CUSTOMER

Positioning Model for CONTRACTORS

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Some customers contribute more to the bottom line than others. Some projects are more profitable. Some subcontractors are more efficient.

In the past, contractors have relied on experience to discern high-margin jobs from less lucrative ones while asking, "How can we make money on every opportunity we pursue?"

Based on 15 years of data from thousands of contractors, this question can now be answered.

Introduction

Negotiating skills and the ability to manage and contain costs drive a contractor's bottom line. Contractors must clearly identify cost drivers and opportunities for improvement in order to stay in business in today's mixed economy.

Different types of contracting present various opportunities. Subs have found opportunities in waste reduction, productivity improvements, and improved labor management. GCs have struggled to find opportunities in their historically low-fee and fixed-markup environment, although opportunities do exist.

Traditional lump-sum techniques (estimating the cost of construction, adding a little to hopefully cover unknown risks, and then adding a reasonable profit to arrive at a selling price) no longer spell success in today's environment. This *Cost-Based-Pricing* approach does not ensure profitability because the customer and the market set today's selling price.

Dr. Peter Drucker coined an alternative pricing method, *Price-Based-Costing*, in which the expected return is subtracted from the going market price in order to calculate the cost of the operations necessary to complete the project. Price-Based-Costing is the approach that guarantees profitability and

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market expansion. However, in order for this method to work, Price-Based-Costing contractors need to know their cost drivers and learn how to manage them.

Existing methods of cost tracking, such as Activity Based Costing (ABC) and Weighted Average Cost of Capital (WACC), are cumbersome and inaccurate. In addition, many companies have abandoned ABC because it did not capture the complexity of their work. Therefore, other methods are needed that measure cost on many levels and that create "contractors of choice" due to quality output.

Our *Customer Positioning and Control* and *Job Productivity Assurance and Control* models provide a practical and reliable approach for GCs and subs to examine production quality relative to their fixed and variable costs, and to measure the value produced. But, before we explain these two methods in detail, let's first examine our use of the term "quality."

The Value of Low Cost & High Quality

In many instances, contractors of choice combine the lowest bid with a reputation for high-quality work. As low-cost providers through low-cost-production, they recognize the relationship between: **1)** on-time delivery, **2)** on-budget performance, and **3)** quality production.

Tracking and defining delivery and budget performance are well understood in construction. The challenge? Defining and understanding quality.

Quality

In construction, any definition of quality must account for the stakeholders' satisfaction with the final product and the three primary constituencies who touch the product:

1) *Perceived Quality* – The customers who own or use the completed product.

2) *Technical Quality* – The technicians who do the work.

3) *Production Quality* – The contractor that puts the job in place.

Perceived Quality

Dr. John Nash's "Game Theory" from ***Essays on Game Theory*** explains Perceived Quality: "The customer will judge the value of a service (Perceived Quality) based on the utilities received in exchange for capital and effort."

From the customer's perspective, quality is the value received in exchange for the capital and effort invested to complete the project. Since construction is a "nuisance," the customer evaluates the project on the amount of his or her financial investment, the ease of working with the contractor, and the functionality of the finished product.

Technical Quality

Technicians judge quality based on the technical aspects of the job. They identify the distinguishing attributes of a project and assess the degree of excellence in those attributes. In construction, an on-time, on-budget project built with minimal defects has Technical Quality.

Production Quality

In April 2003, the *Monthly Labor Review* reported that construction productivity was -1% from 1997-2000. Overall U.S. productivity, including construction, was +3.9%.

In light of these statistics, Production Quality is a vital component of contractor success. The effective use of human resources, capital, and materials defines a contractor's overall productivity, which directly impacts its profitability.

Human Resources

The correct use of human resources in construction requires the recognition and management of: **1)** waste (the cost of activities not adding value to the final customer) and **2)** first-time-pass processes or first-time accuracy (work that is done correctly from start to finish).

It is management's responsibility to ensure that labor is used primarily for value-added activities – that is, for actual construction, rather than on such waste producers as waiting, over-producing, and over-processing (defects, rejects, and rework).

Time or money spent on any of these activities will reduce labor's productivity. A higher percentage of labor spent on correctly performed value-added activities results in higher Production Quality.

Capital

A job can be very profitable, but have very low financial productivity. For instance, a job that takes six months or longer to collect is not financially productive. Using Wall Street's evaluation of the cost of money, based on 30-year average return of 12% per year or 1% per month, a project that recognizes 15% gross profit for a sub only earns 9% if it takes six months to collect the funds. This loss is not traditionally recognized as part of A/R.

In addition to A/R, our research shows that subs carry, on average, 10% of their annual sales in underbillings (UBs). To quantify this cost, consider an electrical contractor with $20M in revenues. According to our research, $2M will be tied up in UB. If the contractor has a 15% gross profit and a 15% hit ratio, the annual cost nears $350,000, as shown below:

Cost to carry the UB = $20,000 a month
($2,000,000 x .12 market return/12 months)

Sales required to cover the UB = $133,333 a month
($20,000/.15 gross profit)

Bids necessary to cover the UB = $888,889 a month
($133,333.15)

Cost of additional estimating = $8,889 a month
($888,889 x .01 cost of estimating)

Total cost of underbilling = $28,889 a month
($20,000 + $8,889)

Annual cost = $346,667 ($28,889 x 12 months)

Eliminating this cost for a typical $20M electrical contractor can increase net profits 50-100%. All savings are net profit, since overhead stays constant. Except for annual income taxes, this profit goes directly to the bottom line!

Materials

Inventory represents a significant investment of cash, labor, facilities, and equipment in all businesses. Identifying and recognizing the ideal levels of tangible jobsite inventories improves labor costs and capital inventories, which increases a contractor's Production Quality.

By reducing inventory on the jobsite, a contractor can: **1)** recover some of the labor costs spent handling material, **2)** reduce the risk associated with damage or injury, and **3)** reduce the cash conversion time, while still maintaining sufficient inventory.

Using this relationship between cost, quality, and productivity, contractors and their CFMs can objectively evaluate customers and projects and make management decision to improve company profitability.

Profitability & Cost Management

Construction's common denominator is the final structure or work performed. In construction, all entities (from owners and contractors to distributors and local authorities) operate within a different financial/operational paradigm. Because of these different internal paradigms, common measurement of the performance of each entity is impossible.

Regarding the contractor's paradigm, there are three profit sources: **1)** negotiated, **2)** backlog, and **3)** cost reduction.

Negotiated profits are tracked through standard accounting practices. Typically, the profits in the backlog and the profits resulting from service-provider cost reduction are untracked and unknown to contractors. The result is a lump-sum cost allocation to projects and unknown profitability attributable to any particular project, customer, or sub.

Fixed & Variable Costs

A GC's profits directly relate to its ability to manage the project schedule (time and project float), whereas a sub's profits result from correct labor management. A GC or distributor generally has ***fixed costs*** (FCs), the costs required to operate, while a sub primarily has ***variable costs*** (VCs), the costs associated with completing a project. In fact, based on our research, 85-90% of the operational costs of a sub are typically allocated as VCs, whether the contractor is union or open-shop.

VCs increase as sales increase because of the costs required to complete a project. FCs typically remain constant throughout the year and include such expenses as G&A, insurance, property taxes, and the carrying costs of inventory. In order to recognize a profit, earned revenues must exceed the breakeven point – the point at which both VCs and FCs are covered.

A contractor, just as any other business, performs best by minimizing FCs and VCs through error reduction, process improvement, and customer awareness. However, when examining how costs apply to the expenses and profitability of GCs and subs, there are a few profound differences. Each has a distinct financial paradigm that can be used to better understand how their costs are allocated. The distinctions between the paradigms, with respect to the allocation of costs, are not currently uniformly recognized throughout the industry.

In response to the needs of both FC and VC contractors, we have developed two distinctive cost tracking models: *Customer Positioning and Control* (CPAC) and *Job Productivity Assurance and Control* (JPAC).

Subs primarily operate under VC paradigms, suggesting that JPAC is most appropriate for tracking the majority of their cost drivers. In contrast, CPAC is often more applicable to GCs. However, contractor type should not be a limitation; CFMs should select the CPAC or JPAC model based on company-specific cost drivers.

Customer Positioning & Control Model

Under CPAC, managers determine a breakeven point, establish a goal, and plot the performance of a sub, job, or customer according to situation-specific variables.

With CPAC, contractors and their CFMs can measure and compare the profitability impact of various customers – despite their unique operating philosophies and practices. Both strengths and shortcomings become clearly visible.

And, contractors can also monitor the effects of changes as plans are implemented, allowing them to address insufficient profits or significant costs.

CPAC applies to contractors who:

- Allocate most of their costs as FC;
- Primarily incur FC during the life of a job;
- Purchase services at a predetermined rate; and
- Charge customers the estimated cost plus an estimated profit margin or fee.

As shown in Exhibit 1, such FCs as overhead and personnel establish the baseline of the total cost. When FC is reduced, the VC baseline drops proportionally. So, targeting and reducing FC reduces overall cost.

Exhibit 1: The GC Relationship Between Cost & Profitability

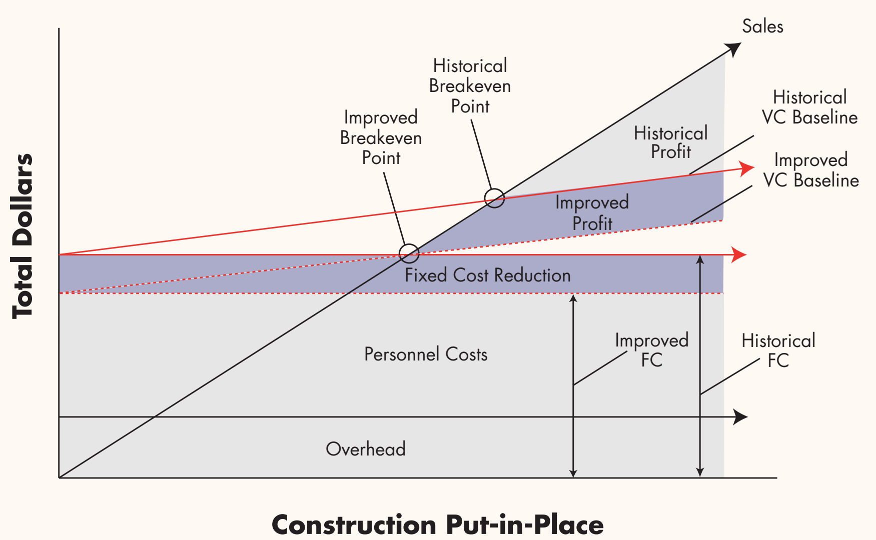


Exhibit 2: CPAC – Customer Positioning Quadrant

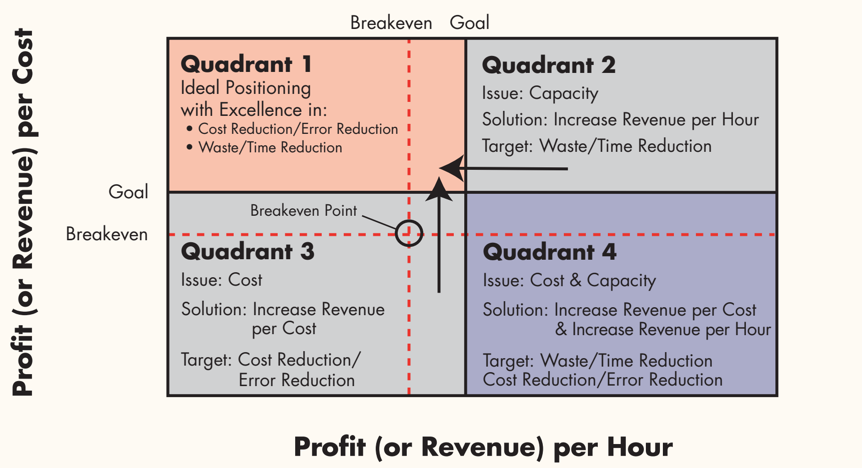


Exhibit 3: CPAC – Profit & Revenue Per Resource

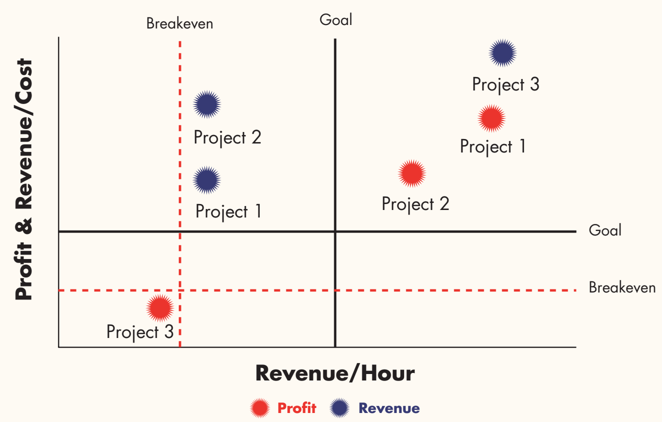


Exhibit 4: CPAC – Project 1 Performance

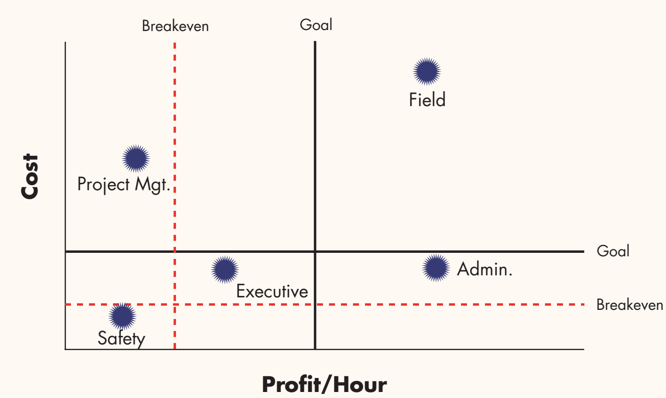
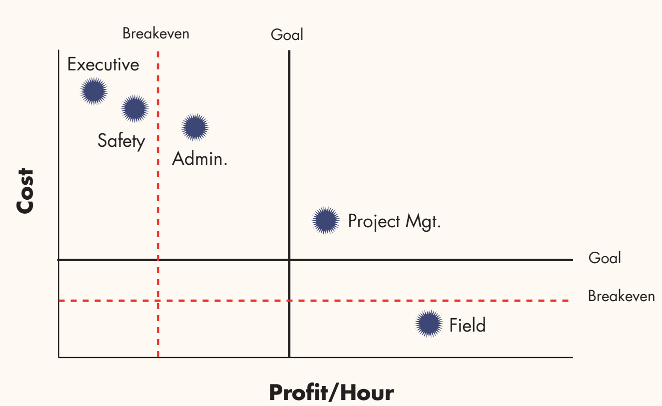


Exhibit 5: CPAC – Project 2 Performance



Also, reducing FC lowers the breakeven point so that it occurs earlier in the cycle, either at an earlier point in time or with less construction put-in-place. When incorporated into a system of continuous improvement, these improvements in the FC can have a profound impact on net profits.

How Does It Work?

With a four quadrant positioning method, managers evaluate such FC drivers as overhead and salaries to position customers, projects, and subs according to their resource demands vs. recognized revenue or profits.

As shown in Exhibit 2 on the previous page, a customer or project that falls into the first quadrant generates high profits or revenues with respect to the resource investment and allocated FCs. Customers or projects that fall into the second and third quadrants generate lower profits or revenues per resource investment due to high time or cost requirements.

If a customer or project is positioned in the fourth quadrant, both factors (time and cost) are low – and neither generate sufficient profits or revenues for the investment. Below the breakeven point in all respects, a customer falling into the fourth quadrant may need to be dropped. However, before taking action, contractors can apply CPAC to identify the cost drivers causing the poor customer positioning and devise a plan for improvement.

Contractors and their CFMs can also set goals beyond the breakeven point. After establishing minimum expectations and/or "stretch goals," they can measure revenues, profits, project manager performance, type of work, customers, etc., in any desired combination.

Each customer, project, or sub is visibly and objectively positioned according to its impact on both time and cost. Exhibit 3 shows three projects positioned against a goal and a breakeven point. While Projects 1 and 2 barely cover the investment, Project 3 is earning a great deal of revenue.

Although Project 3 is well-positioned from a revenue perspective, it is not well-positioned when analyzed by profitability. In fact, Project 3 is suffering in terms of its financial draw, as well as its time requirements. With CPAC, contractors can also track projects to evaluate progress. For example, Exhibit 4 and 5 graphically portray the differences between Project 1 and 2.

CPAC's flexibility allows a number of applications that easily follow the basic CPAC guidelines of positioning and trend monitoring. Contractors can compare and contrast projects, customers, and resources in several ways to determine:

- The factors that make one project or customer more desirable than another;
- One project's resource requirements compared to another; or
- The contractor's realized profits or revenues as a return on effort and cost from one customer compared to another.

Exhibit 6: The Subcontractor Relationship Between Cost & Profitability

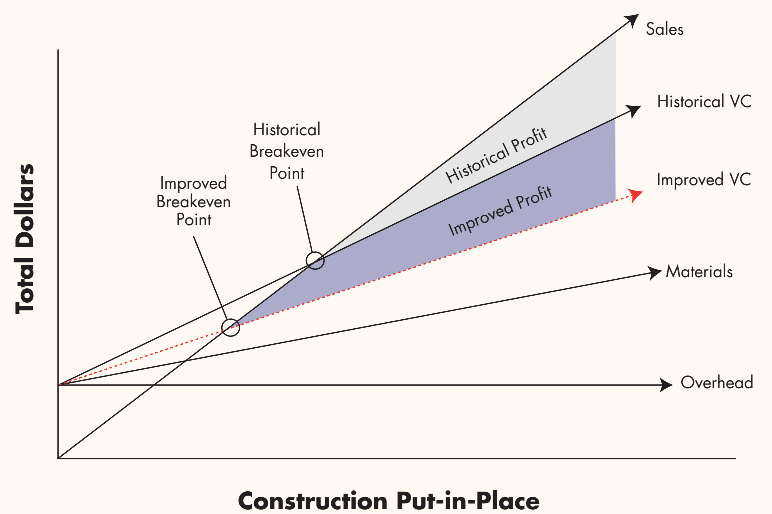
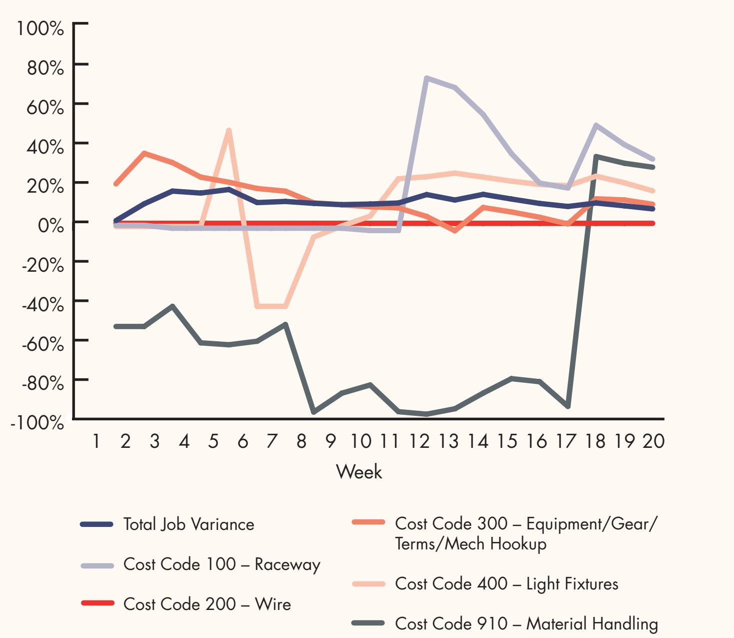


Exhibit 7: JPAC – Percent of Variance by Cost Code



Contractors can also chart patterns or compare existing jobs and customers to historical templates to learn:

- The configuration of a profitable job;
- Additional resource needs; or
- The customers, types of work, and project sizes that realize insufficient profits or revenues as a return on effort and cost.

CPAC allows further analysis of each project or customer to determine which elements are cost drivers and which contribute the most to profits and revenues. Cost codes can be positioned according to their impact on contractor resources based on project or customer demands.

Branches, divisions, projects, or customers can be compared and identified for improvement. In addition, contractors can easily monitor the impact of changes over time.

Job Productivity Assurance & Control Model

The JPAC model focuses on the VCs of an operation and makes VC more visible. Under this model, managers track job resource usage to measure variances and evaluate their impact on profitability. Then, contractors use this historical data to rank their customers and projects based on job productivity and profitability.

JPAC works best for contractors who:

- Allocate the majority of their costs to individual projects;
- Have varying materials/labor costs based on the requirements of the job; and

- Recover FC by allocating a portion of the FC to every job.

For these contractors, nearly all costs are variable – only a very small percentage of overhead and G&A expenses are carried as cost below the operating profit line. The VCs represent the majority of the overall expense incurred over the life of a job.

As shown in Exhibit 6, when a sub targets and improves VC, the cost of production drops, changing the slope of the VC line. The total cost, calculated as the sum of all FC plus VC, is still reduced, even though the FC remains constant.

This reduction again lowers the breakeven point, and contributes directly to an increase in profit margin. These improvements, especially when repeated in an effort to minimize VC, have substantial effects on the cost of goods sold and lead to regular and sustained increases in profit margins.

As in CPAC, JPAC uses cost codes to track and monitor resources. However, in JPAC, VCs are tracked to measure a project's productivity.

Breaking VC into cost codes, and further defining visible measurable tasks, allows the contractor to observe the progress of each task. In addition to a traditional Job Breakdown Structure, line charts like Exhibit 7 reflect JPAC cost code variances for various labor codes. Exhibit 8 shows the entire job's productivity variance.

To explain variances, foremen can predict, schedule, and track deviations in terms of labor hours and root causes. For example, Exhibit 9 shows an analysis where trade interference was identified as the leading cause. (When the trades are not properly managed, their work cannot be scheduled, the project manager cannot plan effectively, and the job will most likely lose money.)

A Model Comparison

CPAC and JPAC necessitate different cost allocation and tracking techniques. CPAC addresses FC by identifying the cost drivers of the operation on a customer-by-customer, project-by-project, sub-by-sub, or department-by-department basis. Similarly, JPAC provides the necessary information to address the controllable VCs of the project.

In either model, resource requirements may often be hidden in FCs. Many services are lumped into generic FC categories, masking the contractor's true breakeven point. FC cannot be realistically allocated on a basis of sales volume of projects or services provided.

Correctly allocating FCs to individual customers, projects, or subs most accurately identifies the cost of resources. The CPAC model helps contractors determine if resources are maximized without demanding the tedious detail of ABC. In comparison, JPAC helps to determine how effectively resources are used.

Exhibit 8: JPAC – Percent of Total Job Variance

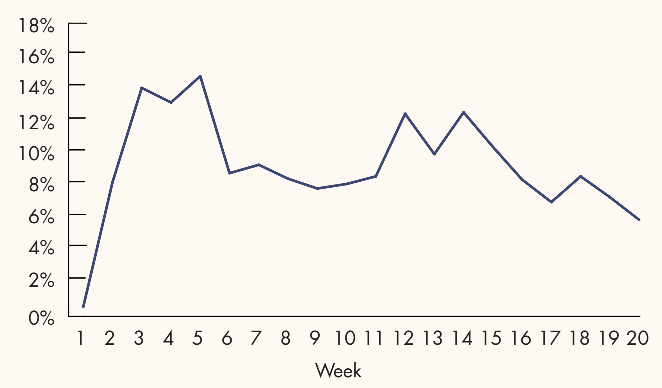
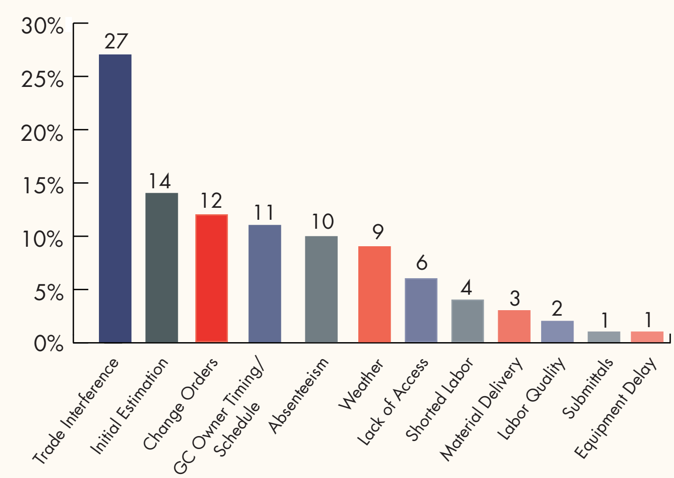


Exhibit 9: JPAC – Root Cause Analysis



CPAC and JPAC both monitor trends to identify the best opportunities. While trends are followed at only high-level groupings, general categories are sufficient to identify the cost drivers without an undue tracking and reporting burden.

Just as a project changes, the positioning of the project or customer varies from time to time. CPAC and JPAC employ elements of Statistical Process Control to separate the expected variations from the unexpected – those resulting from an external special cause. By recognizing the differences and responding appropriately, contractors can apply their resources most effectively.

Conclusion

To no avail, many management fads have tried to improve the knowing-doing gap that haunts top executives. Fads focus on the symptoms and not the causes of cost drivers; they typically identify correlations and not the causal relationship of events.

The effectiveness of resource usage measures the contribution of a customer, project, or sub to the contractor's profitability. To correctly position customers or projects, contractors must first identify their main cost drivers and categorize them either as FCs or VCs. Only then can CPAC, JPAC, and other managerial tools be applied.

Basing company activities on CPAC and JPAC predictions enables executives to focus on the right problems, at the right time, with the right resources. By analyzing the cost drivers that matter the most, the customer – one of construction's most uncertain elements – can be monitored and managed. BP

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