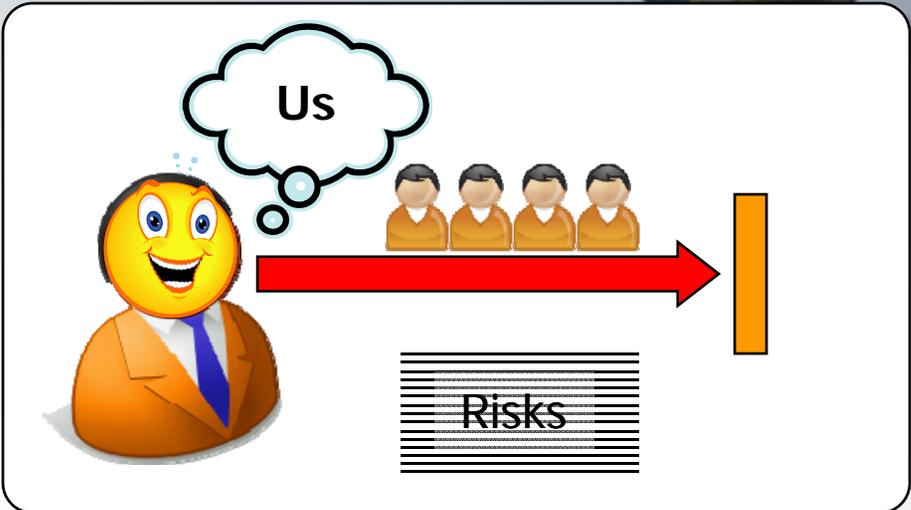
A4 – Buyer can manage, direct, and control (M,D,C)

Problem with Priced Based Systems

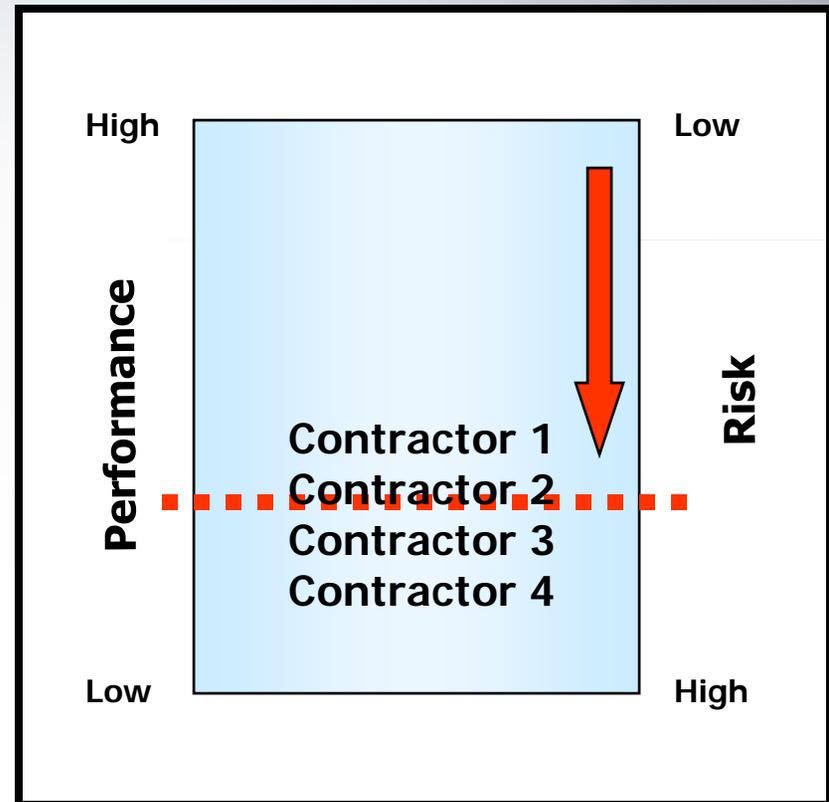
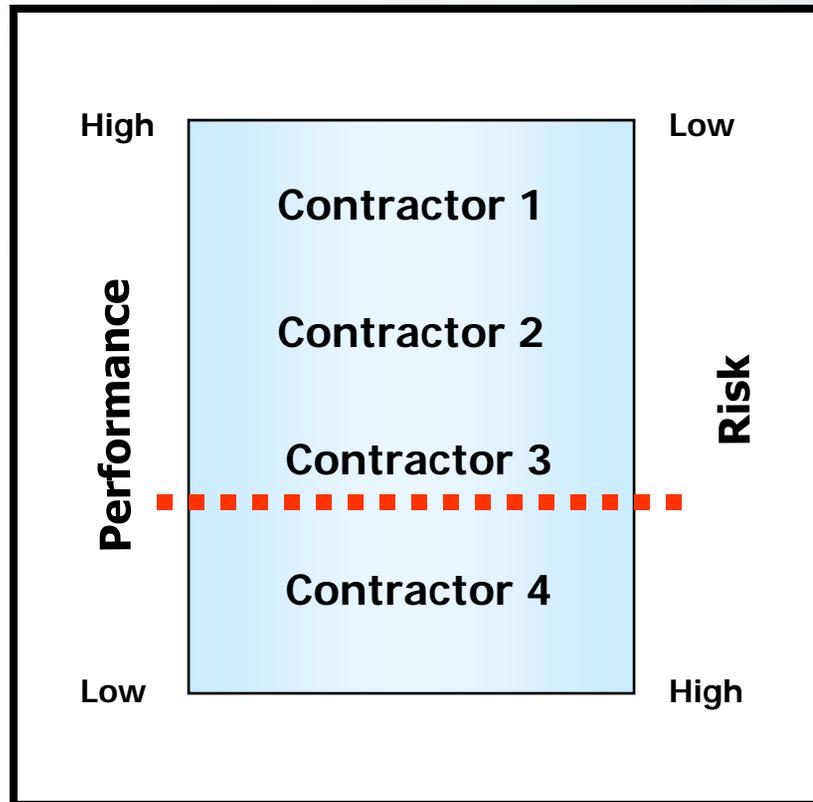




Inexperienced vs Experienced



Impact of Minimum Standards



Decision making: what is the minimum standard, and do all contractors meet the minimum standards

Industry performance and capability



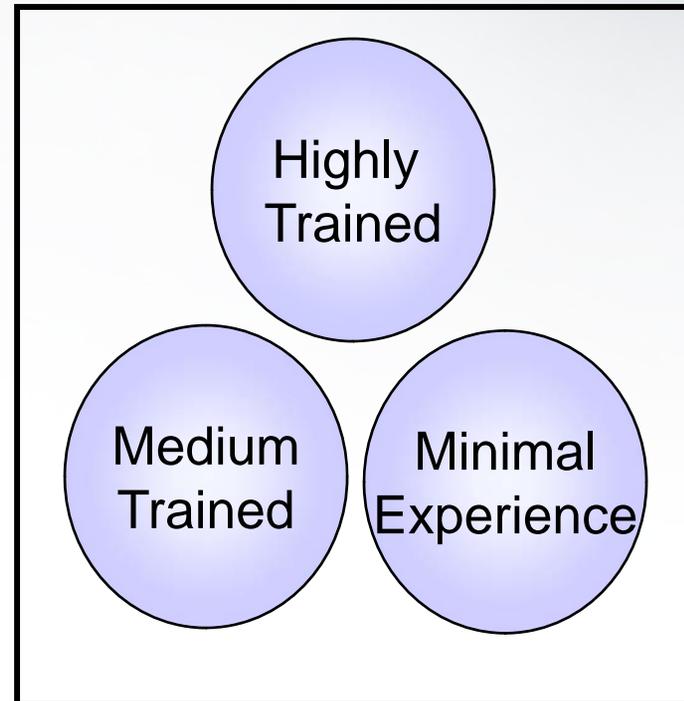
Customers

Outsourcing
Owner

Partnering
Owner

Price
Based

Vendor X



Event

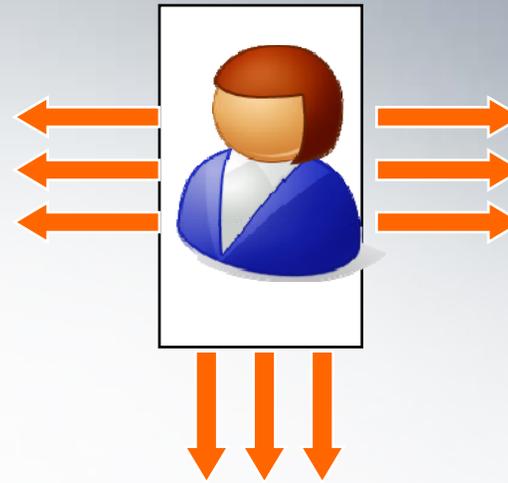
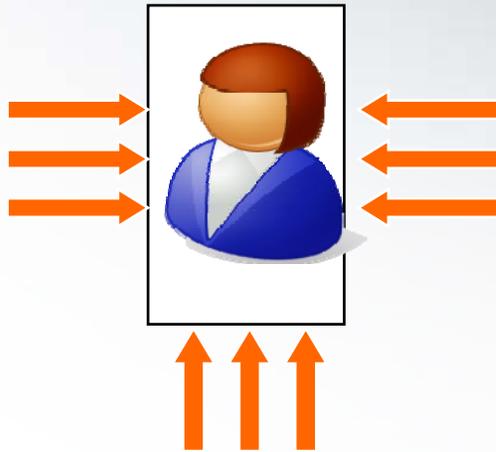


Influence Vs. No Influence



- **Believes in chance**
- **Being controlled by others**
- **Will try to control others**
- **Does not adequately pre-plan due to perception of too many variables**
- **Blames others if something goes wrong**

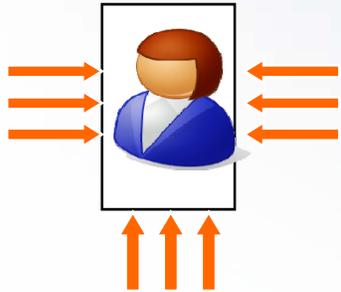
Influence Vs. No Influence



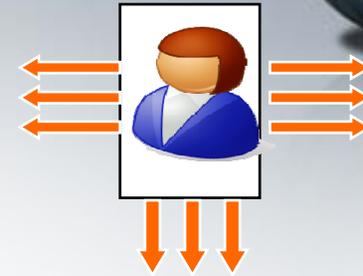
- Chance
- Controlled
- Controls others
- Does not adequately preplan
- Blames others

- Does not believe in chance
- They dictate their own future
- Cannot control others
- Preplans
- Identifies what they may have done wrong

Change to Optimize

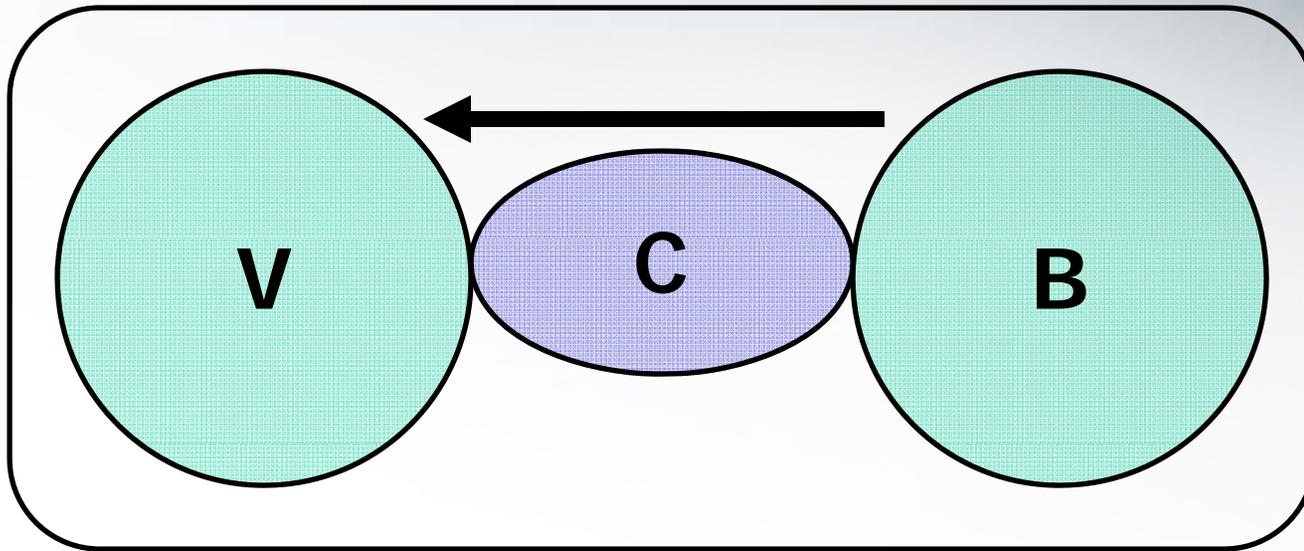


- Chance
- Controlled
- Controls others
- Does not adequately preplan
- Blames others



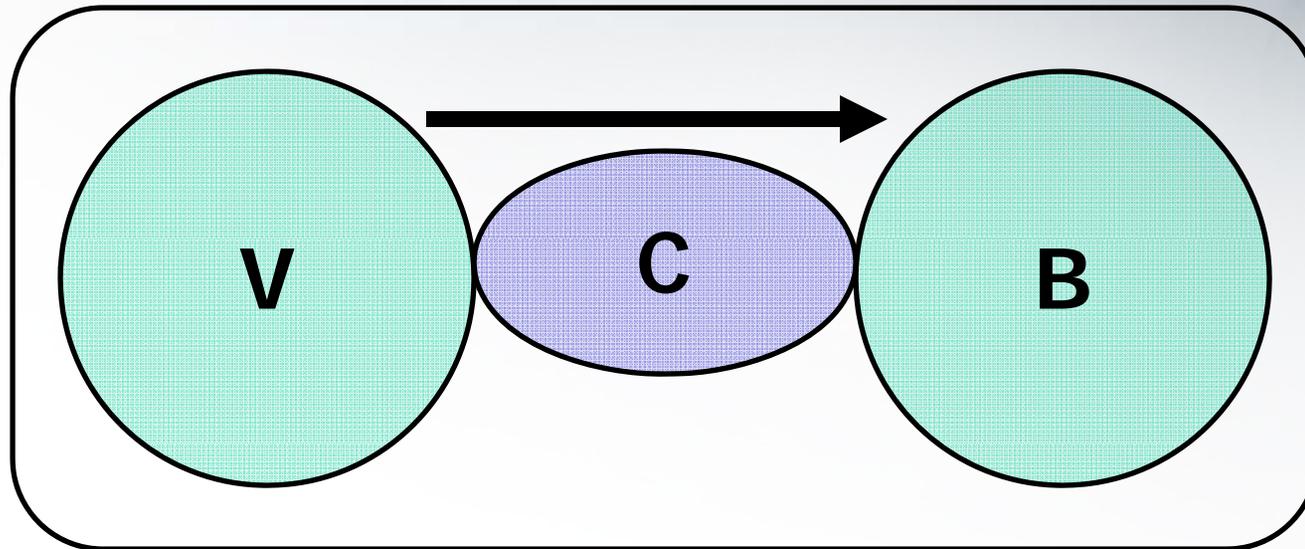
- Does not believe in chance
- They dictate their own future
- Cannot control others
- Preplans
- Identifies what they may have done wrong

Risk Model



Buyer Controls Vendor Through Contract

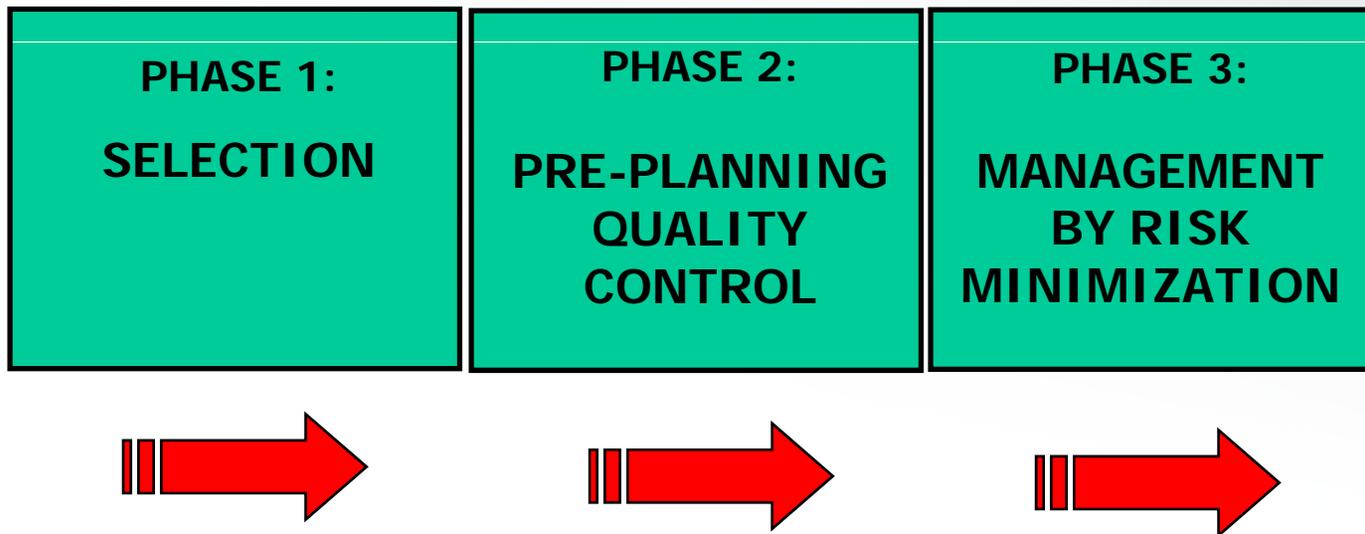
Risk Model



Vendor Manages/Minimizes Risk With Contract

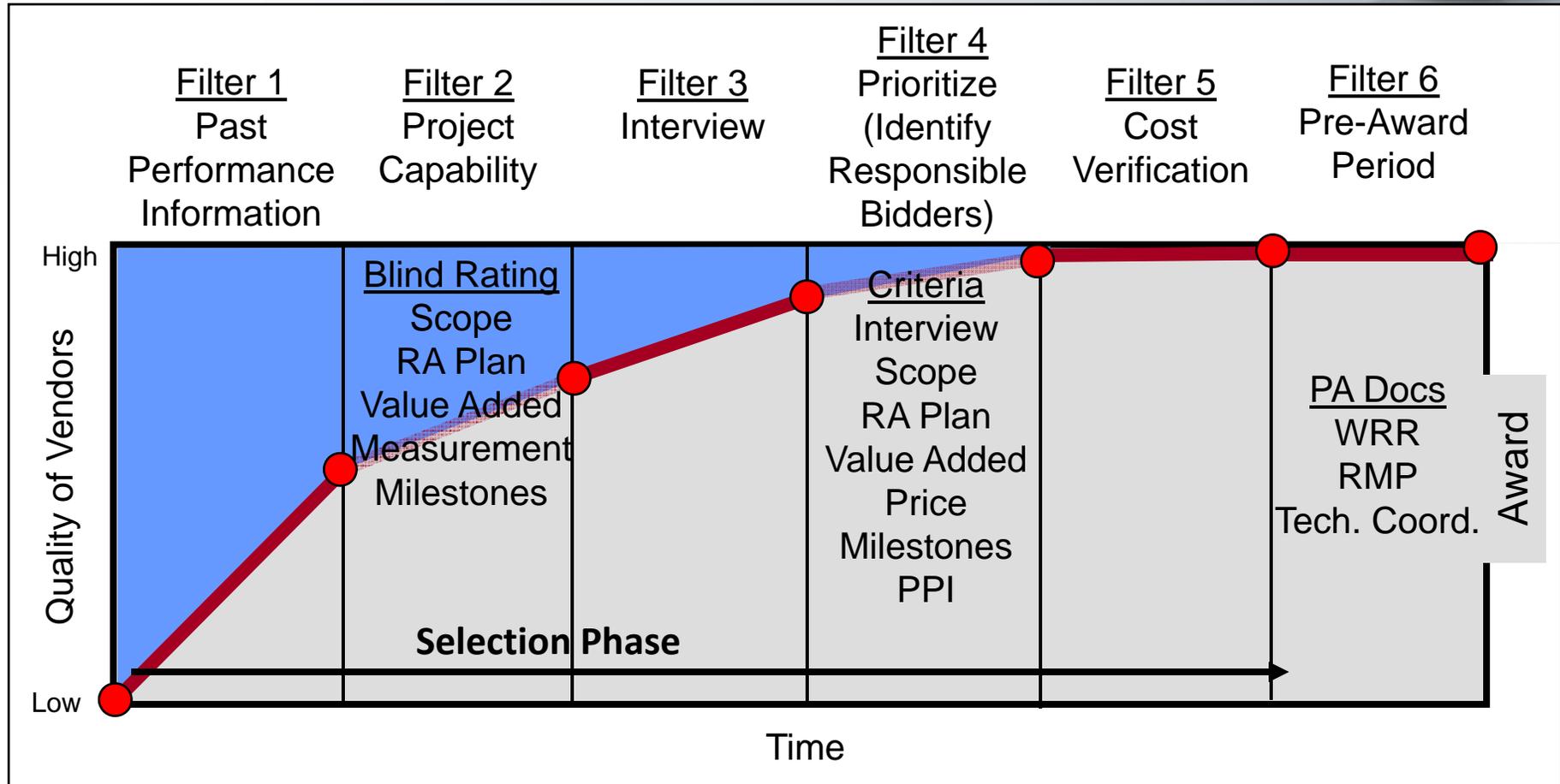


Best Value System Performance Information Procurement System (*PIPS*) PM model, Risk Management model



Best Value also known as “sealed competitive bid” in State of Texas

Performance Information Procurement System (PIPS)



Identification of Responsibility of Vendors

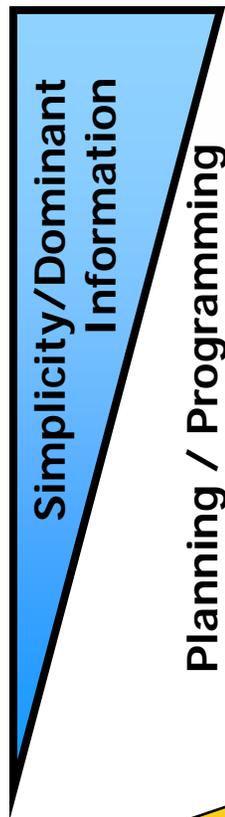


- Past performance information on the critical elements
- Scope(as understood by the vendor from RFP)
- Schedule with major milestones
- Risk assessment value added (RAVA) plan
- Interview of key personnel

Making it Dominant

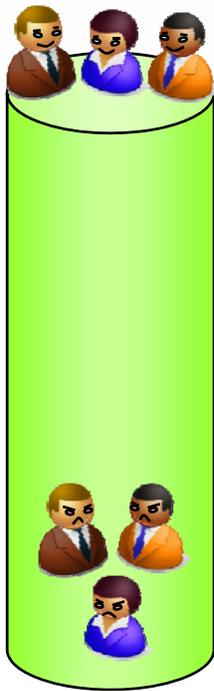


30K Foot Level

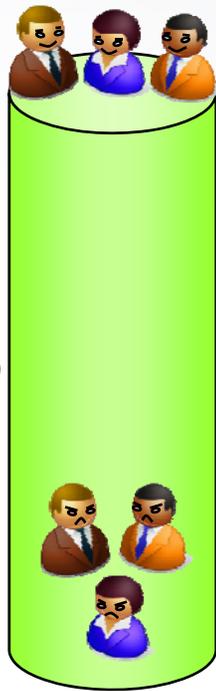


Simplicity/Dominant Information

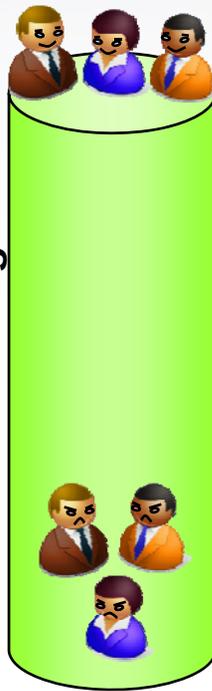
Planning / Programming



Designer



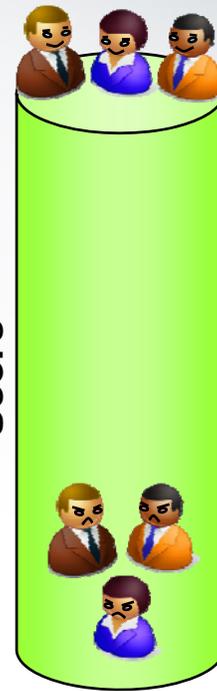
Contracting



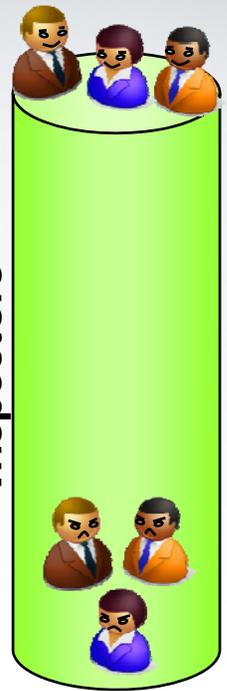
Vendors /



Users



Inspectors



Technical Details

What is Dominant Information



- It is simple
- It is accurate
- There is minimized information
- It stands out
- It minimizes everyone's decision making
- It is easy to get, print out, someone has it very handy
- It predicts the future outcome
- It makes it clear among many parties

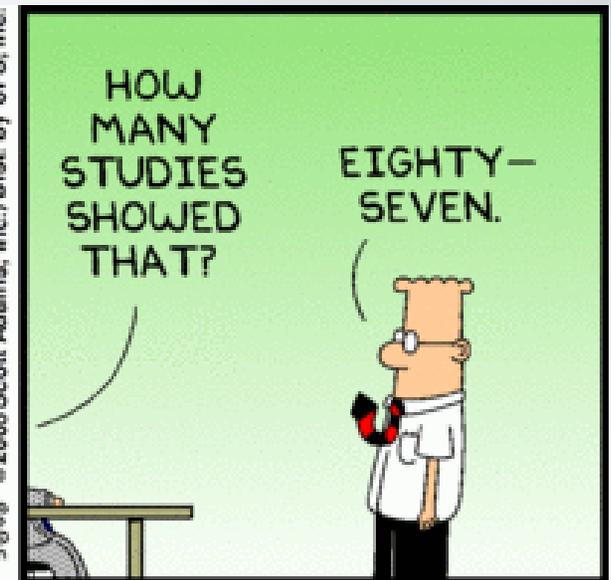
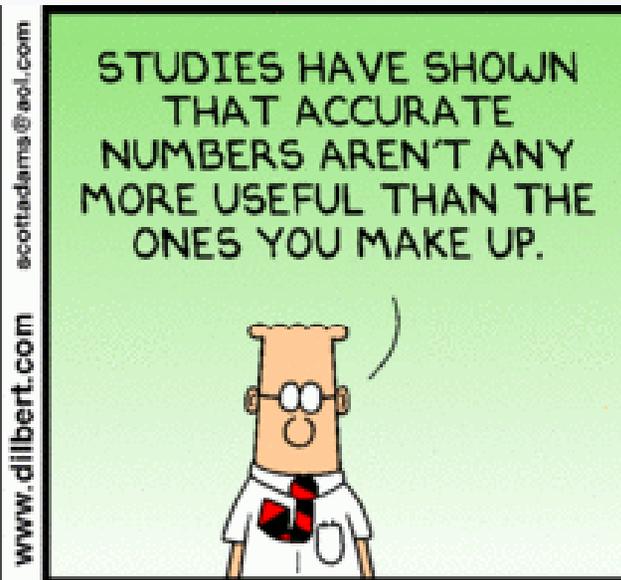
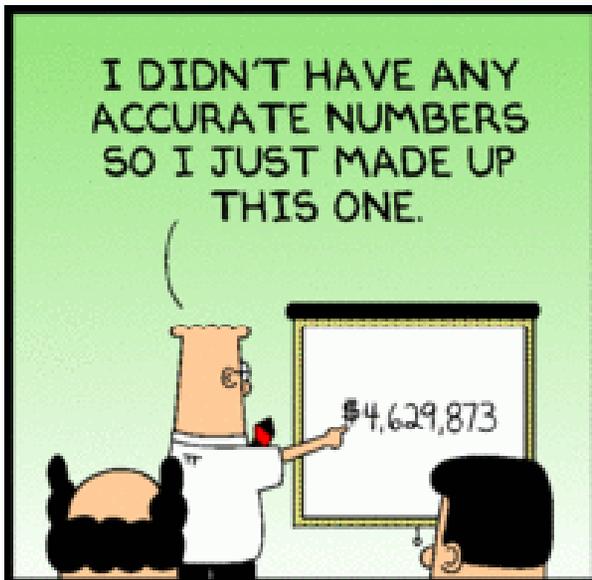
Not Dominant



Dominant

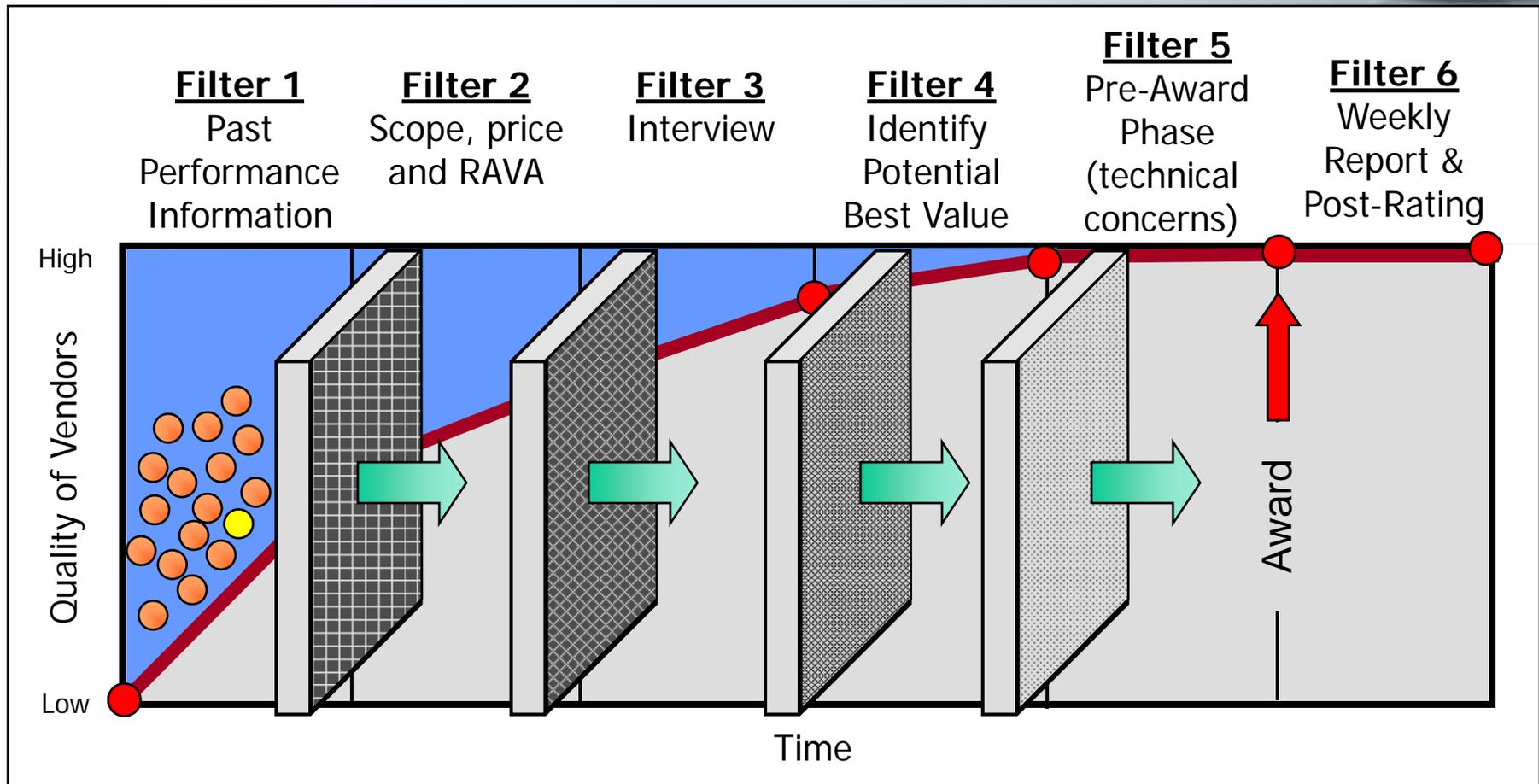


Not Dominant



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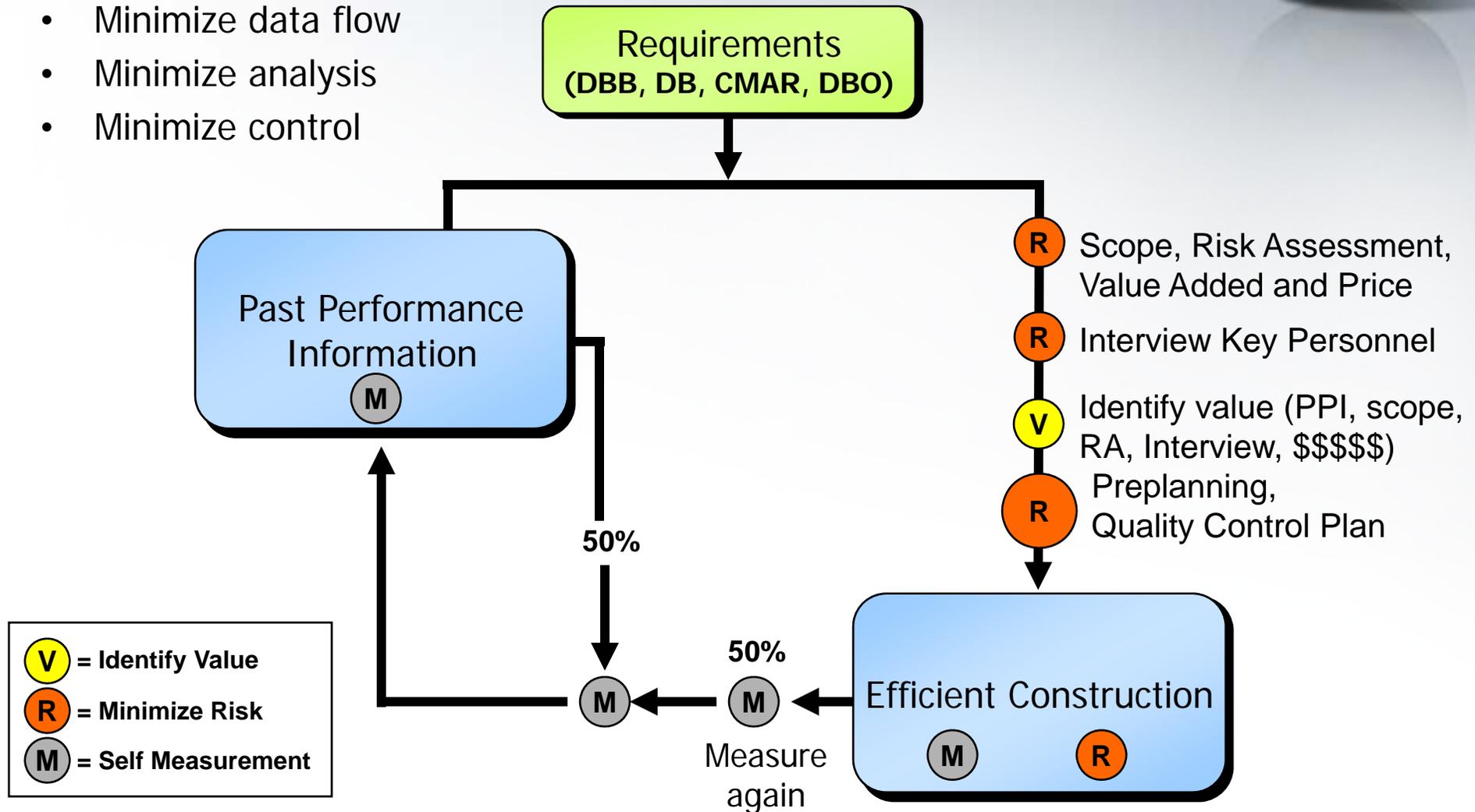
Self Regulating Loop

(Six Sigma DMAIC Generated)



Actions

- Minimize data flow
- Minimize analysis
- Minimize control



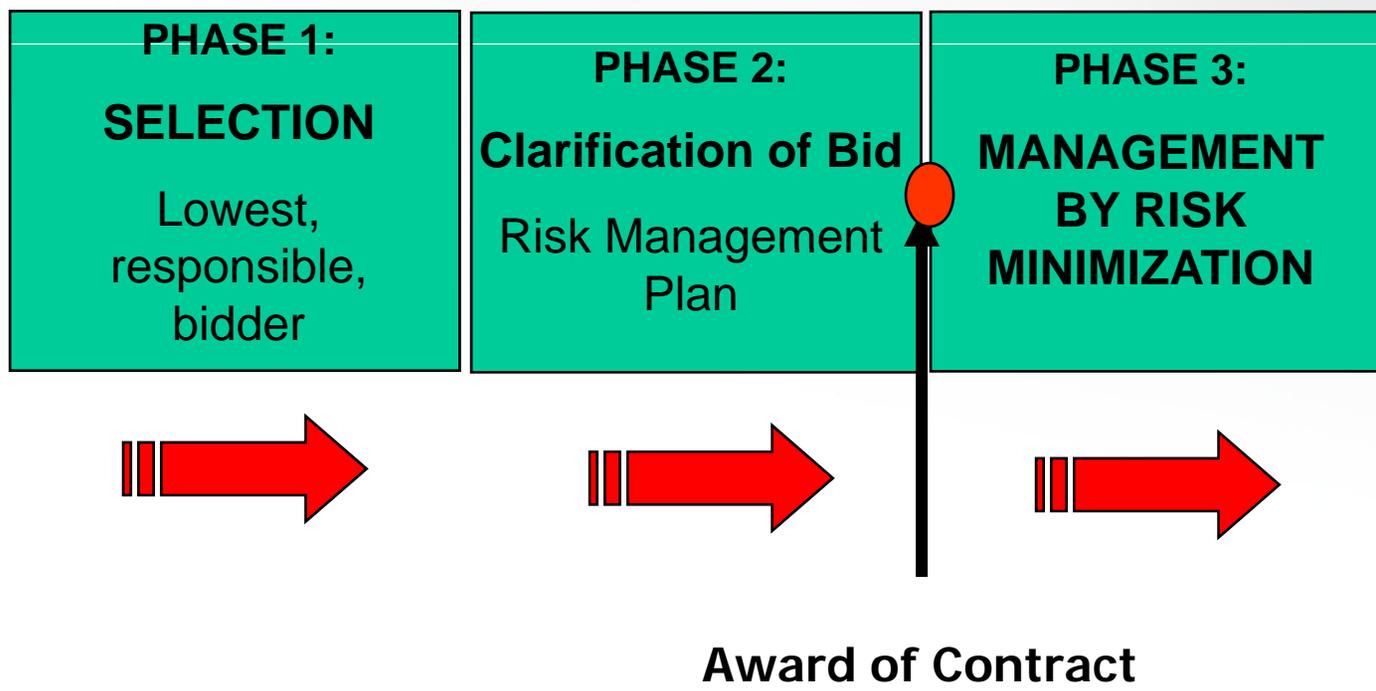
University of Minnesota Results

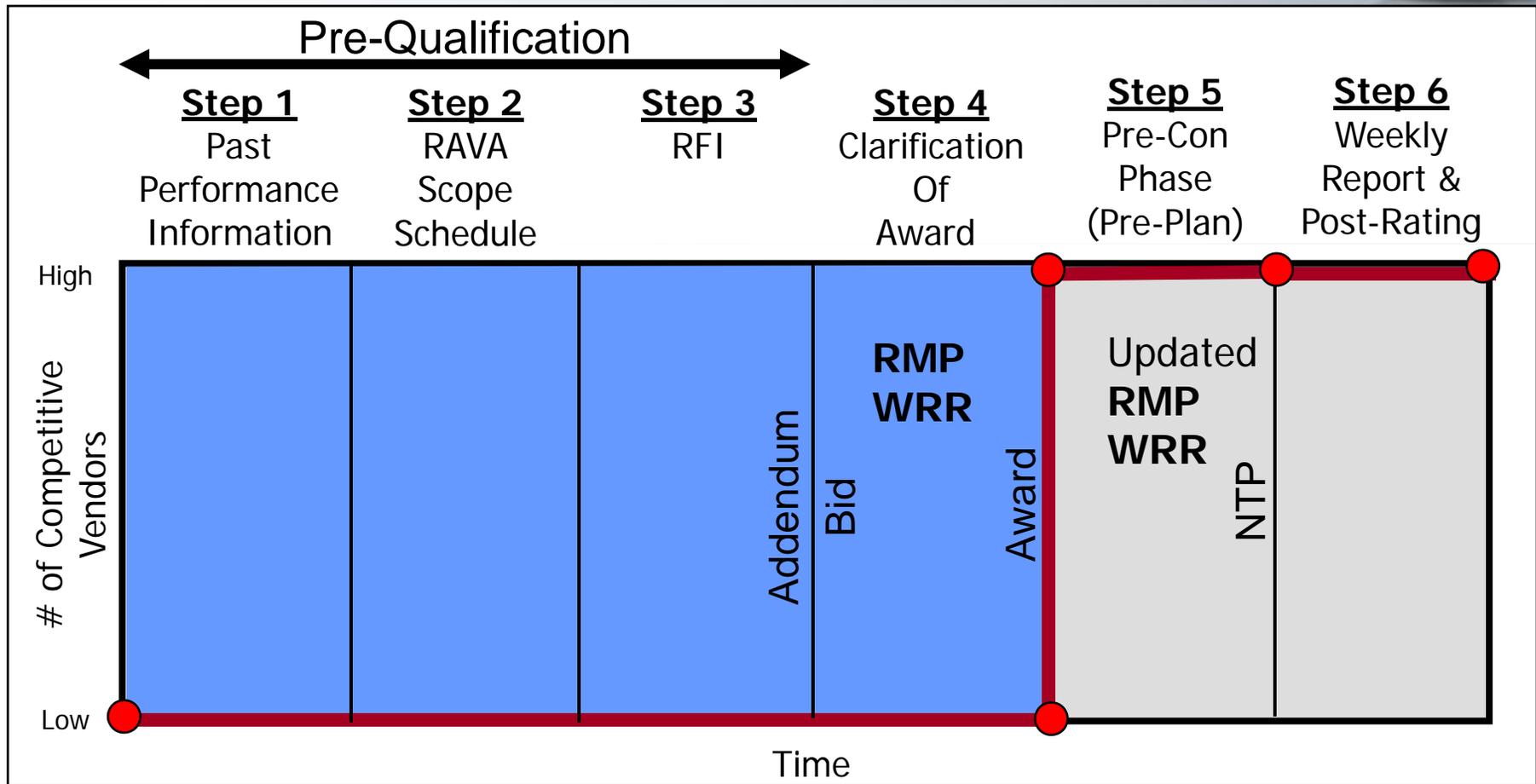


- Number of procurements: 111
- Budget amount: \$31.4M
- Amount awarded: \$29.5M
- Number of years: 4
- Award below average bid price: 6%
- Award below budget: 7%
- Award to the lowest price: 60%
- Cost increase due to client: 6% (trying to spend budget)
- Cost increase due to contractors: 0%
- Time deviations: 0% due to contractors

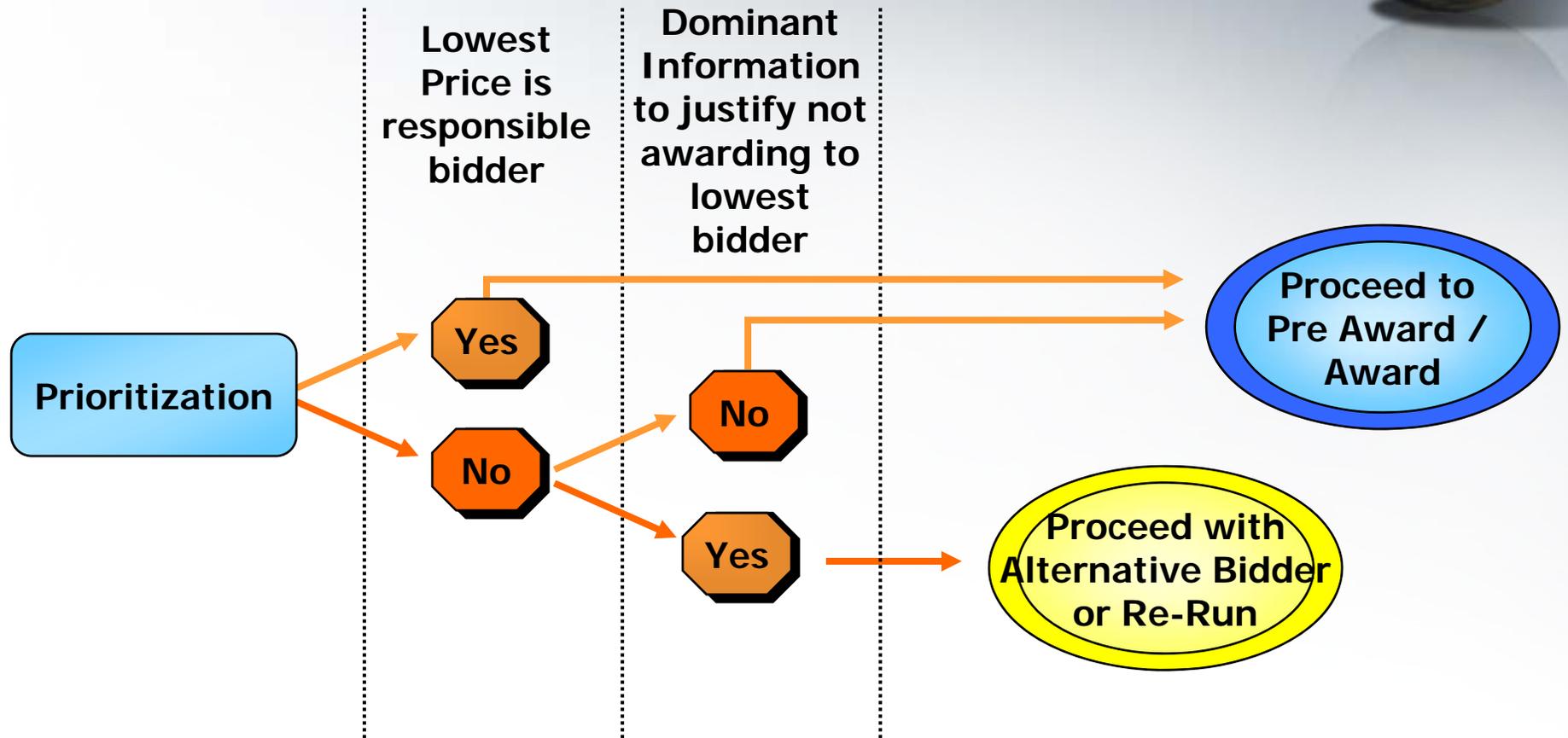


Best Value System Performance Information Procurement System (PIPS) PM model, Risk Management model





Identification of Potential Best-Value

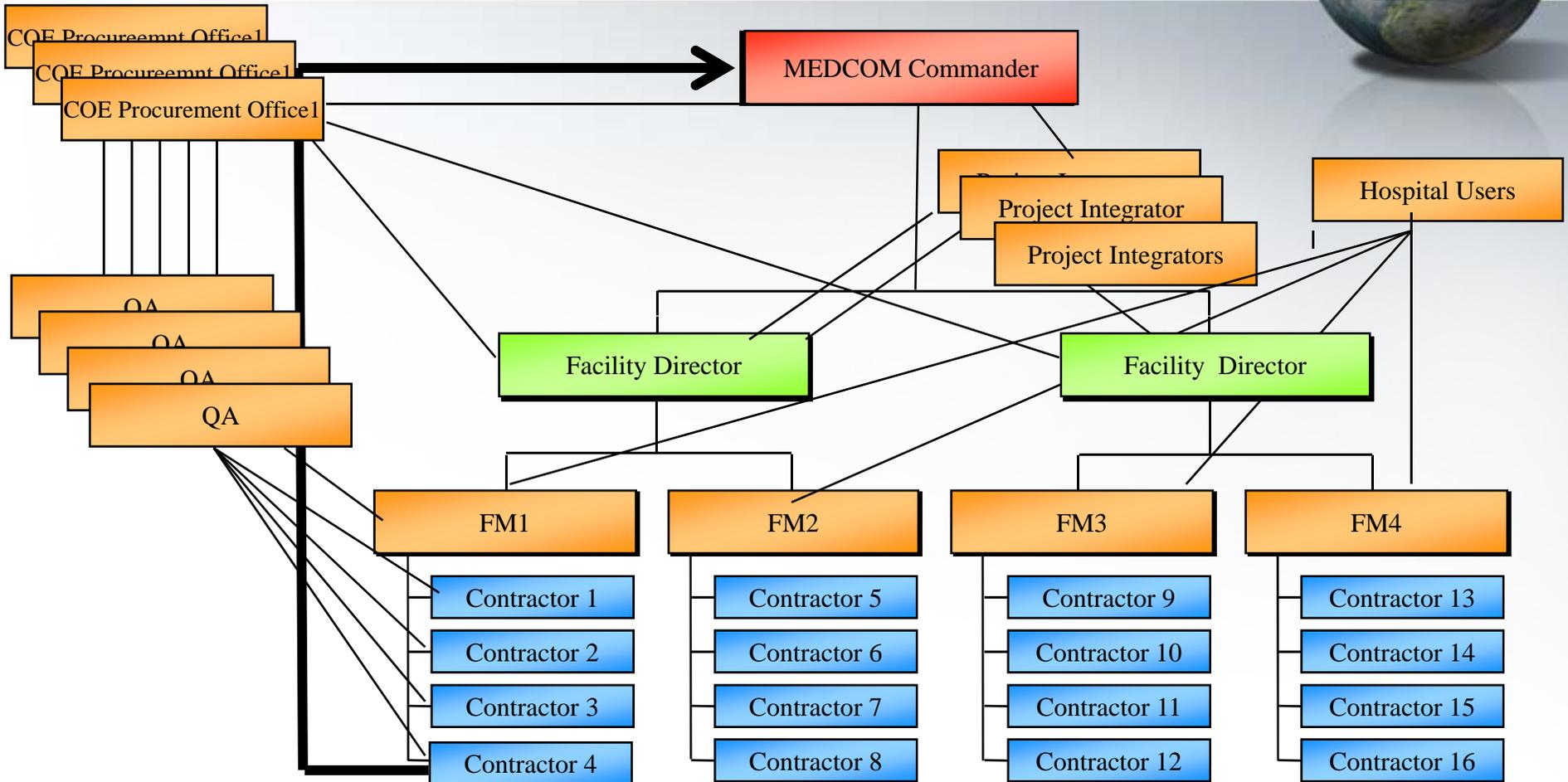


Important Aspects of PIPS

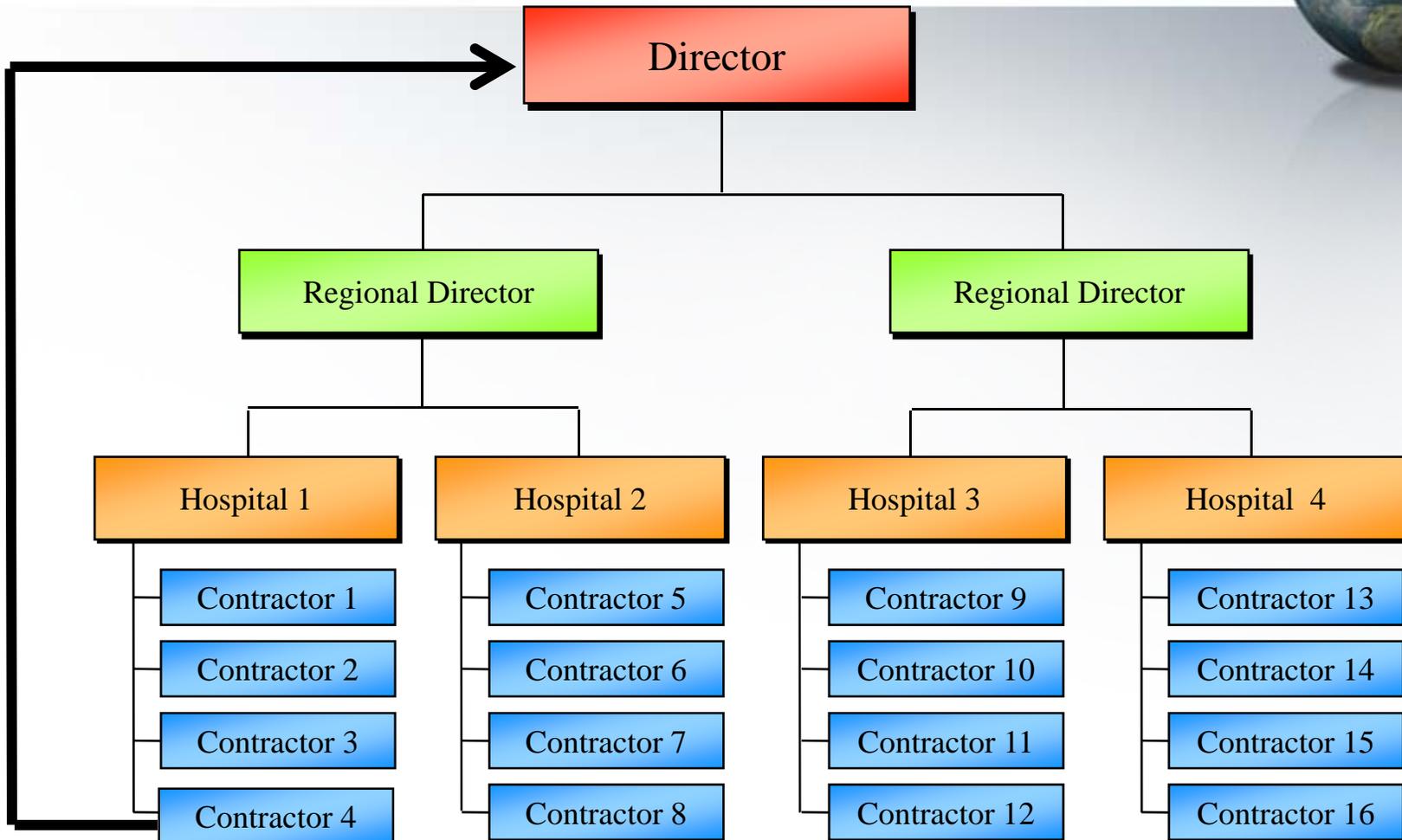


- Vision beginning to end
- No technical risk
- 30K foot elevation analysis
- Preplan
- Schedule is risk focused
- Quality Control/Risk Management (minimize risk they don't control)
- Supply chain thinking
- Win-win

MEDCOM Structure



Case Study: US Army Medical Command
26 major hospitals, 200 projects, \$250M



On Going Projects: Division Overview



DIVISION OVERVIEW		06/06/08
Original projects budget		\$355,788,650.88
Current estimated cost		\$370,969,089.86
Estimated cost over budget		\$15,180,438.98
% estimated cost over budget		4.27%
PROJECT OVERVIEW		
Total number of projects		148
% projects on time		40%
# of jobs delayed		89
% projects on budget		67%
# of jobs over awarded budget		49
# of projects missing owner ratings		8
AVERAGE PROJECT		
Project budget		\$ 2,403,977.37
% over Awarded Budget		4.27%
% over budget due to owner		3.35%
% over budget due to contractor		0.10%
% over budget due to unforeseen		0.82%
Average length of project		500
% Delayed		23.11%
% Delayed due to owner		16.72%
% Delayed due to contractor		2.22%
% Delayed due to unforeseen		4.24%
# of risks		1.53
# owner generated risks		1.07
# of overdue risks		0.64
Owner rating		9.02
Risk number		2.81

Top 10 Risk Projects



TOP 10 RISK RANKING PROJECTS (WRMC)							
No.	Project	Location	Risk #	Contractor	# Weeks on Top 10	NTP of Project	Risk Type
1	Addition to Third Floor Women's Health Care Suite	Ft. Lewis, WA (MAMC)	42.63	J & J Maintenance	31	10/18/2007	approval
2	Renew Health Clinic, Building 990	Yuma Proving Grounds, AZ	11.01	J & J Maintenance	21	9/11/2007	NTP
3	Renew Smith Dental Clinic	Ft. Carson, CO	8.04	John J. Kirlin	2	9/25/2008	Review
4	Repair HVAC Building 9782	Ft. Lewis, WA (MAMC)	8.00	J & J Maintenance	1	10/16/2008	approval
5	Repair Bldg 9921 A & B	Ft. Lewis, WA (MAMC)	7.95	J & J Maintenance	1	10/16/2009	approval
6	Repair Bldg 9912B	Ft. Lewis, WA (MAMC)	7.86	J & J Maintenance	1	10/16/2006	Scope
7	Condenser cooling water Sys.	Ft. Lewis, WA (MAMC)	7.77	J & J Maintenance	1	10/15/2008	Scope
8	Sea Level Aquifer P/T System	Ft. Lewis, WA (MAMC)	7.69	J & J Maintenance	1	9/16/2008	approval
9	Repair Team Center & Observation Room	Ft. Lewis, WA (MAMC)	7.39	J & J Maintenance	1	10/10/2008	approval
10	Physical Therapy/Ortho Clinic	Ft. Leavenworth, KS (MACH)	6.09	United Excel Corporation	1	6/16/2008	approval



Modifications and Risks

AWARDS & MODIFICATIONS						
No.	Award / Modification	Date	Type	Days	\$\$	Description
1	Award 1	1/2/2007			\$9,500,000.00	Award
2	Modification 1	01/05/07		0	\$ 250,000.00	Risk 1
3	Modification 2	3/8/2007		20	\$ 100,000.00	Risk 2
4	Modification 3	5/10/2007		0	\$ 150,000.00	Risk 3
					Total Contract:	\$ 10,000,000.00
					% Billed:	50%
					% Completed	60%

No	Date Entered	Risk Items	Plan to Minimize Risk	Planned Resolution Date	Actual Date Resolved	Impact Days to Critical Path (Calendar)	Impact to Cost
0	3/17/2006	EXAMPLE: Risk A	Risk A Plan: 1) Problem background - why is this an unexpected project risk? 2) What will be done to minimize this? 3) Who is responsible for the plan? 4) What kind of impact will this have?	3/17/2006		0	\$ 10,000
1	12/25/2007	Delay in Workplan	Risk Plan B	1/3/2007	1/3/2007	0	\$ 250,000
2	3/1/2007	Contaminated Material	Risk Plan C	3/6/2007	3/7/2007	20	\$ 100,000
3	4/30/2007	Scope Change	Risk Plan D	5/5/2007	5/6/2007	0	\$ 150,000

On-Going Projects: Regional Performance Lines



REGION OVERVIEW	CHPPM	PRMC	AMEDD	SRMC	WRMC	MRMC	NRMC	AFIP	Average
Total Number of Projects	3	28	7	49	38	26	27	1	22
Total Awarded Budget	\$27,782,738	\$ 44,409,340	\$ 18,452,757	\$148,750,286	\$133,683,925	\$ 60,138,879	\$118,356,664	\$9,754,941	\$70,166,191
Current Cost	\$27,910,447	\$ 47,054,360	\$ 20,198,239	\$155,289,910	\$139,654,057	\$ 63,259,537	\$121,621,485	\$9,823,830	\$73,101,483
PROJECT INFORMATION	CHPPM	PRMC	AMEDD	SRMC	WRMC	MRMC	NRMC	AFIP	Average
% Projects On Time	100%	64%	57%	53%	34%	31%	22%	0%	45%
% Projects On Budget	67%	61%	86%	47%	53%	46%	33%	0%	49%
% Delayed	0.00%	22.50%	13.70%	15.80%	21.50%	37.90%	32.80%	0.06%	18%
% Over Budget	0.46%	5.96%	9.46%	4.40%	4.47%	5.19%	2.76%	0.71%	4%
Average Risk Number	1.01	2.14	1.52	1.92	4.33	2.77	3.05	1.07	2.2
GENERAL INFORMATION	CHPPM	PRMC	AMEDD	SRMC	WRMC	MRMC	NRMC	AFIP	Average
# of QA's	1	14	5	17	14	8	14	1	9
# of Projects per QA	3.0	2.0	1.4	2.9	2.7	3.3	1.9	1.0	2
# of Facilities	1	2	4	9	8	9	10	1	6
Accurate Weekly Risk Reports	66%	60%	50%	60%	45%	37%	50%	0%	46%
Risk Management Plans	100%	68%	66%	77%	60%	55%	59%	100%	73%
Average Risk Resolving Time (days)	0.77	12.2	25.3	19.4	23.3	19	22	1.5	15
Projects with risk # more than 7	0	1	0	3	9	2	2	0	2

High Performing QA's



QUALITY ASSURANCE OVERVIEW	QA 1	QA 2	QA 3	QA 4
Facility/Location	Aberdeen Proving Grounds, MD	Walter Reed, Washington DC (WRAMC)	Ft. Lewis, WA (MAMC)	Tripler AMC, Hawaii
Region	CHPPM	NRMC	WRMC	PRMC
Total Number of Projects	2	1	2	5
Total Awarded Budget	\$ 24,148,918	\$3,636,990	\$8,269,142	\$4,089,714
Current Cost	\$ 24,148,918	\$3,636,990	\$8,269,142	\$4,089,714
PROJECT OVERVIEW	QA 1	QA 2	QA 3	QA 4
% Projects On Time	100%	100%	100%	100%
% Projects On Budget	100%	100%	100%	100%
% Delayed	0%	0%	0%	0%
% Over Awarded Budget	0%	0%	0%	0%
Risk Number	1	1	1.00	1.00
GENERAL INFORMATION	QA 1	QA 2	QA 3	QA 4
% Accurate Weekly Reports	100%	100%	100%	100%
% Risk Management Plan	N/A	100%	100%	80%

Low Performing QA's



QUALITY ASSURANCE OVERVIEW	QA 1	QA 2	QA 3	QA 4
Facility/Location	Ft. Lewis, WA (MAMC)	Walter Reed, D.C. (WRAMC)	Schofield Barracks, HI	WRAIR, Silver Spring, MD
Region	WRMC	NRMC	PRMC	MRMC
Total Number of Projects	2	2	1	3
Total Awarded Budget	\$2,542,733	\$4,126,449	\$1,048,173	\$6,477,469
Current Cost	\$3,864,104	\$4,823,428	\$1,094,061	\$7,591,316
PROJECT OVERVIEW	QA 1	QA 2	QA 3	QA 4
% Projects On Time	0%	0%	0%	0%
% Projects On Budget	0%	0%	0%	33%
% Delayed	150.00%	145%	89.6%	63%
% Over Awarded Budget	52%	16.89%	4.4%	17%
Risk Number	25.01	3.59	5.94	3.25
GENERAL INFORMATION	QA 1	QA 2	QA 3	QA 4
% Accurate Weekly Reports	50%	0%	0%	33%
% Risk Management Plan	N/A	0%	N/A	N/A

PROJECT PERFORMANCE WITH/WITHOUT WRR & RMP



PROJECT OVERVIEW	Without WRR	Without RMP	With RMP	% RMP Progress
% projects on time	30%	38%	56%	48%
% projects on budget	45%	52%	70%	35%
AVERAGE PROJECT	Without WRR	With WRR	With RMP	% RMP Progress
% over awarded budget	10%	5.4%	1.7%	68%
% over budget due to owner	8%	3.83%	1.13%	71%
% over budget due to contractor	0.4%	0.21%	0.04%	79%
% over budget due to unforeseen	1.6%	1.33%	0.53%	61%
% days delayed	42%	30.6%	14.6%	52%
% delayed due to owner	29.4%	19.72%	11.41%	42%
% delayed due to contractor	6.3%	4.64%	1.68%	64%
% delayed due to unforeseen	6.3%	6.20%	1.47%	76%
# of risks	4	1.98	1.29	35%
# owner generated risks	3	1.33	0.87	35%
Owner rating	Unknown	9.10	9.34	3%
Risk number	5.52	3.25	2.38	27%

- The concept was here the entire time
- No one knew how to transfer the logic and common sense into something so "complex"

