Capital Planning

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The Industry Problem

Improving capital planning accuracy with predictive data

Predicting accurate budgets for maintenance and repair activities, planning future new builds and analyzing the impact that design decisions and value engineering will have on downstream maintenance costs are some of the biggest challenges owners, facility managers and their design and construction teams face. Traditionally, the most common data sets used to assist with these decisions have been standardized published cost data, historic construction cost to build (client database) information, and localization and forecast factors.

Up until the economic crash of 2008, owners and facility and construction professionals, could rely on their historic costs and localization factors to provide reasonably accurate costs to build. While all of these data sets are extremely helpful in putting budgets together, stakeholders have increasingly voiced dissatisfaction with the accuracy of these forecasting methods. More importantly, the volatility of markets and commodities and the shrunken construction labor pool have contributed to the inability to rely on past forecasting methods to produce accurate budgets.

It is also worth mentioning that new restaurant brands and concept stores do not have any historic data to draw from, and expanding into unknown markets without reliable data has proven problematic when trying to "manage the budget."

Prior to the crash, owners were able to build without much worry about volatile costs. Following the crash, a significant number of subcontractors and smaller contractors left the construction industry. A few years later, owners and serial builders within the retail and restaurant industries began to slowly plan for regrowth; however, in the midst of this planning, the construction labor force shrunk by three-fifths.

Consequently, the impact of volatile commodity markets on the final cost of finished goods had a dramatic impact on the cost to build. Historical build costs and factors used in previous years became obsolete, and more importantly, investors and boards became keenly aware of escalating costs. This led to construction and design professionals being held more accountable to manage to their forecasted budgets.

At the capital planning stage, it can be anywhere from six to 24 months before construction starts, and the cost escalation during this period can be impossible to accurately estimate. Throughout the planning phase and all the way through construction and operations, there are numerous unknowns that could dramatically cause increased costs capital planning cannot foresee.

The volatility and price fluctuations of the individual materials used on various construction projects can vary greatly year over year based on interactions of various commodities and construction volume (demand). Without a reliable method to keep track of all the moving parts, blown budgets, broken processes and finger pointing are inevitable.

The Alternative: Predictive Cost Models

Due to these acknowledged shortcomings, an alternative approach has arisen: predictive cost models.

Recent construction cost research has shown this approach, also known as "multivariate causal modeling," is far more accurate for predicting costs, especially in the cases of small markets and long lead times. A small or micro market can be a Metropolitan Statistical Area (MSA), Core Business Statistical Area (CBSA) or a county.

Traditional forecast data is not reliable for predicting market swings and cost escalations. This methodology utilizes a singular database (typically historic client data) and the moving average of the past as an indicator of the future. The problem is, the past has not proven to be a good indicator of the future. Therefore a more comprehensive multi-variate (multiple database) structured modeling approach is required to predict at the micro market level. The paramount strength of this approach is its capacity to identify turning points in construction costs before they occur.

Where traditional millennium old economic forecasting techniques are simply unable to meet these modern construction cost industry demands, predictive cost data provides a more comprehensive machine-driven data alternative. The application of predictive data and causal modeling is holistic, providing valuable, actionable insights for sound decision making for owners and facility managers alike.

Planning for the Future

Buildings need maintenance and repair. Savvy building owners and facility managers plan for these expenses years in advance. Lifecycle management tools can help create a capital appropriations plan as far in advance as 30 or even 40 years; however, labor markets and material pricing can fluctuate from your baseline costing model, rendering the idea that historical data can be used " t o predict future investments" moot.

So what should you do?

To start, perform a lifecycle assessment of your property's facility, maintenance and repair (FMR) needs using data, cost and values representing the year in which your property was built. Build the lifecycle analysis so you have an understanding of the maintenance and repair tasks necessary to sustain your property's value (and defend the value of the brand it represents). Using the lifecycle data, identify the tasks necessary in the next 36 months and build your budget. Then apply predictive analytics. Best-in-class predictive models have a +/-3 percent accuracy rate. You will be able to consolidate a plan that adequately reflects local material and labor costs for the FMR tasks you need to accomplish for the next three years. This exercise can be repeated on a quarterly, biannual or annual basis to facilitate your planning needs.

Now the building owner or facility manager has created a predictive cost model that can be used to create improved visibility to future costs. Align resources and spend to meet labor or material availability (both at a macro and micro market level). For example, if the model reveals wood costs are projected to spike during the proposed time to commence a renovation project, the owner's teams can cost-effectively plan the model with an alternate. Analysis can also evaluate and identify the labor force availability in advance of commencing a project so the facility manager can realign his projects to meet this availability. Build a defensible budget that guarantees the access to capital for mission-critical property needs while accounting for current external circumstances affecting your daily planning and for future circumstances.

Design and construction teams will now be able to use the predictive data to accurately build budgets for new construction, maintenance and renovations up to 12 quarters in advance. The predictive data and causal models reveal design and construction cost escalations well in advance, providing an opportunity to strategically plan the project to mitigate cost escalations.

Finally, owners and facility managers can confidently predict future costs by applying the predictive data and proprietary algorithm to conceptual construction square-foot models. Strictly used for budgeting purposes, conceptual square-foot estimates are not designed for accurate, complete construction build costs and typically used for capital planning. Conceptual square foot models are normally within +/- 20 percent of actual costs. But when using a true predictive multivariate database including individual material, labor and equipment data, statistical tests show costs within 2 percent and three years in advance of the event.

With the same predictive data and proprietary algorithm applied to client-specific models and FMR plans, the results produce highly accurate budgetary estimates at the capital planning stage. This accuracy allows facility owners to manage complete construction whether new or old within a reasonable budget.

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