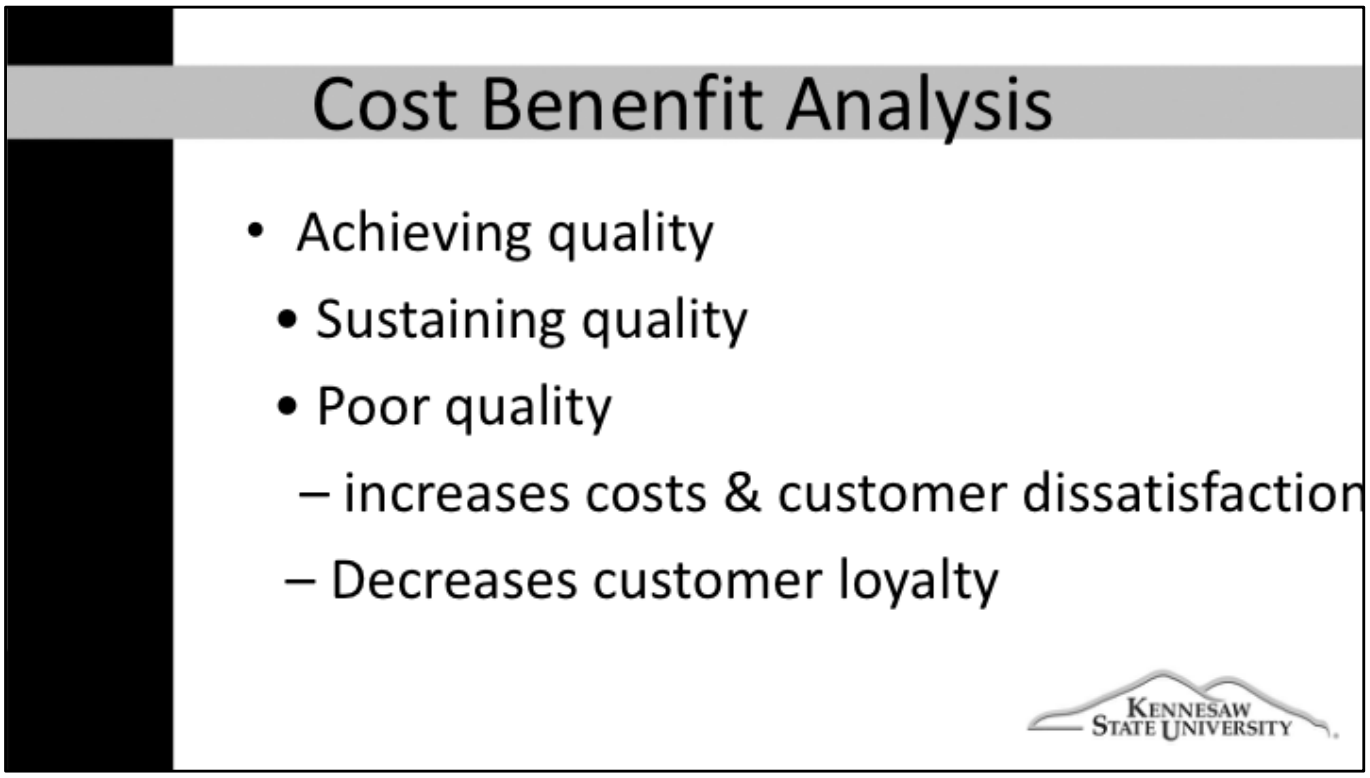
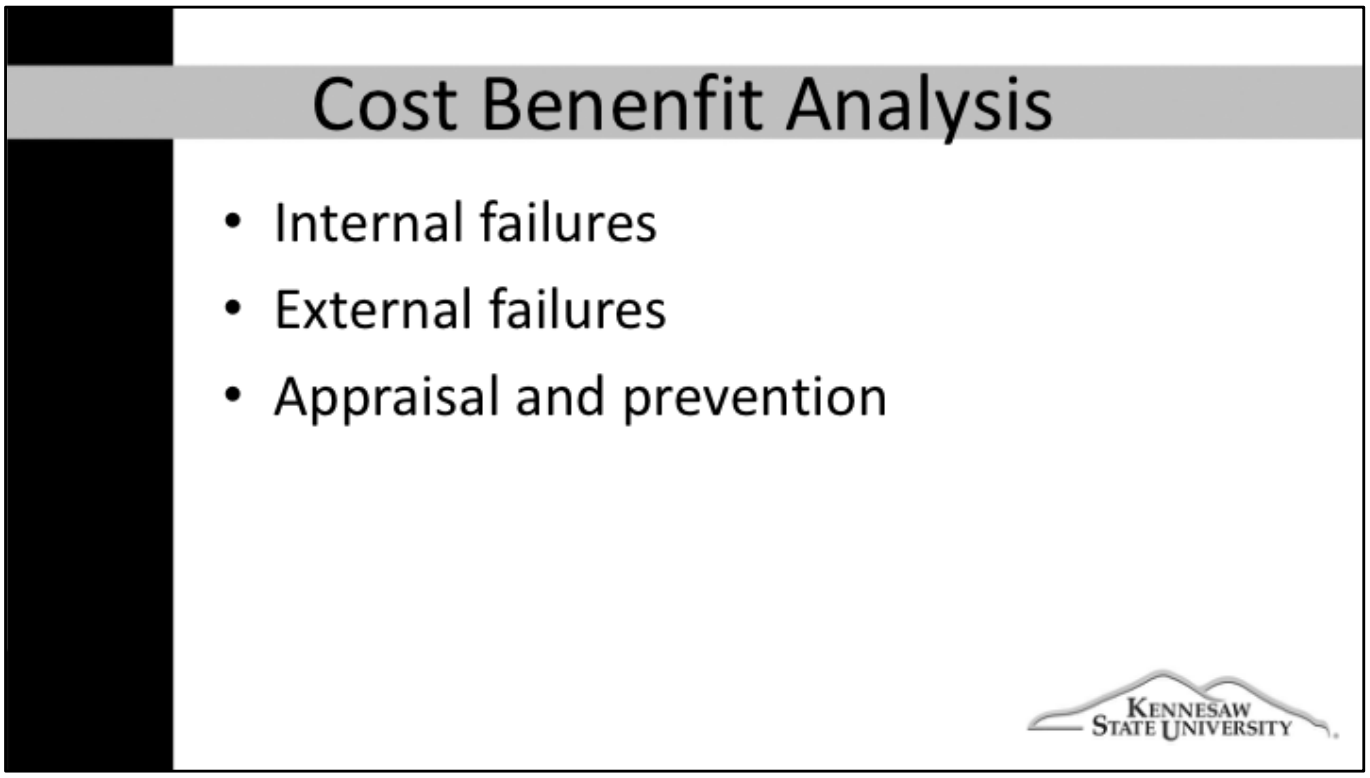


Our costs associated with quality consist, not only, of the costs to attain a level of quality, but to also sustain that level. As time goes by, we must also be mindful of the costs of poor quality. These can consist of costs associated with customer dissatisfaction and decreased customer loyalty

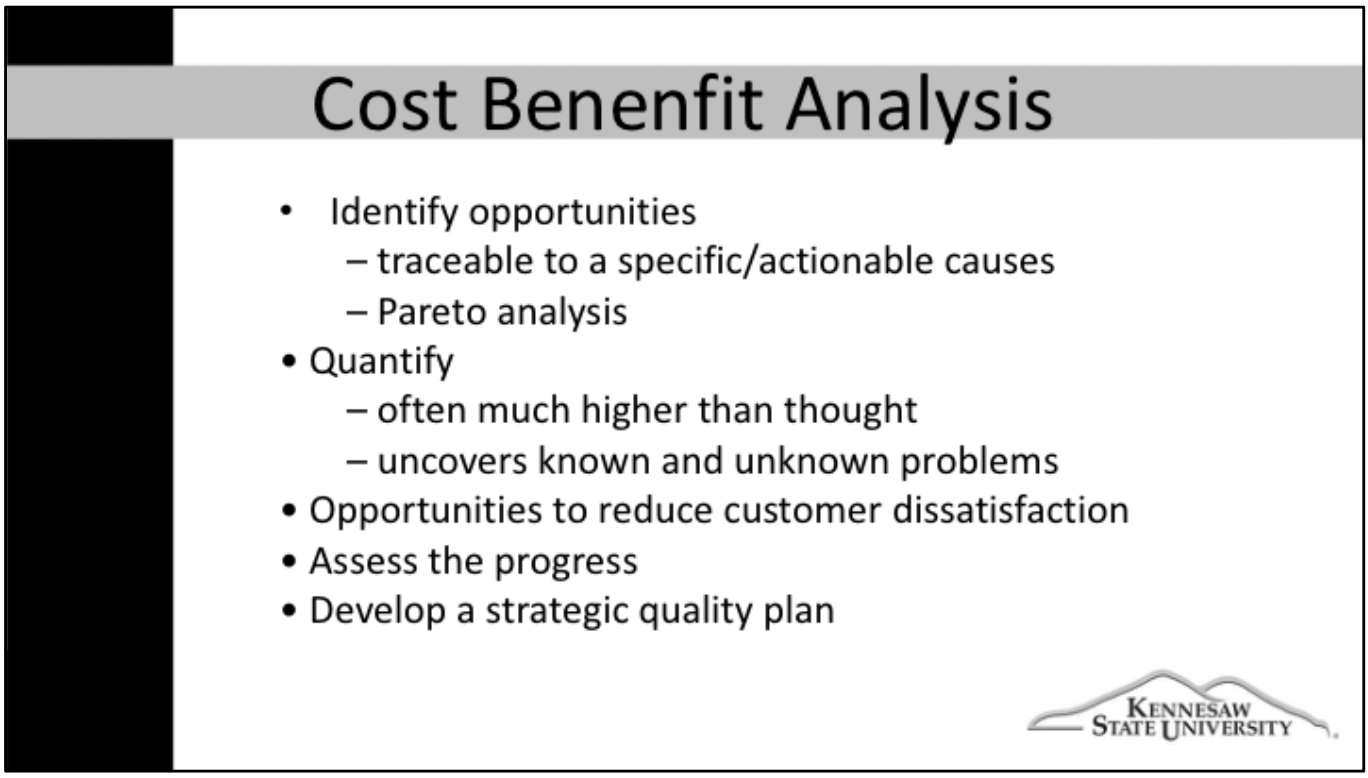


Any cost thought to be excessive is called "a cost of quality"
– Internal & external failures are best known as "costs of poor quality"
Whereas , appraisal and prevention are seen as "costs to achieve quality"

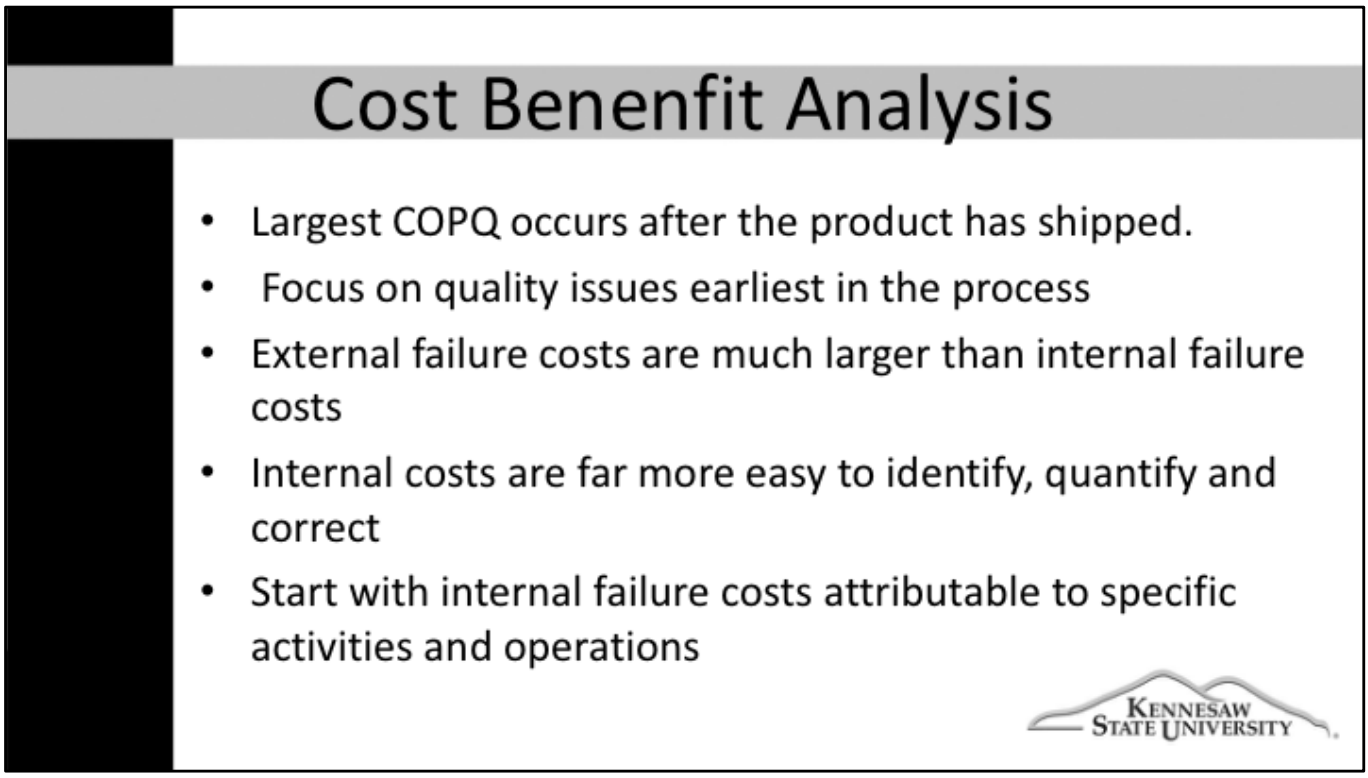
Internal *failure* costs are defined by our failure to meet customers needs (scrap, rework, etc.) and/or costs of
inefficient processes–
External *failure* costs are defined by our failure to meet customer requirements & needs (warranty charges, allowances, etc.) + lost opportunity for sales revenue

***Appraisal* costs are i**ncurred to determine the degree of conformance to quality requirements. Some examples of these are incoming inspection, final inspection, and quality audits.

***Prevention* costs are i**ncurred to keep failure & appraisal to a minimum. Some examples include quality planning, design reviews, and training. Prevention costs are important b/c they entail small investment costs relative to a higher COPQ

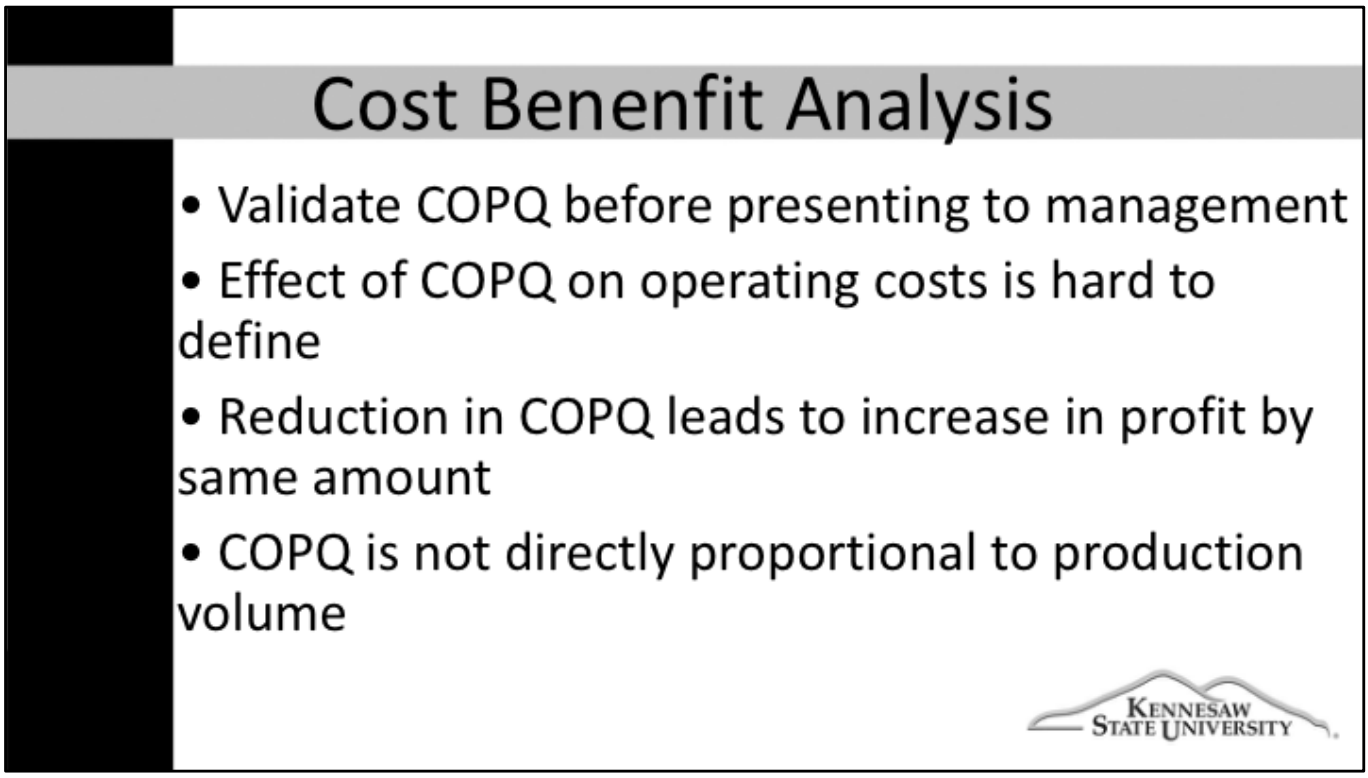


When estimating COPQ, consider this process. First, identify opportunities for cost reduction. These should be traceable to a specific/actionable causes. A Pareto analysis can be useful. Next, quantify the size of the quality problem. Sometimes, it can be much higher than thought. Put in terms of a measure important to the organization such as sales. It also helps us reveal known and unknown problems. Look for opportunities to reduce customer dissatisfaction. Examples can be warranty charges, claims, downtime and other disruptions. Next, evaluate the progress of quality improvement activities. Finally, roll these findings in to a strategic quality plan.



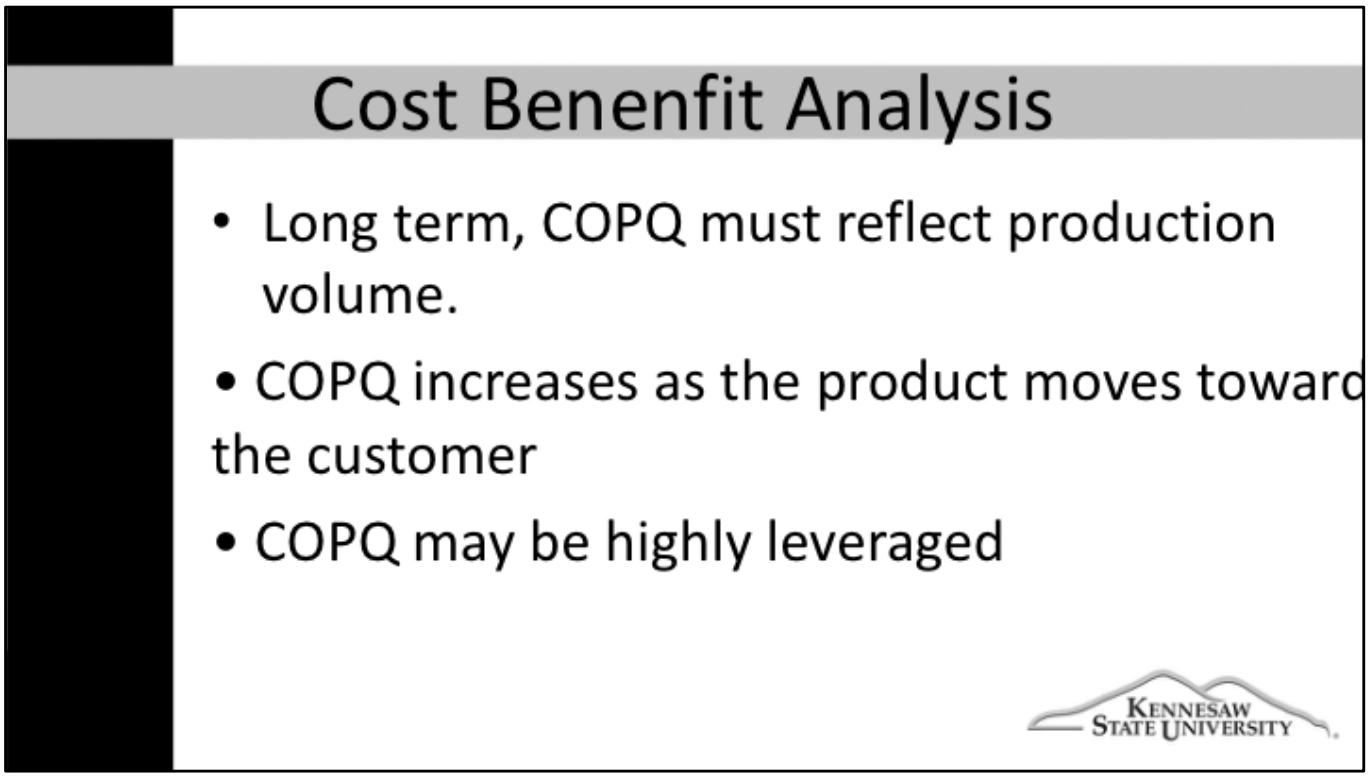
Regarding COPQ, keep these important points in mind:

First, the largest cost of poor quality occurs after the product has shipped. Focus first on quality issues earliest in the process for managing internal quality cost. External failure costs are much larger than internal failure costs but internal costs are far more easy to identify, quantify and correct • For quality improvement projects start with internal failure costs attributable to specific activities and operations.

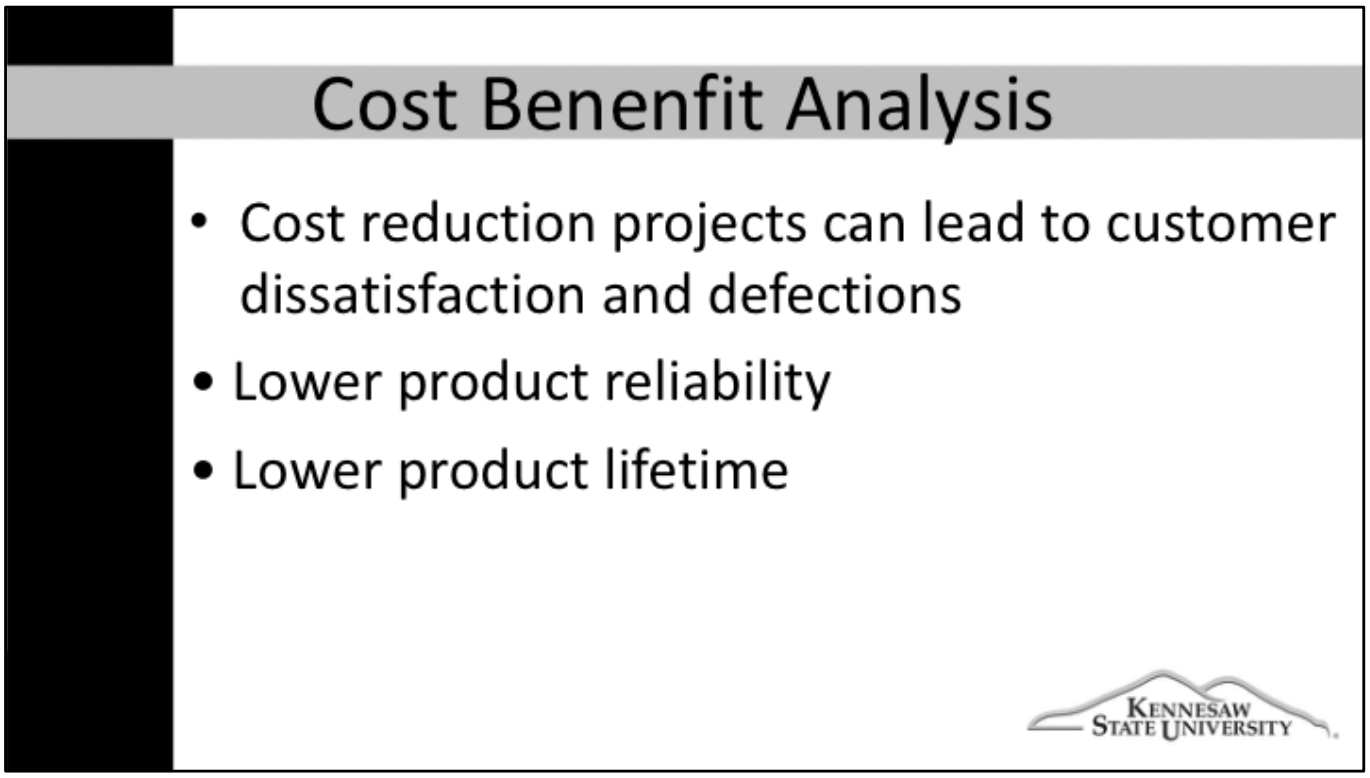


Be careful when conducting a COPQ analysis. There are many pitfalls to watch for:

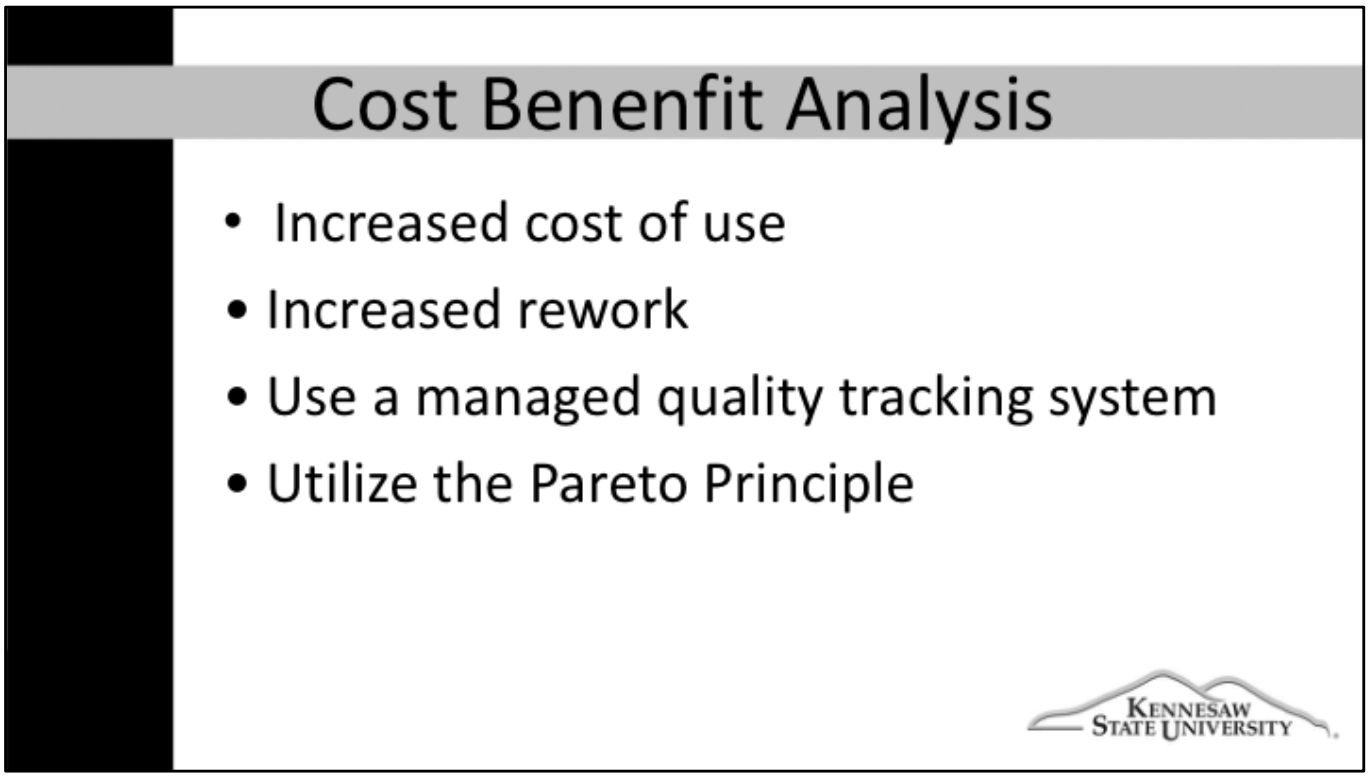
We must have relevant accounting experts validate COPQ before presenting to management . Realize that most accounting systems do not accurately reflect the effect of COPQ on operating costs. For every real $ reduction in COPQ profit is increased by same amount. Finally, COPQ is not directly proportional to production volume



Remember , long term, control charts of COPQ must reflect production volume.
COPQ drastically increases as the product progressively moves towards the customer
COPQ in one operation may be highly leveraged in another operation. In other words, a reduction in COPQ in one operation could lead to an increased somewhere else



Cost reduction projects frequently result in customer dissatisfaction and defections.
As pointed out before, these costs are just shifted elsewhere.
Other consequences include decreased product reliability and product lifetime



Other times COPQ can lead to increased cost of use and rework. A managed quality tracking system is necessary for assessment of the true cost savings.
Use the Pareto Principle with the quality tracking system to identify the greatest contributors.