

Case Study: *Perpich Center for Arts Education*

How *Multi-Objective Decision Analysis*
helped the budget process

Elsie Martin, Consultant

David Flannery, Interim Executive Director, PCAE
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Goals for Today

- Show how we were able to build a budget that held to our mission (linking programs to objectives) and was 15% less than prior year.
- Provide step-by-step overview of process we used.
- Describe lessons learned:
 - What we learned for next time.
 - How method might help other schools.

Agenda

- What is Multi-Objective Decision Analysis?
- How we applied it at the Perpich Center
 - Phase I – Clarify Mission
 - Phase II – Implement the Mission
- Results
- Lessons Learned

What is Multi-Objective Decision Analysis?

- A tool, or **aid**, to the decision making process
- Methodology developed at Stanford University, applied in many industries
 - Oil & Gas, Utilities, Healthcare, Airlines, e-business
 - Adapted to PCAE's specific set of issues
- A process to analyze and filter information, both quantifiable and subjective
- A means to facilitate group decisions and build consensus
- A way to explain and defend our choices

When is a decision **aid** useful?

- Decision is complex
- Process is controversial and feels inefficient
- Participants complain that we do not have a “level playing field”
- Priorities are not directly linked to long-term strategic goals
- Some stakeholders are dissatisfied and feel underrepresented

How we applied it at Perpich Center for Arts Education

Scope: FY 2004 Budget

Our Project Goals:

1. Quantify benefits derived from the Center and its various Program Areas.
2. Quantify relationship between each Area's funding level and the benefits that it generates.
3. Identify, for any available Center budget, the allocation of resources across Areas that maximizes total benefit.
4. Show impact of Center's budget on our ability to achieve our mission.

How we applied it, cont'd.

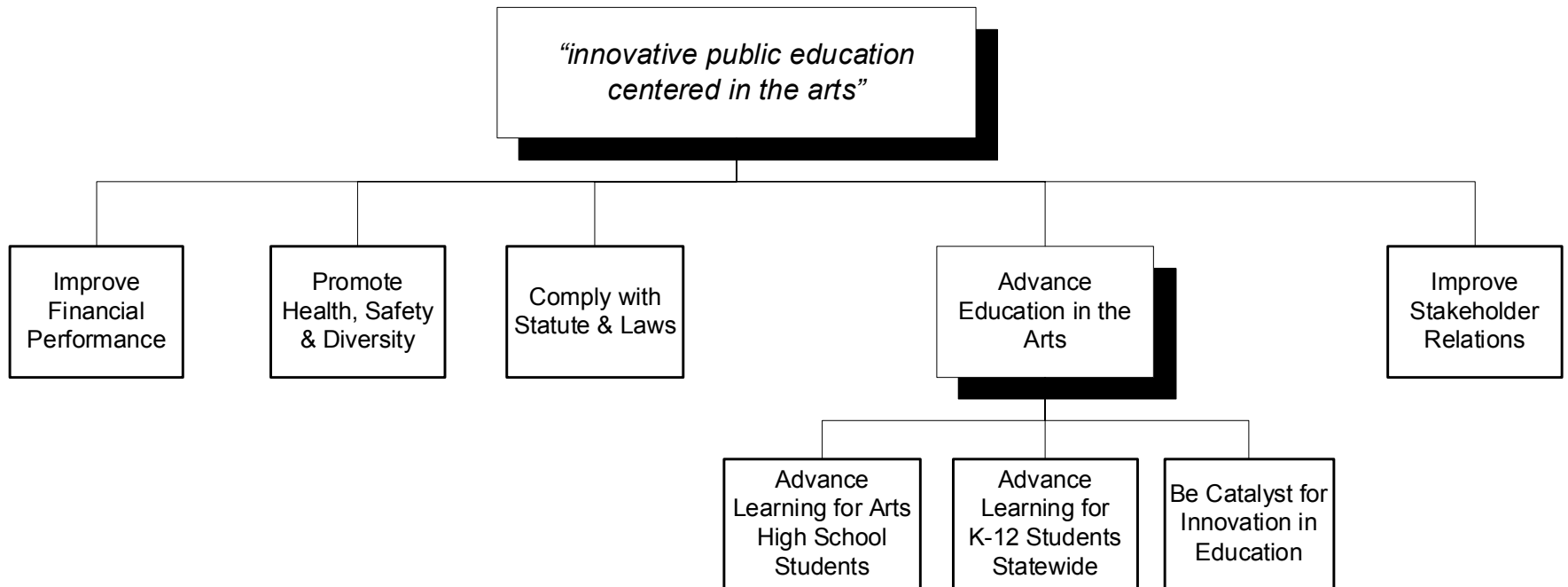
Our Assumptions & Philosophy

- Perpich Center for Arts Education has been directed to cut our FY 2004 & 05 budgets.
- We want a solid platform to make cuts that ensures programs and activities bring us the most “benefit”.
 - “Benefit” is defined by contribution to the achievement of the Center’s mission objectives – our intentions.
- The budget allocation should provide a logical framework for collecting and combining judgments.
 - Judgments about our intentions &
 - Judgments about how our Program Areas help us achieve those intentions

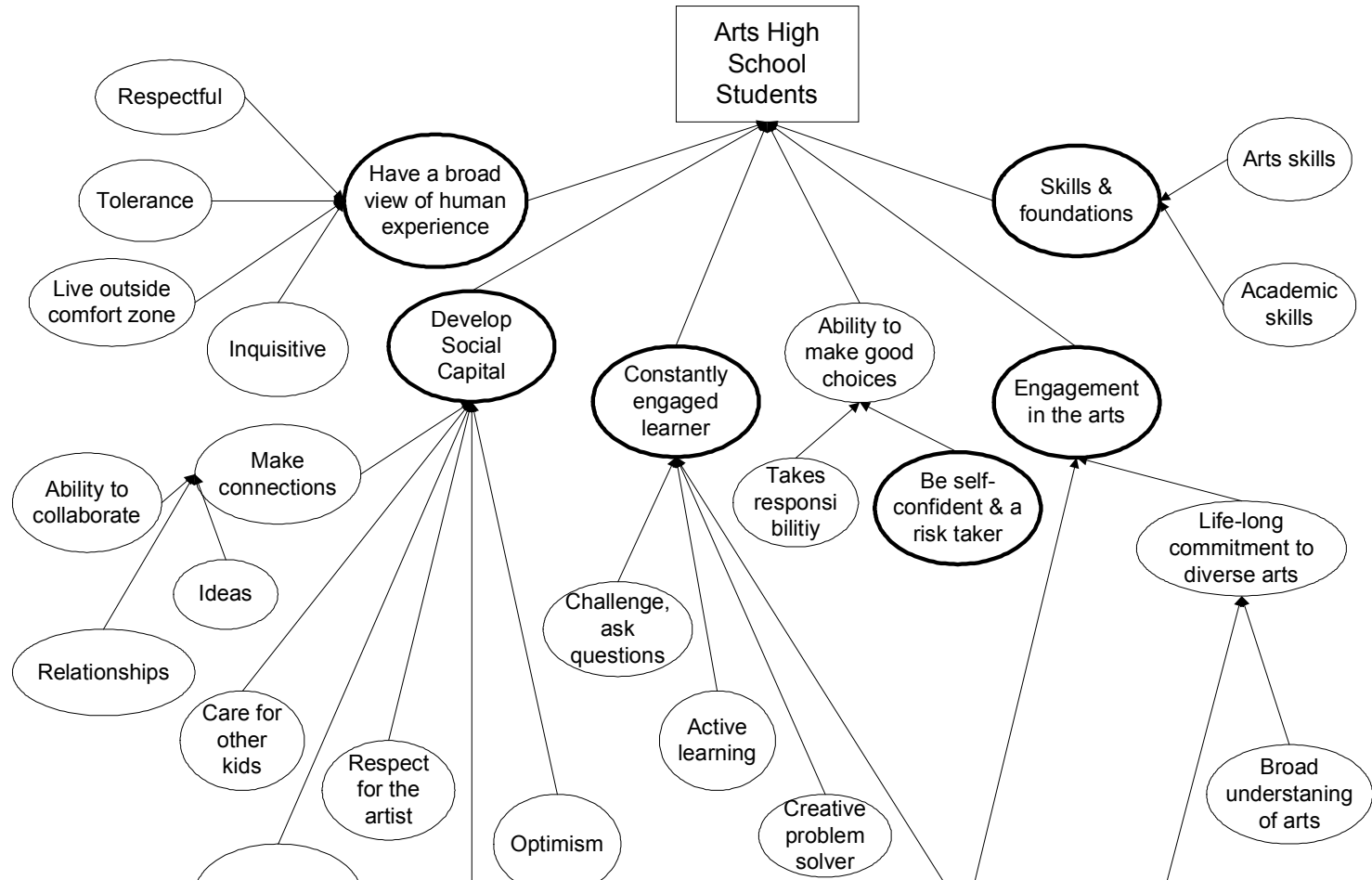
Phase I – Clarify Mission

- The Board, Directors and staff:
 - Specified mission objectives in an objectives hierarchy
 - Captured factors influencing outcomes and created scales to measure performance
 - Assessed weights, or priorities, via poker chip exercise

Mission Objectives for 2004-05 Budget



Advance Learning for Arts High School Students



Advance Learning for Arts High School Students

10 BEST

- 75% of students continue to practice or make art after graduation
- 98% or more of students meet graduation standards
- 2% or less have a school probation
- 98% or more have at least 1 close adult relationship at school
- More than half of the PCAE staff practice or make art
- More than half PCAE staff pursue post-employment certificates or advanced degrees

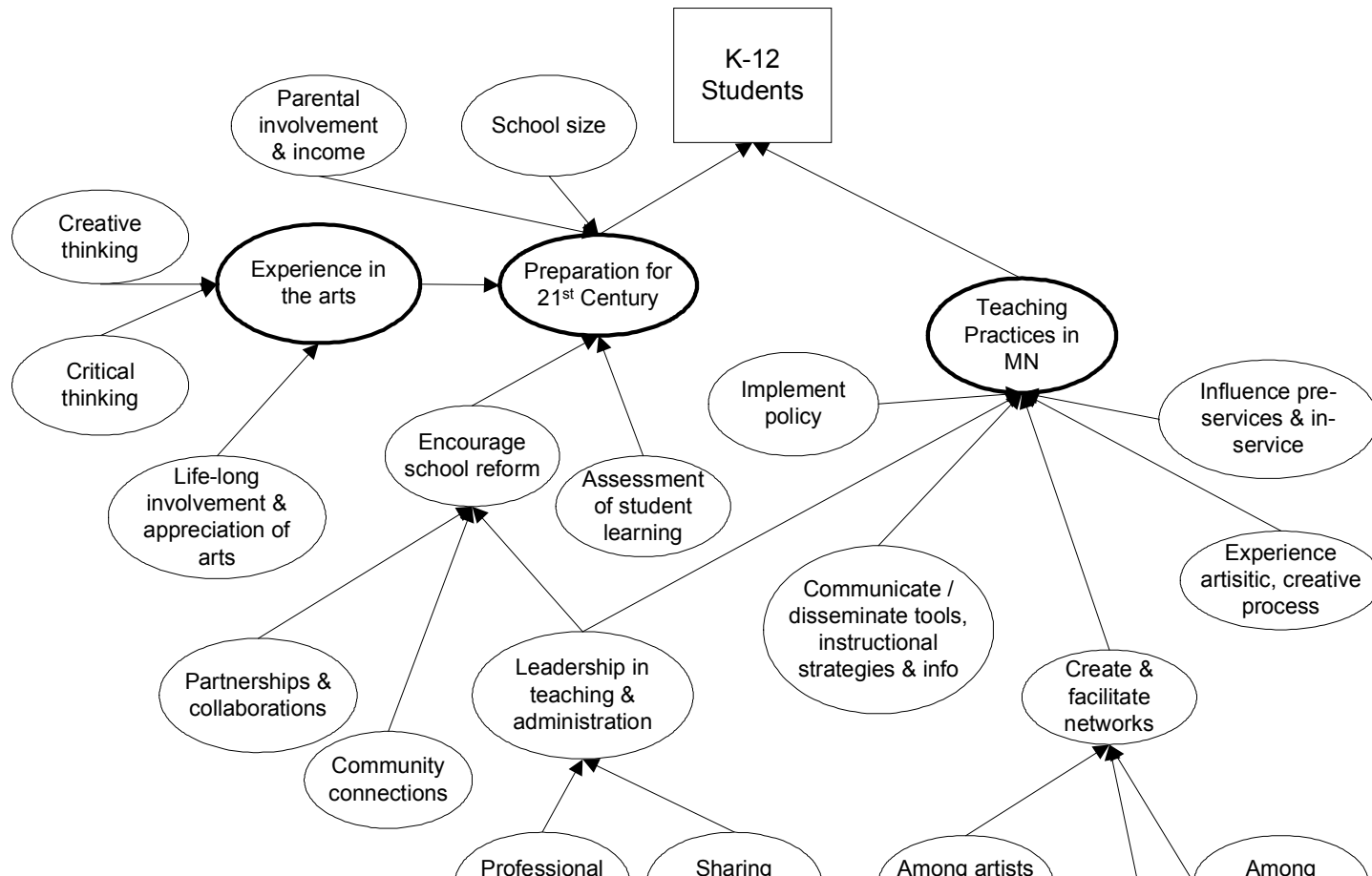
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- 60% of students continue to practice or make art after graduation
- 85% of students meet graduation standards
- About 10% have a school probation
- 90% have 1 close adult relationship at school
- Arts specialists and some other PCAE staff members practice or make art
- Some PCAE staff members pursue post-employment certificates or advanced degrees

1 WORST

- 40% of students continue to practice or make art after graduation
- 70% of students meet graduation standards
- 15% or more have a school probation
- 80% have 1 close adult relationship at school
- Only the arts specialists at PCAE practice or make art
- Very few PCAE staff members pursue post-employment certificates or degrees

Advance Learning for K-12 Students Statewide



Advance Learning for K-12 Students Statewide

10 BEST

- 90% of students work with a practicing artist
- 100% (850,000) meet arts standards in 2 art areas; 50% in 4 or more art areas.
- 80% districts have specialists in 4 or more art areas.
- 50% of students learn through on-going arts education partnerships and 50% of districts have arts partnerships
- 10% (500) specialists participate in training that changes their teaching practice
- 10% (6,000) generalists (non-specialists) have a meaningful arts education experience

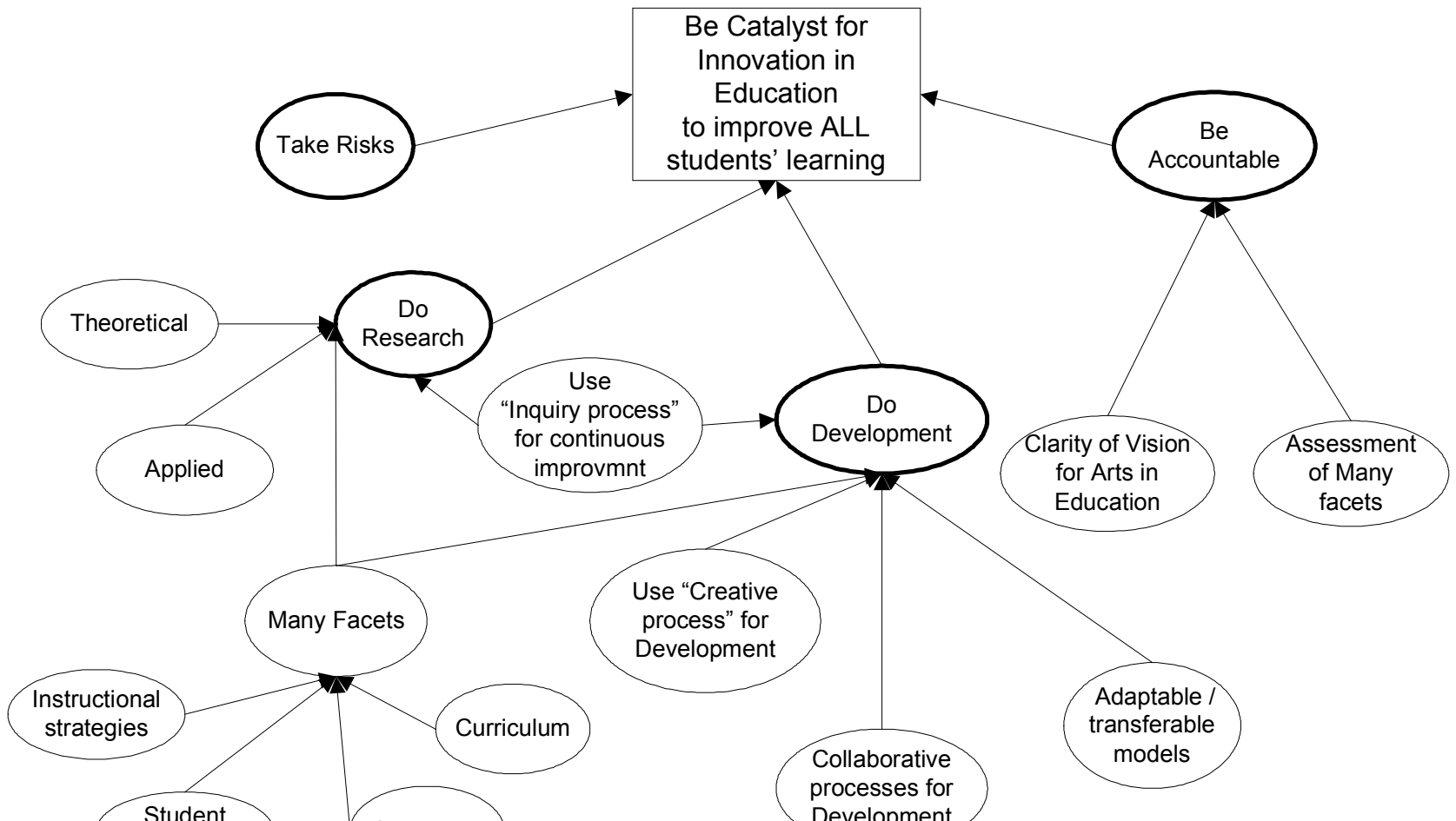
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- 50% students work with a practicing artist
- 60% meet arts standards in 2 art areas, 5% in 4 or more, K-12
- Some districts have specialists in 4 or more art areas. Most have them in 2 or fewer.
- 30% districts have arts partnerships
- 5% (250) specialists participate in training that changes their teaching practice
- 5% (3,000) generalists (non-specialists) have meaningful arts education experience.

1 WORST

- 20% students work with a practicing artist
- 30% meet arts standards in 2 art areas, 5% in 4 or more, K-12
- Most districts have specialists in 2 or fewer art areas. Some have none.
- 10% districts have arts partnerships
- 2% specialists participate in training that changes their teaching practice
- <1% generalists (non-specialists) have meaningful arts education experience.

Catalyst for Innovation in Education



Catalyst for Innovation in Education

Scale

10 BEST

- Multiple risks taken. Perpich Center staff, teachers & teaching artists report trying and reflecting on innovations in teacher practice and student learning
- 20 case examples of “substantive” replication of PCAE programs, practices, etc. that relate to educational, comprehensive school reform design (in Minnesota, another state or another country).
- PCAE “work” is adopted into state and district education policy and practice during the biennium.
- PCAE shapes a vision of arts education.
- PCAE receives a multi-thousand dollar grant in collaboration with another organization each biennium.

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- A few risks are taken.
- 10 case examples of “substantive” replication.
- Limited adoption of PCAE “work” into state or district education policy and practice.
- A vision is sketched but not clear.
- PCAE receives several mid-size grants each biennium.

1 WORST

- No risks are taken, status quo is maintained.
- 0 cases of “substantive” replication. No one watches us.
- PCAE fails to influence state or district education policy and practice in the biennium.

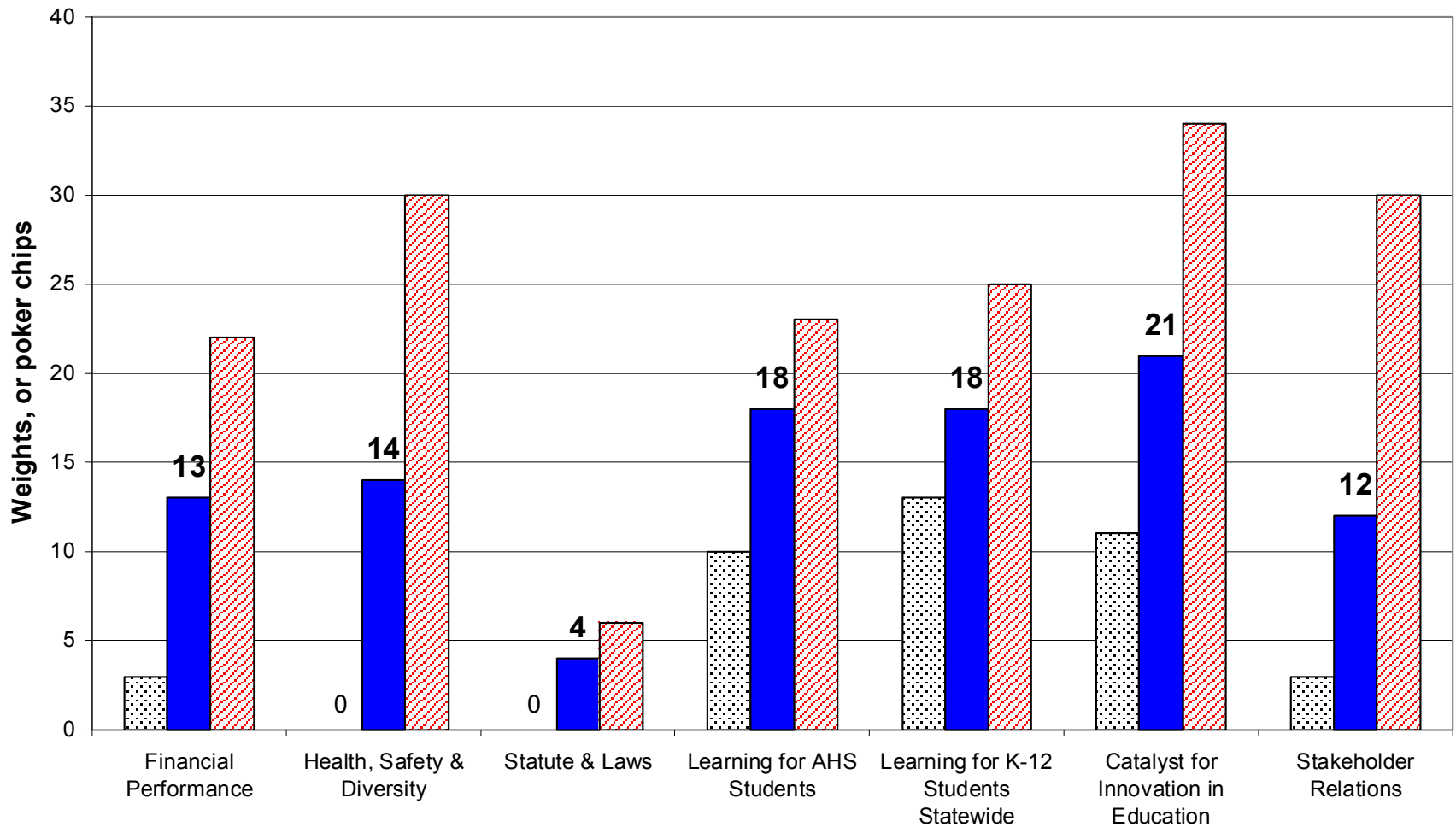
Improve Financial Performance

- Financial performance is measured with a direct scale of dollars
- Components include:
 - Direct costs of each Program Area
 - Cost impacts to other Areas of PCAE
 - Efficiencies in use of time and resources

Poker chip exercise

- Two-hour session to debate tradeoffs among our mission objectives
 - Weights are policy judgments about what is important to PCAE and its stakeholders
 - Because we have multiple, competing objectives, we must make tradeoffs
 - Different individuals have different values
 - Process encourages discussion
 - Helps us to see other perspectives
 - Helps us to reflect on our own preferences and clarify them

Board's Consensus Weights, August 27, 2002



Phase II – Implement the Mission

- Directors and staff:
 - Assessed how our Program Areas help us achieve our mission with whatever dollars are available.
- What we did:
 - 5 Program Areas developed multiple funding case scenarios and assessed impacts of those on our objectives through a scoring process.
 - 2 large group meetings audited scores
 - 5 Program Areas reviewed their results and finalized scores
 - Directors reviewed results of logical framework

The five Program Areas

- Administration
- Arts High School and Residential Services
- Learning Resource Center
- Professional Development Institute
- Research, Assessment & Curriculum

Funding Cases – AHS & RS

Case 3, FY03- 15%AHS & no RS	Case 3.1, FY03 - 25%AHS & - 15%RS	Case 5, FY03- 9%AHS & no RS	Case 5.1, FY03 - 10%AHS & RS same	Case 6, FY03 - 5%AHS & RS same	Case 7, FY03 AHS & RS	Case 8, FY03 +6%AHS & +4%RS
Academics with inter-disciplinary focus: Studio arts and Performing arts	Academics with inter-disciplinary focus and Residential week days only	Arts High School with 6 art areas, no Residential	Arts High School with 6 art areas and Residential week days only	Arts High School with 6 art areas and Residential week days & some weekends	Arts High School with 6 art areas and Residential week days & some weekends	AHS and 1 Summer Institute
Interdisciplinary teaching, less arts specialization, fewer academic classes. Post-secondary planning & other student support programs (e.g., special ed & personal counseling) greatly reduced. Cut 6-7 FTE faculty & support staff from FY03. - \$ 400,000	Similar to case 3, add residential staff but cut additional school FTE's to balance budget. Statewide opporties open up for students but arts & academic options are further reduced. Class sizes in the 30's. Cut 10-12 FTE faculty & support staff from FY03. - \$740,000	Specialization in 6 art areas, fundamntl academic program (similar to regular HS), some inter-disciplinary arts and academics. 1 or less AP class. Larger class size, less remedial help and support than FY03. Cut 3-4 FTE's faculty & support staff from FY03. -\$ 240,000	Similar to case 5, add residential staff but cut a school FTE. Statewide opportunities open up for students but arts & academic options are further reduced. Cut 4-5 FTE faculty & support staff from FY03. - \$300,000	Student services are improved over case 5 (i.e., post-secondary planning, personal counseling, special ed). Class size is reduced. Cut 1-2 FTE faculty & support staff from FY03. - \$100,000	Current arts, academic and support programming is in place. FY03 staffing is maintained.	Run one 2-week institute for 150 students (\$40,000 for teacher, supplies, dorm costs) Add 2 FTE's for fulltime nurse, internship coordinator, grant writer & additional dorm help (1 position could fulfill more than 1 role)
No residency	Week day residency	No residency	Week day & some weekend residency	Week day & some weekend residency	Week day & some weekend residency	Week day & weekend residency
9 districts	Statewide	Metro-wide	Statewide	Statewide	Statewide	Statewide
No transportation	No transportation	No transportation	No transportation	No transportation	2 vans, 2 routes	more transportation

Funding Cases – RAC

	Case 1 (\$250) -30%	Case 3 (\$285) -20%	Case 5 (\$320) -10%	Case 7 (\$353) Same as FY 03	Case 9 (\$390) +10% (+\$37)
A. Assist Department of Children, Families & Learning (DCFL) with development and implementation of state and national arts education standards for student learning and teacher competency	Limited capacity to represent school and district perspectives	Less ability to represent authentic school and district perspectives	Somewhat reduced ability to represent authentic school and district perspectives in policy development	same as today	
B. Manage statewide Arts Best Practice Network and regional Best Practice Networks (research and development of best practices)	\$20,000 No consultants No Video taping No publications Electronic network, no meetings 3 FTE (\$223,000) No Ed Spec I	\$50,000 limited consultants 1 meeting at Center No video taping No publications 3 FTE (\$223,000) No Ed Spec I	\$60,000 some consulting 2 meetings at Center produce 1 video tape, available for purchase only reduce publications 3 FTE (\$223,000) No Ed Spec I	\$85,000 consultants and 3 meetings per network, at least 1 offsite mtg. per network 4-5 videos produced, disseminated to all dists publications developed 3 FTE (\$223,000) No Ed Spec I	
C. Develop and disseminate innovative resources: arts curriculum frameworks, model assessment processes and instructional tools and strategies to inform educational practices	No hard copy publications - can't bring in teachers so there is less development	\$4,000 1 Newsletter with very limited distribution	\$10,000 1 Newsletter 1 Brochure Research briefs No other publications	\$15,000 1 Newsletter Research briefs 2 Brochures CD Rom on Interdisciplinary learning	\$37,000 Development of Phase I - revision of Arts Curriculum Framework
D. Collect, organize and disseminate arts and education research; support teacher research	No teacher research	No teacher research	\$5,000 Limited assistance, metro pilot	\$15,000	
E. Collaborate with higher education to advise on major research studies in arts education and support conferences that explore compelling research in the arts and education	No research-based conferences	No research-based conferences	\$5,000 Collaboration 1 research based conference	\$5,000 Collaboration 1 research-based conference	

The Scores (impacts on objectives)

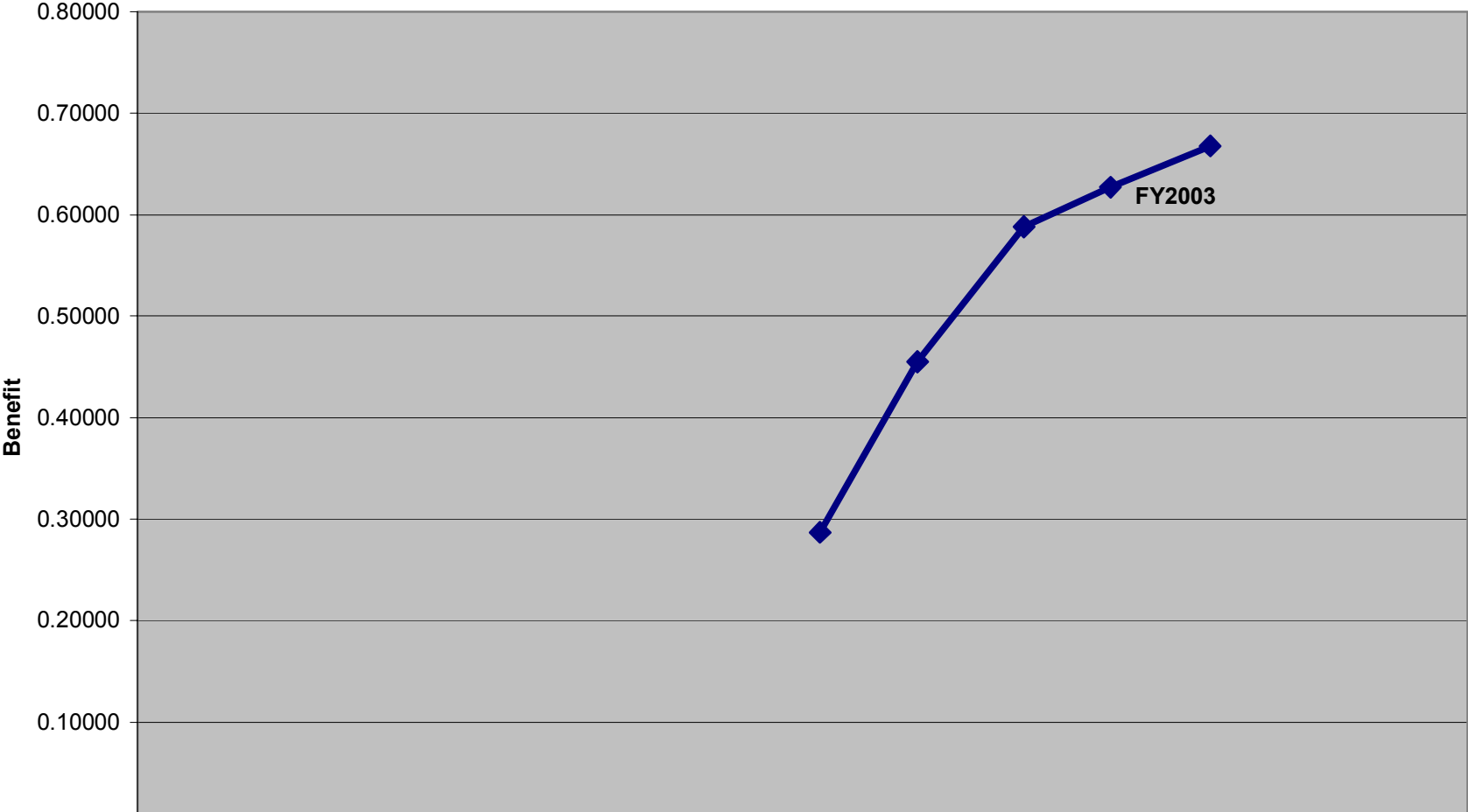
Area of Center #	Area of Center	Area Abreviation	Funding Cases	Total 2004-05 Budget COST	Cost Impact to other Areas of PCAE	Health, Safety & Diversity	Statute & Laws	Learning for AHS Students	Learning for K-12 Students Statewide	Catalyst for Innovation	Stakeholder Relations
1	Administration	Adm	Case 1 - FY03 -30%	\$1,540	\$75	2	3	4	3	4	3
		Adm	Case 3 - FY03 -20%	\$1,760	\$45	3	6	6	4	5	5
		Adm	Case 5 - FY03 -10%	\$2,000	\$15	4	8	8	5	6	6
		Adm	Case 7 - FY03	\$2,194	\$0	5	9	8	5	6	7
		Adm	Case 9 - FY03 +10%	\$2,420	\$0	6.1	9.5	8	5.5	6	8
2	Arts High School & Residential Services	AHS	Case 1 - Urban Arts -80%AHS	\$550	\$0	1	6	1	1	1	3
		AHS	Case 2 - PM Arts -30%AHS	\$1,800	\$0	1	6	1.5	3	1	3
		AHS	Case 3 - FY03 -15%AHS noRS	\$2,300	\$0	1	6	2	3	1.5	3
		AHS	Case 3.1 -25%AHS -15%RS	\$2,450	\$0	1	7	2	3	2.5	3.5
		AHS	Case 5 - FY03 -9%AHS noRS	\$2,460	\$0	1	8	3	4	3	3
		AHS	Case 5.1 -10%AHS+RS same	\$2,979	\$0	4.5	9	6	4	5	6
		AHS	Case 6 FY03 -5%AHS+RS same	\$3,179	\$0	4.5	9	7.6	4.5	5.5	7
		AHS	Case 7 - FY03	\$3,283	\$0	5	9	8	5	6	7
		AHS	Case 8 - FY03+6%AHS +4%RS	\$3,465	\$0	5.5	9.2	8.2	5.5	6.5	7.2
AHS	Case 9 - FY03 +10%AHS +10%R	\$3,640	\$0	6	9.4	8.2	6	7	7.3		
3	Professional Development Institute	PDI	Case 1 - FY03 -30%	\$1,056	\$0	4	6	7	1.5	2	3
		PDI	Case 3 - FY03 -20%	\$1,207	\$0	5	8	7.5	2.5	4	5.5
		PDI	Case 5 - FY03 -10%	\$1,358	\$0	5	9	8	4	5.2	6.5
		PDI	Case 7 - FY03	\$1,509	\$0	5	9	8	5	6	7
		PDI	Case 9 - FY03 +10%	\$1,660	\$0	5	9	8	6.2	6.5	7.5
4	Learning Resource Center	LRC	Case 1 - FY03 -30%	\$109	\$0	5	8	4	2	3	6
		LRC	Case 3 - FY03 -20%	\$125	\$0	5	9	6	3	4	7
		LRC	Case 5 - FY03 -10%	\$140	\$0	5	9	7	4	6	7
		LRC	Case 7 - FY03	\$156	\$0	5	9	8	5	6	7
		LRC	Case 9 - FY03 +10%	\$172	\$0	5	9	8	6	6.5	7
5	Research, Assessment & Curriculum	RAC	Case 1 - FY03 -30%	\$250	\$30	4	5	7.5	2	2	3
		RAC	Case 3 - FY03 -20%	\$285	\$0	4	7	8	2.5	4	4
		RAC	Case 5 - FY03 -10%	\$320	\$0	5	8	8	4	5	5

Results of logical framework for each Program Area

- Weights of each objective are combined with Scores on each objective's scale for every Funding case
to yield
- A composite measure of **Benefit** that can be compared with **Cost**

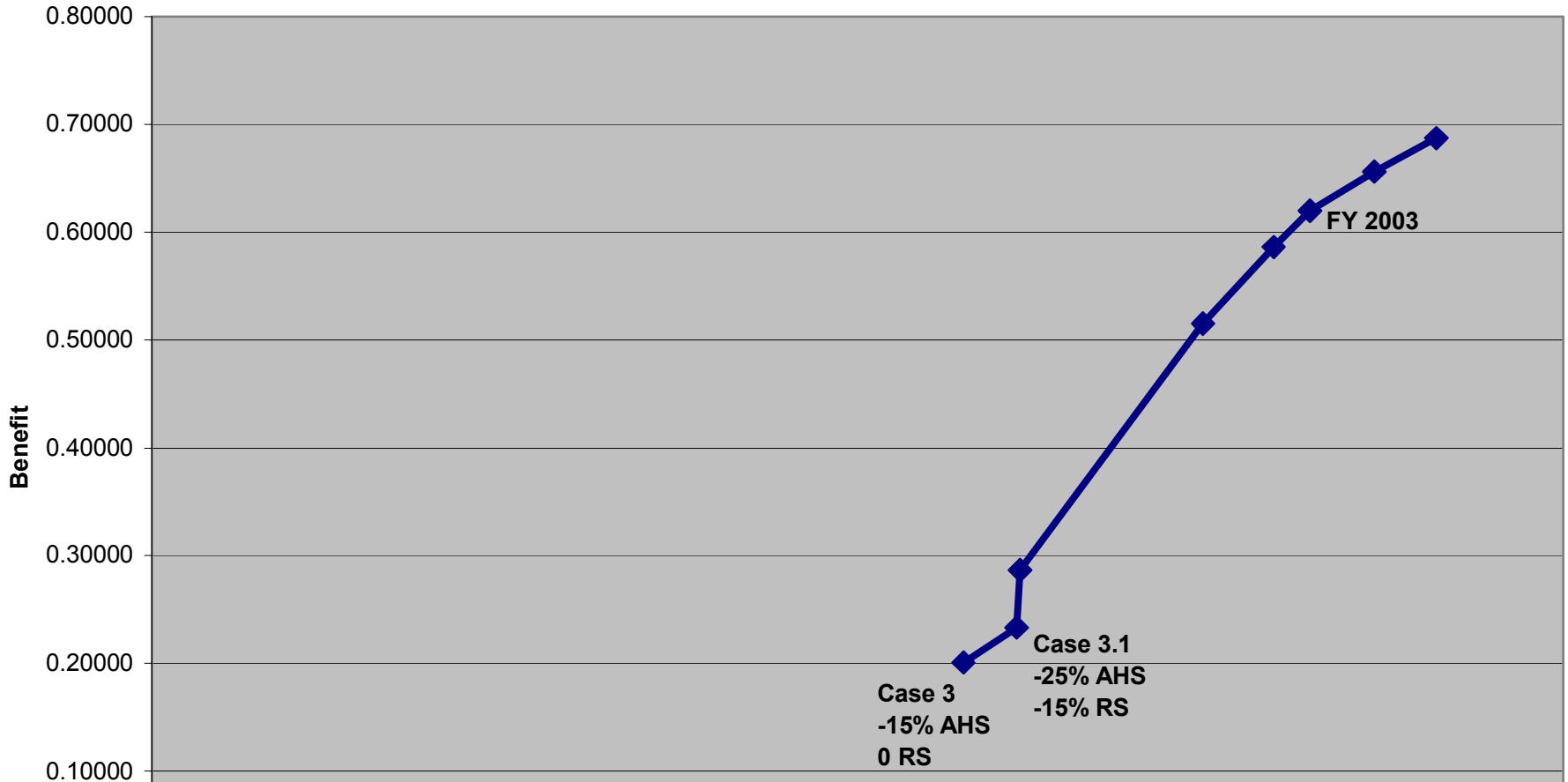
Benefit to Cost for Administration

Administration - Benefit to Cost



Arts High School & Residential Services

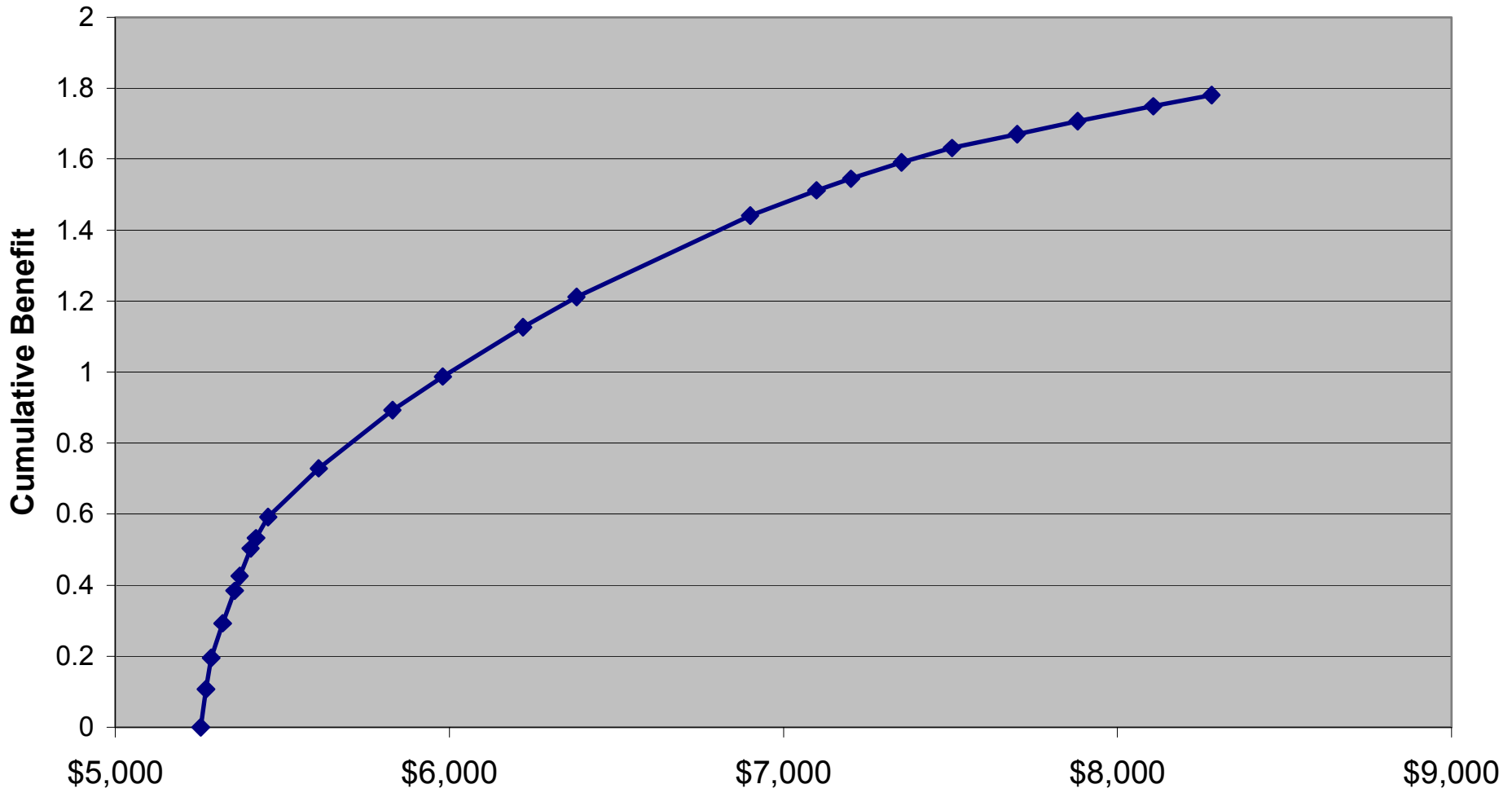
Arts High School & Student Services - Benefit to Cost



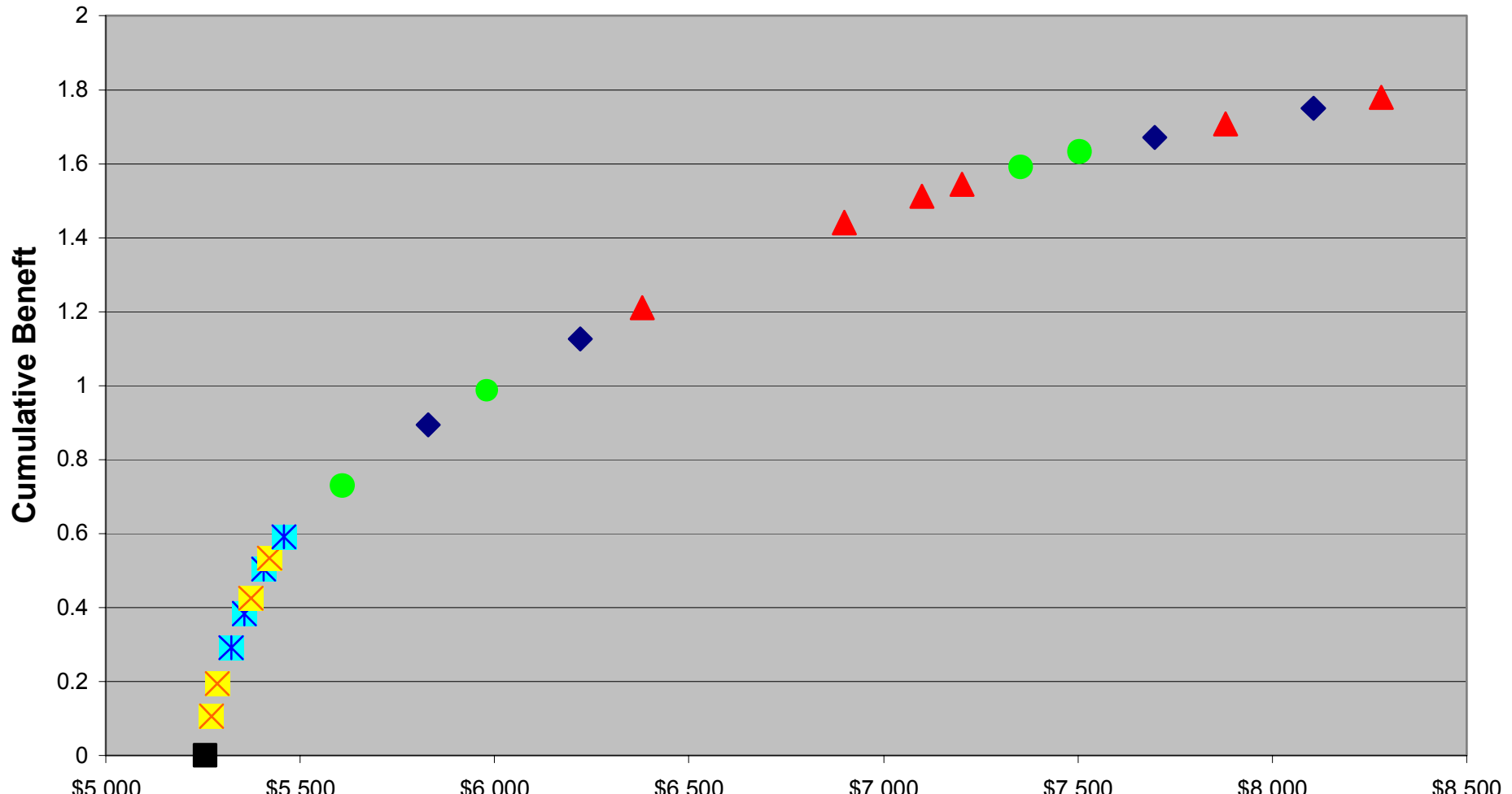
Results of logical framework for Perpich Center for Arts Education

- Funding cases from all Program Areas are then ranked by declining overall Benefit-Cost
to yield
- A table and graph that identifies, for any available Center budget, the allocation of resources across Program Areas that maximizes total benefit

Perpich Center for Arts Education Benefit to Cost Curve



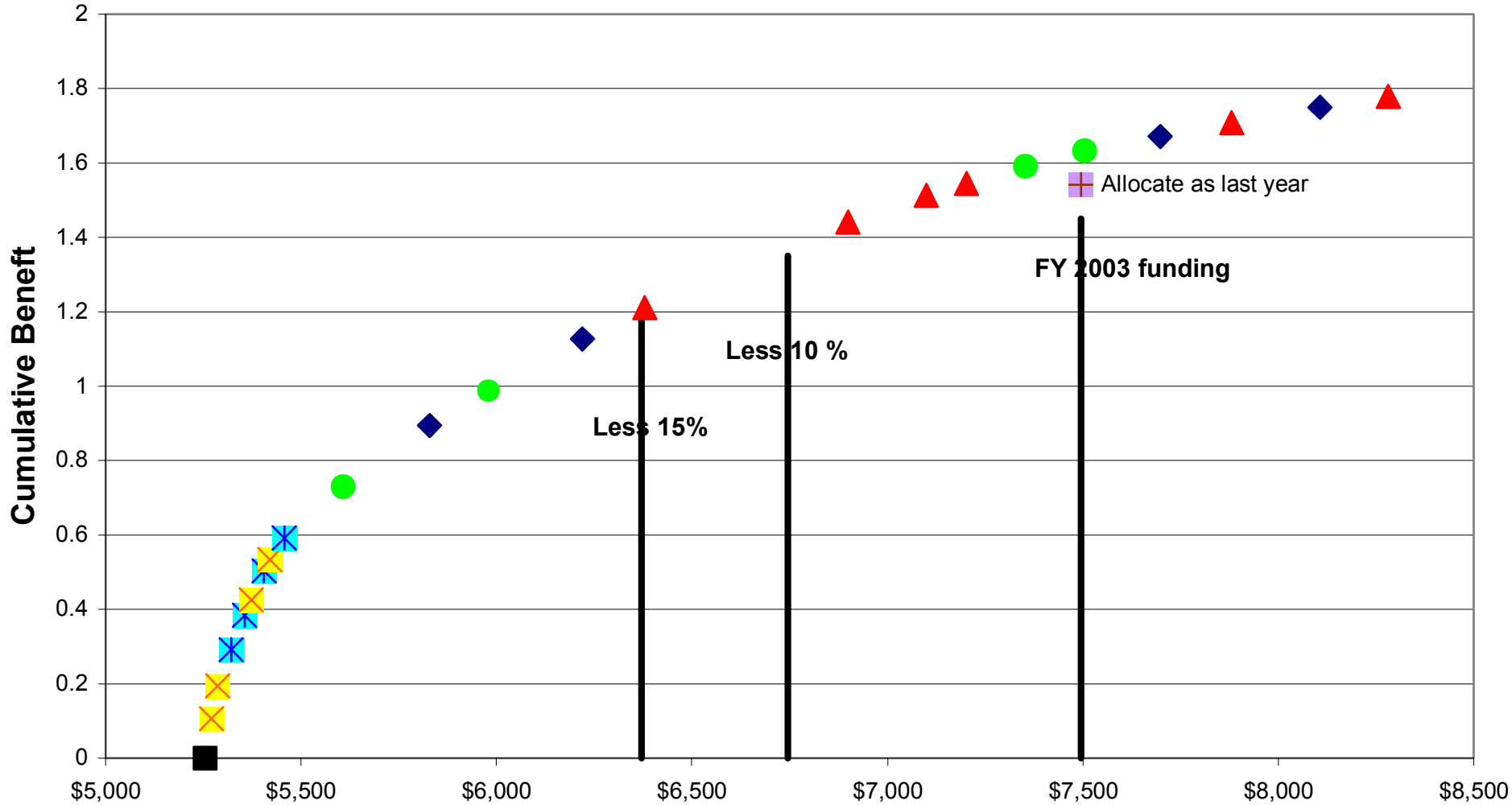
Perpich Center for Arts Education Benefit to Cost Curve



Ranking

Level	Area	Case	Incremental Cost	Incremental Benefit / Cost	Cumulative Cost	
1	Adm	Case 1 - FY03 -30%	\$1,540			
1	AHS	Case 3 - FY03 -15%AHS noRS	\$2,300			
1	PDI	Case 1 - FY03 -30%	\$1,056			
1	LRC	Case 1 - FY03 -30%	\$109			
1	RAC	Case 1 - FY03 -30%	\$250		\$5,255	
2	LRC	Case 3 - FY03 -20%	\$16	6.840659	\$5,271	
3	LRC	Case 5 - FY03 -10%	\$16	5.622711	\$5,286	
4	RAC	Case 3 - FY03 -20%	\$35	2.788776	\$5,321	
5	RAC	Case 5 - FY03 -10%	\$35	2.644898	\$5,356	
6	LRC	Case 7 - FY03	\$16	2.610289	\$5,372	
7	RAC	Case 7 - FY03	\$33	2.343864	\$5,405	
8	LRC	Case 9 - FY03 +10%	\$15	1.905197	\$5,421	
9	RAC	Case 9 - FY03 +10%	\$37	1.596884	\$5,458	
10	PDI	Case 3 - FY03 -20%	\$151	0.912015	\$5,609	
11	Adm	Case 3 - FY03 -20%	\$220	0.744535	\$5,829	
12	PDI	Case 5 - FY03 -10%	\$151	0.621003	\$5,980	
13	Adm	Case 5 - FY03 -10%	\$240	0.579676	\$6,220	
14	AHS	Case 5 - FY03 -9%AHS noRS	\$160	0.532589	\$6,380	Less 15% \$6,371
15	AHS	Case 5.1 -10%AHS+RS same	\$519	0.440987	\$6,899	Less 10% \$6,745
16	AHS	Case 6 FY03 -5%AHS+RS same	\$200	0.356786	\$7,099	
17	AHS	Case 7 - FY03	\$103	0.325938	\$7,202	
18	PDI	Case 7 - FY03	\$151	0.304168	\$7,353	
19	PDI	Case 9 - FY03 +10%	\$151	0.269413	\$7,504	All Case 7's \$7,495
20	Adm	Case 7 - FY03	\$103	0.288876	\$7,607	

Perpich Center for Arts Education Benefit to Cost Curve



Perpich Center's budget

- The budget submitted to the state differed from the framework's recommendation
- Remember:
 - The MODA process is a tool to help decision makers, it does not make the decision.
 - We worked for 80% accuracy in the objectives, scales, funding cases and scores.
 - Practical aspects, such as contracts, prevent implementing all funding case scenarios.

How process helped us build a budget 15% less and still hold to our mission

“The step-by-step process of doing one thing at a time helped us be more objective.”

“The scales development was the most clarifying part and helps us operate with standards.”

“We listed objectives that are difficult to measure.”

“The model forced an appropriate level of detail and helped us think critically and strategically.”

“It caused us to generate new ideas.”

“The sharing between areas connected resources with programs unlike we have done before.”

“It gives us a picture, beyond a quantitative analysis, by bringing forth a lot of voices.”

Lessons Learned

- PCAE team
 - *“We need a better understanding of the scales.”*
 - *“We need more work on the scales.”*
 - *“We need more data to support our judgments in the scoring process.”*
 - *“We need to re-visit inter-relations within and between the Program Areas.”*
- Elsie Martin
 - Create a clearer definition of Financial Impacts.
 - Find better ways to compare small versus large Program Areas.
 - Find better ways to handle dependencies across Program Areas.

How method might help other schools link priorities to actions

- Build on *Phase I – Clarify Mission* work completed at Perpich Center and Jennings Experiential High School
 - Develop an objectives hierarchy and scales for another district or charter school
- Do *resource allocation (budget)* process with a small district or charter school
- Pilot *resource allocation (budget)* process with 1 or 2 schools from a large district

Conditions for Success

1. Person at top must understand methodology (how it works and fits together) and sponsor its implementation.

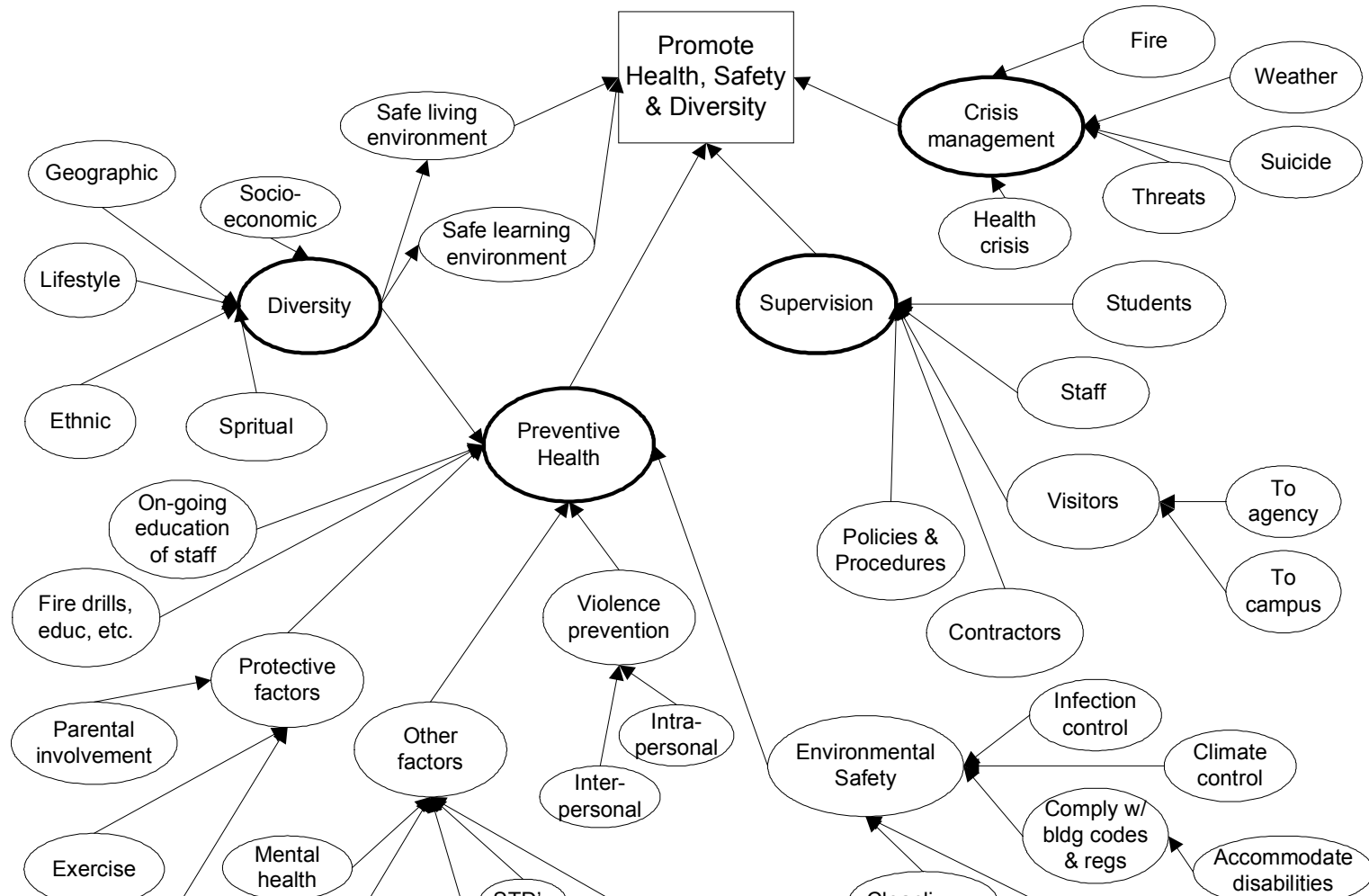
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2. Department heads must be willing to give up some autonomy for the good of the whole.

Extra slides

- Not used in presentation

Promote Health, Safety & Diversity



Promote Health, Safety & Diversity

10 BEST

- High diversity among AHS students and PCAE staff in all 4 categories:
 - ethnicity
 - geographic region
 - sexual orientation
 - socio-economic
- Score 10% above state average on Search Institute Survey
- One or less non-academic suspension or staff discipline action
- Central record keeping and monitoring for all types of incidents

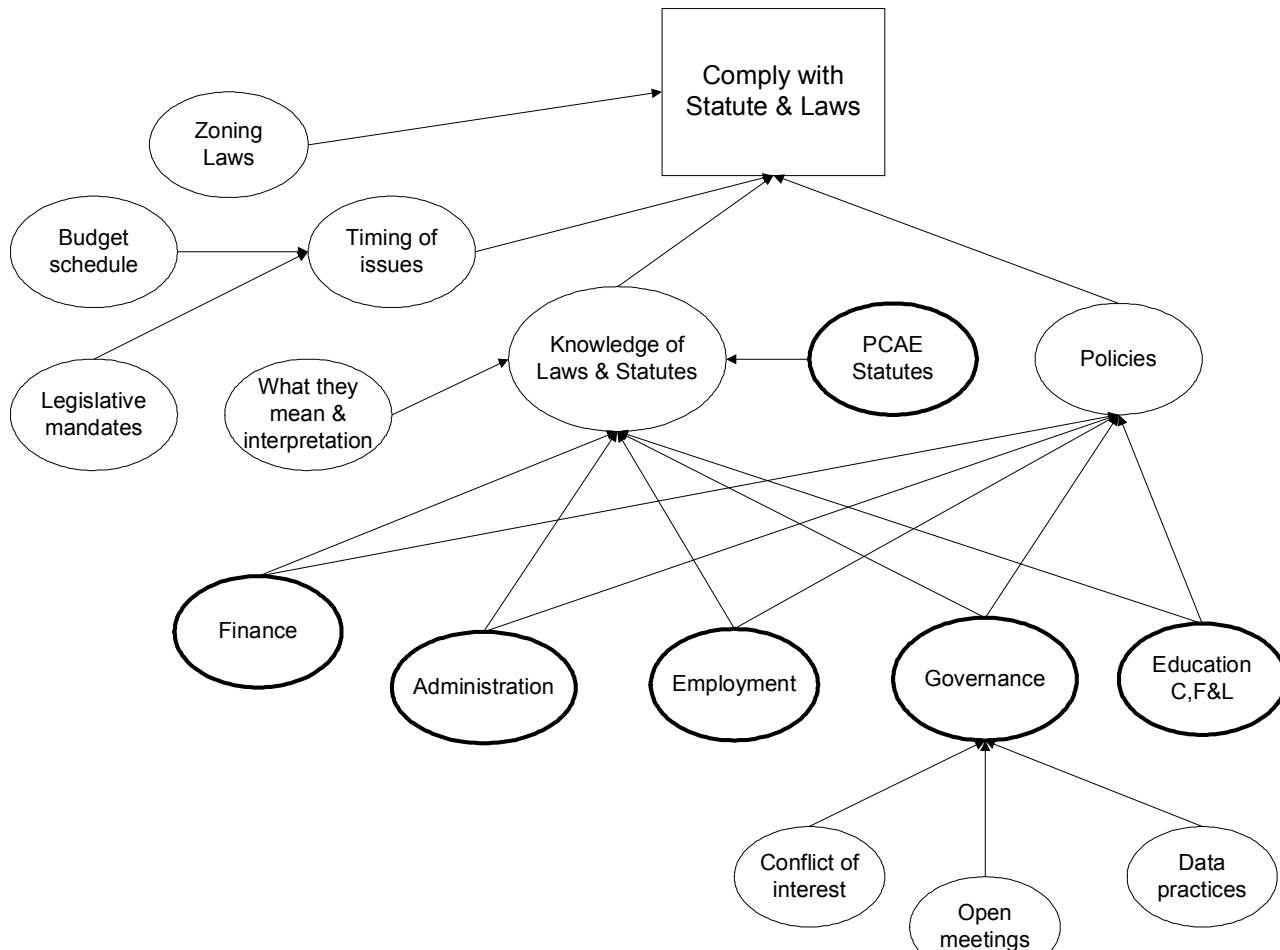
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- High diversity among AHS students and PCAE staff in 2 of the 4 categories
- At state average on Search Institute Survey
- 15 non-academic suspensions or staff discipline actions
- Central record keeping and monitoring for some types of incidents

1 WORST

- Little diversity among AHS students and PCAE staff in any of the 4 categories
- Score among lowest state high schools on Search Institute Survey
- 30 (10%) non-academic suspensions and staff discipline actions
- No record keeping and monitoring for incidents

Comply with Statute & Laws



Comply with Statute & Laws

10 BEST

- PCAE statute – Comply with all parts.
- Finance – Meet 100% of reporting requirements on-time and have implemented finance procedures
- Administration – All contracts are executed legally and all purchasing is completed using guidelines
- Employment – Compliance with all human resource laws and honor all labor contracts
- Governance – Follow state guidelines for Conflict of Interest, hold Open Meetings and follow Data Practices, including confidentiality and appropriate public access.
- Education (C,F&L) – Follow all high school laws and policies.

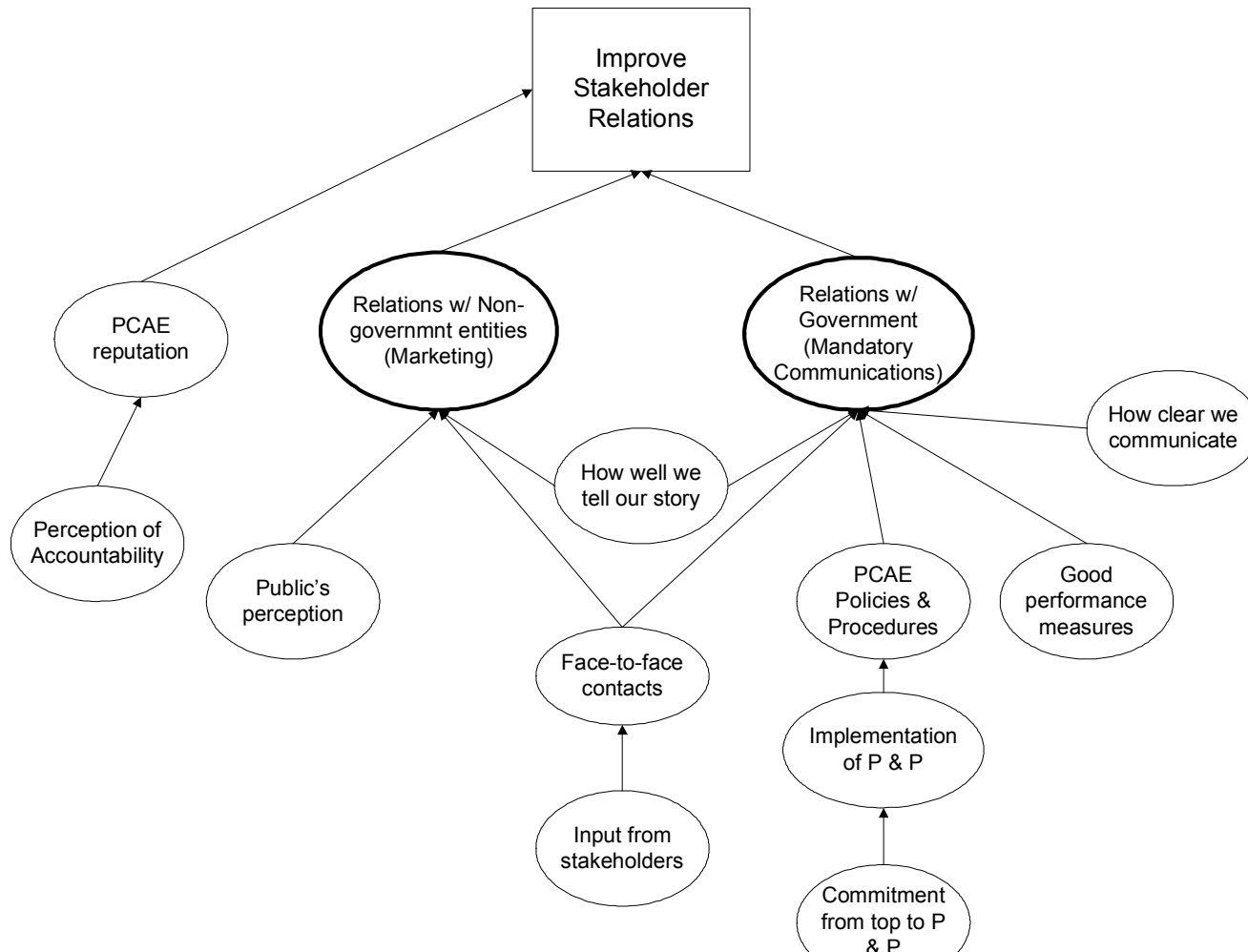
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- Comply with most statutes and laws but have issues in several of the 6 areas

1 WORST

- Receive one major audit finding or one major violation of law

Improve Stakeholder Relations



Improve Stakeholder Relations

10 BEST

- We have a positive reputation among key legislators & staff and among Administration & staff
- Most Minnesota legislators have a basic understanding of what happens here.
- The general public understands our mission.
- Our reputation extends beyond Minnesota.

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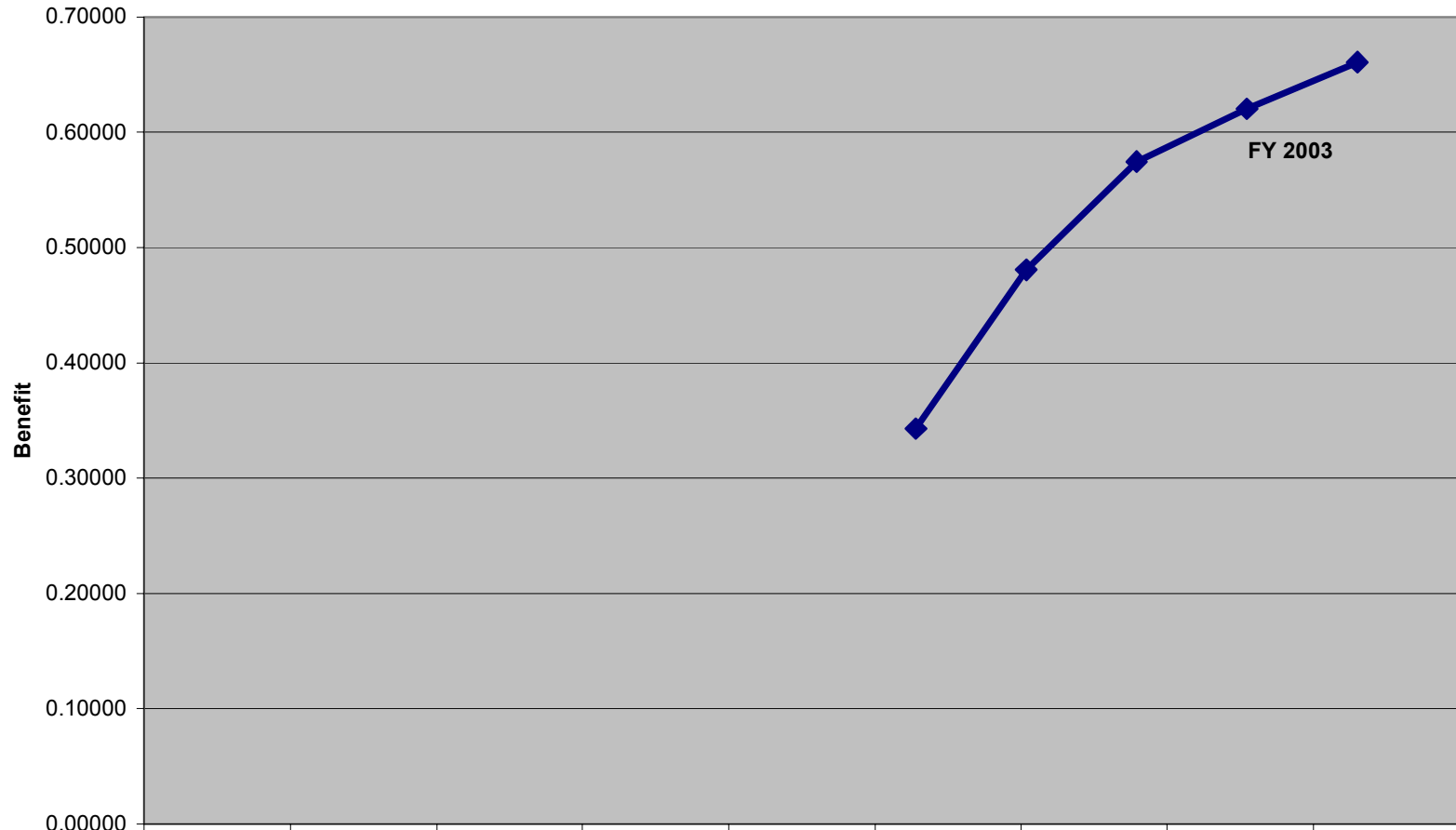
- Reputation among some key legislators or the Administration is strained
- Most legislators know we are here.
- The general public knows we are here and has some minimal understanding of our mission.

1 WORST

- Very negative reputation among some legislators and the Administration, e.g., a bill is introduced to abolish PCAE
- Most legislators lack understanding of what happens here
- The general public does not know we are here.

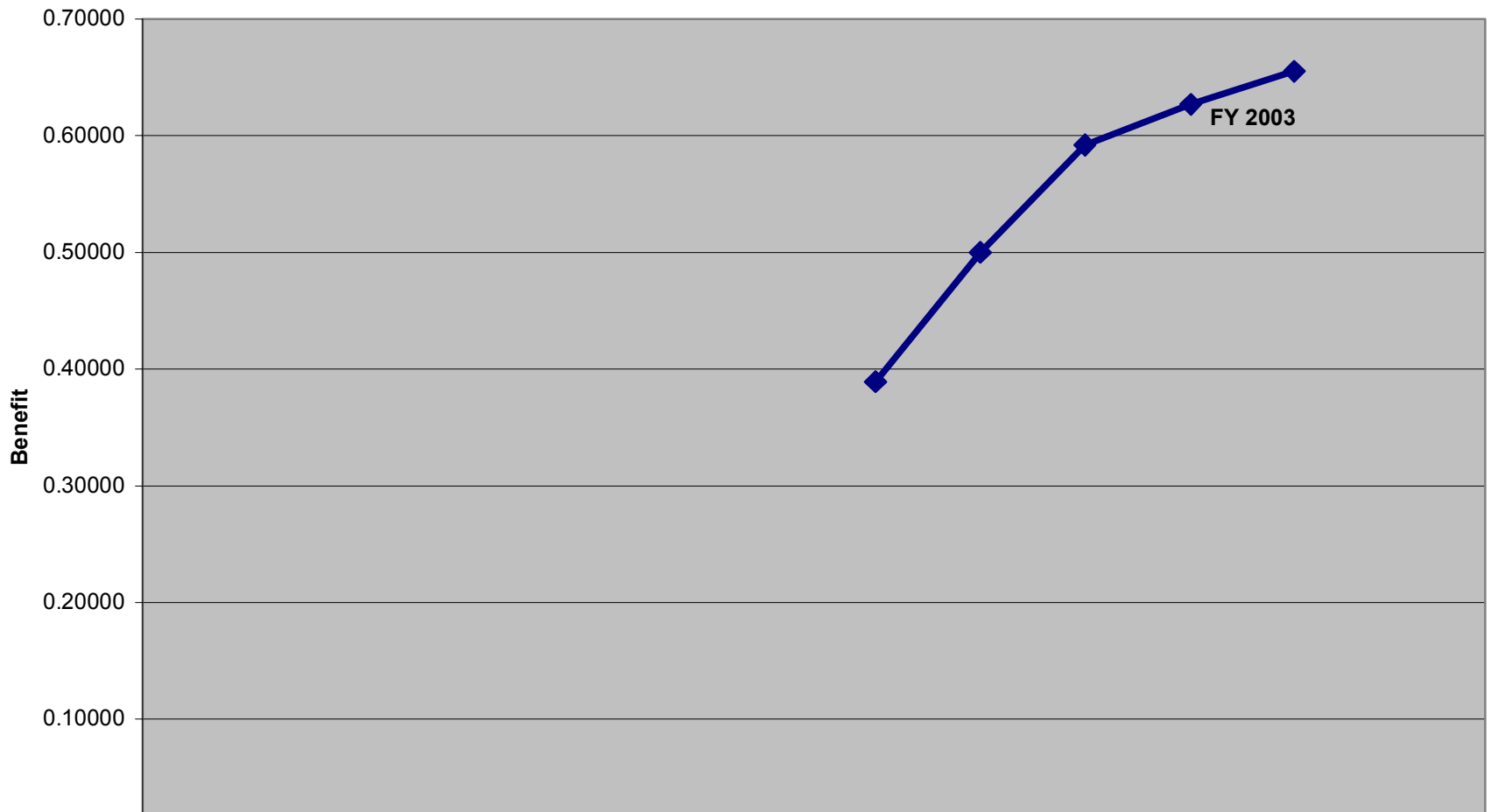
Professional Development Institute

Professional Development Institute - Benefit to Cost



Learning Resource Center

Learning Resource Center - Benefit to Cost



Research, Assessment & Curriculum

Research, Assessment & Curriculum - Benefit to Cost

