

UAV Drone Benchmarks

Page 7 of the *Camera & Drone Journal*

This page contains extremely valuable information about (1) how your company's costs for drone components and features, R&D, workforce costs and productivity, total production and assembly costs, and drone assembly capacity stack up against the industry-low, industry-average, and industry-high and (2) how your company's marketing costs, operating profits per drone sold, and operating profit margin, warranty claim rate, and warranty costs compare against the industry-low, industry-average, and industry-high in each of the four geographic regions.

The information on this page is essential for determining whether your company's drone costs are "in line" and competitive with those of rivals and whether your company's profitability per drone sold in each region matches up well with that of rival companies. Your company's management team is strongly urged to examine this information after each decision round to determine if your company needs to take immediate action to improve your company's standing against the industry-low, industry-average, and industry-high benchmarks.

The Assembly and Production Benchmark Data

The number shown in the "low" column always represents the *lowest value among all companies* in the industry; the number in the "high" column always represents the *highest value among all companies* in the industry. The fourth column on the far right showing the corresponding number for your company allows you to determine how your company stands (but protects the competitive sensitivity of this information since the names of the industry high and low companies are not revealed). You can use the numbers in these four columns to gauge your company's competitiveness on each of the categories on the page.

The Costs of Drone Components and Features. Here you need to determine whether your company's costs for drone component and features are "in line" with the costs of rivals. For example: How did your company's drones stack up this past year with respect to the cost of the built-in drone component? The cost of the GPS/WiFi/GPS components? The cost of the battery pack component? The cost of obstacle sensors? The cost of extra performance features? And so on for each component/feature and for the "Total Cost of Drone Components and Features."

If your company's P/Q rating for UAV drones is *below* the industry average P/Q rating, then your company's costs for each of the various drone components/features should typically be *below* the industry average number, and definitely be *below* the industry average number for "Total Cost of Drone Components and Features."

It is imperative to have below-average total costs for drone components/features if your company's strategy is to compete on the low-end of the UAV drone market and attract buyers on the basis of lower prices than rivals.

*If your company's P/Q rating for UAV drones is the **lowest in the industry**, then your company's costs for each of the various components **should definitely** be at or near the industry-low number for each component, and, ideally, **should equal the industry-low number for "Total Cost of Drone Components and Features."*** If not, then action should be taken to reduce your company's total cost for components/features in the upcoming decision round.

*If your company's P/Q rating for UAV drones is the **highest in the industry**, then your company's costs for each of the various components **might understandably** be near or at the industry-high number for each component, and **might well be the industry-high number for "Total Cost of Drone Components and Features,"** especially if your company's P/Q rating for drones is meaningfully above the next-highest P/Q rating. **So while there is no reason to panic, there's still plenty of reason to try to be more cost-efficient in achieving the***

industry-high P/Q rating. Should your company have a “Total Cost of Drone Components and Features” that is below the industry-high number, then so much the better because your company probably has a component/features-based cost advantage versus one or more rivals with a slightly lower P/Q rating for drones as compared to your company’s industry-high P/Q rating.

R&D Expenditures. The two benchmarks for R&D expenditures provide a basis for deciding whether your company should consider increasing its R&D expenditures. Companies to the high side of the industry averages may want to further exploit their R&D-based competitive advantage over rivals by increasing their annual expenditures for R&D to even higher levels.

The benefits of R&D expenditures are subject to diminishing marginal returns.

Falling too far behind the industry-average for cumulative R&D expenditures (and rivals with R&D expenditures well above the cumulative industry average) risks being saddled with a R&D-based competitive disadvantage.

Workforce Statistics. The workforce benchmark for total compensation provides a basis for judging whether your company needs to consider increasing/decreasing one or more components of workforce compensation for the members of drone PATs.

If your company’s PAT productivity (number of drones a PAT assembles per year) is below the industry average and perhaps alarmingly below the industry high, then management needs to consider whether it would be cost-effective to spend more on best practices training and productivity improvement and/or to increase one or more components of total compensation for drone PAT members.

If your company’s labor costs per drone assembled are much above the industry low, you can be fairly confident that your company is doing a relatively poor job of managing its drone assembly operations and that attention needs to be given to making adjustments in whatever factors are deemed responsible for your company’s high labor costs per drone assembled. Such adjustments might involve increasing/decreasing expenditures for best practices training and productivity improvement and/or increasing/decreasing one or more components of total compensation and/or increasing/reducing the use of overtime assembly.

All companies have equal opportunity to match the labor costs achieved by the company whose labor cost per drone assembled matches the industry-low number. And the company with the industry-low number may have further opportunity to drive down its labor costs per drone assembled.

The best test of whether a company is doing a good job managing its drone assembly workforce is whether it achieves the lowest cost per drone assembled in the industry. Paying workers the highest compensation in the industry or having the highest productivity merits little or no applause unless it results in achieving the lowest labor costs per drone assembled.

Total Drone Production/Assembly Cost. The company with the lowest total drone production/assembly cost is the industry’s lowest-cost producer and assembler of UAV drones. Usually such companies have low drone P/Q ratings (quite possibly the lowest in the industry).

The company with the highest total drone production/assembly cost is the industry’s highest-cost producer and assembler of UAV drones—not a particularly enviable position to occupy (unless *maybe* the company has the highest P/Q rating in the industry and its costs are not “alarmingly higher” than the industry average cost—a condition that would likely jeopardize its ability to compete successfully and earn acceptable profits).

Companies that have a total cost per unit *meaningfully below* the industry average and also have a drone P/Q rating *close to the industry average* have done a cost-efficient job of managing their production/assembly operations. Companies that have a total cost per unit that is \$10 or more *below* the industry average and also have a drone P/Q rating *above* the industry average by .2 or more have likewise done a reasonably cost-

efficient job of managing their drone production/assembly operations. Companies that have a total cost per unit close to the industry-low and also have a drone P/Q rating that is meaningfully above the company with the lowest drone P/Q rating in the industry can also be considered as having cost-efficient drone production/assembly operations.

Your task here is to determine if the cost benchmarks indicate your management team has a sufficiently cost-efficient drone manufacturing operation that can compete on a cost-effective basis vis-a-vis rival companies or whether cost-reducing actions need to be implemented in the upcoming decision round.

Assembly Facility. The benchmarking data in this grouping enable you to judge how the size of your company's drone facility and the associated capacity to assemble drones compare against the industry-low, the industry-average, and the industry-high.

While every company begins the *GLO-BUS* exercise with equal-sized manufacturing capabilities, the distance between the companies with the smallest and largest drone assembly capability often becomes sizable as the decision rounds unfold.

It is your call as to how big you want your company's drone business to be or become. However, the crucial thing is not so much how big your company's drone business is or becomes but whether your company's drone market share and drone profits are sufficiently large to make an adequate-to-good contribution to achieving the investor-expected performance targets.

The Geographic Operating Benchmark Data

The six industry benchmarks for each geographic region (delivery costs per drone sold, marketing costs per drone sold, operating profit per drone sold, operating profit margin per drone sold, warranty claim rates, and warranty repair costs) are intended to provide useful guidance about your company's cost competitiveness and drone profitability versus rivals. But, even more importantly, their purpose is to point to specific areas where you may be able to improve or further enhance the performance of your company's drone business.

Because the 6 benchmarks are the same for each region, separate discussions of how to make the best use of the benchmarks for each region are unnecessary—one will suffice. But *where your company stands on each of the 6 benchmarks is likely to be materially different for each region.*

Delivery Costs per Drone Sold. Benchmarking your company's delivery costs per drone sold against the industry-low, industry-average, and industry-high is a means of judging whether your company possibly has a cost-based competitive advantage/disadvantage versus rivals based on shipping costs and tariffs paid in each of the four geographic regions. Companies below the industry-average are obviously spending less per drone sold for shipping costs and tariffs paid in a given region than companies above the industry average.

However, be aware that there are occasions when above-average delivery costs per drone sold may be "OK" or a "normal" consequence of the strategy being employed. This is because tariffs are based on price of the drone—a company's costs for tariffs paid per drone sold may be "legitimately" higher-than-average if it is selling a drone with a higher-than-average P/Q rating and thus incurring higher-than-average costs to produce the higher-rated drones (and thus is also charging a higher-than-average price to sell its drones). Likewise, a company's tariff costs per drone sold should normally be lower-than-average if it is selling a drone with a lower-than average P/Q rating and thus incurring lower-than-average costs to produce the lower-rated drones (and thus is also charging a lower-than-average price to sell its drones).

Marketing Costs per Drone Sold. Benchmarking your company's marketing costs per drone sold against the industry-low, industry-average, and industry-high is a means of judging whether your company possibly has a cost-based competitive advantage/disadvantage versus rivals based on marketing expenditures.

Companies below the industry-average are obviously spending less per drone sold on all the various marketing efforts than companies above the industry average. However, you must be careful in drawing conclusions about what this means exactly.

There are occasions when above-average marketing costs per drone sold may be “OK” or a “normal” consequence of the strategy being employed. For instance, you and your co-managers should expect that your company’s marketing costs per drone sold will be above the industry-average when:

1. Your company is pursuing a differentiation strategy that calls for spending more on various marketing activities to help set your UAV drones apart from the UAV drones of rival companies in ways that enhance buyer appeal and enthusiasm for your brand of UAV drones.
2. Unit sales of your drones are “low” relative to those of rival brands (because your company is pursuing a premium quality/premium price strategy to sell UAV drones that have better performance and quality than the models that rivals are offering)—such strategies typically result in selling a smaller number of drones compared to the sales volumes achieved by cheaper-priced drones. As a consequence, the “extra” marketing expenditures result in higher than average marketing costs per drone sold.

Furthermore, a company’s marketing expenditures per drone sold may be below the industry-average (1) because a company is “underspending” or marketing—which is not-so-good or (2) it may signal its marketing efforts are more cost-efficient than rivals because its marketing strategy is producing a high volume of drone sales and thus spreading its total marketing expenditures over a bigger number of drone sales—which translates into a marketing-based competitive advantage.

It is easy to determine whether reason (1) or reason (2) above accounts for your company’s standing against the industry-average benchmark because your company’s drone marketing expenditures and sales volumes in each region are reported in the section of the Competitive Intelligence Report pertaining to “Comparative Competitive Efforts of Rival Companies.” And you can use the information in this section of the CIR to make judgments about whether some rival companies are underspending or overspending on marketing.

Some things to consider:

- Is it “better” for a company’s marketing costs per drone sold to be *below* the industry-average benchmark (perhaps at or close to the industry-low benchmark) or is it “better” for a company’s marketing costs per drone sold to be *above* the industry-average benchmark (perhaps at or close to the industry-high benchmark)?

From a purely cost standpoint, it is “best” to have marketing costs per drone sold that are *below* the industry-average benchmark. But this can easily be achieved by spending comparatively small amounts on marketing, which is likely to put the company at a competitive disadvantage versus rivals in attracting buyers to purchase its brand of drones. Such *underspending* on marketing is not a competitive plus that will lead to above-average profitability!

While marketing costs per drone sold that are *above* the industry-average are plainly disadvantageous from a cost perspective, what if the result is a marketing-based competitive advantage versus rivals that boosts a company’s brand appeal to buyers and leads to higher regional sales, market share, and profitability? Then *such “high” levels of marketing expenditures per drone sold turn out to be a competitive and profitable plus.*

What if a company has marketing costs per drone sold *well above the industry-average benchmark* that are the product of “overly-aggressive” marketing to outspends most every other rival? *Is it possible for a company to overspend on marketing efforts and unwittingly reduce profitability? The answer is, yes.*

- A company’s management team whose marketing cost per drone sold is *below* the industry-average and perhaps *close to or at the industry-low* needs to ask itself two questions:

Is our marketing cost per drone sold so low because we are spending *too little* on marketing efforts relative to rival companies?

Is our marketing cost per drone sold low because our drone brand offering in the region had so much higher overall buyer appeal than rivals that our company sold a lot more drones, thus driving marketing costs per drone sold below the industry-average benchmark? A “yes” answer to this question signals that the company’s marketing expenditures were very cost-effective; a “no” or “probably not” answer signals a probable need to increase and/or reallocate the company’s marketing expenditures to produce better outcomes.

- A company whose marketing cost per drone sold is *above* the industry-average and certainly *close to or at the industry-high* needs to evaluate whether its marketing expenditures are as cost-effective and profit-enhancing as they need to be.

The marketing goal should not be to simply *outspend* rivals (by perhaps an overwhelming amount), but rather to spend enough to capture an attractively profitable sales volume and market share *at the lowest feasible marketing cost per drone sold –which might turn out to be above the industry-average benchmark but which, more ideally, ends up being below the industry-average benchmark.*

Bear in mind: Just as a company can *under-spend* on marketing, it can also *overspend* and waste money, thus cutting unnecessarily into operating profit margins and overall profitability in the region.

- On the other hand, it makes perfectly good business sense for a company to try to gain a marketing-based competitive advantage over rivals that boosts its sales volume and profitability; such efforts might well result in spending amounts on the various marketing efforts that cause a company’s marketing costs per drone sold to be *above* the industry average. *But for such efforts to be cost-effective and profit-enhancing (rather than wasteful) company managers must be careful to allocate monies to the various types of marketing efforts in ways that produce big enough sales gains to boost profitability (rather than erode it).*

The test of whether spending for various types of marketing expenditures are cost effective and competitively wise hinges on whether they result in sufficiently greater sales, market share, and profitability to make the extra marketing expenditures worthwhile from a profit-boosting perspective.

Your task here is to assess your company’s standing compared to the marketing cost per drone sold benchmark in each geographic region and determine what if any corrective actions regarding drone marketing expenditures are needed in the upcoming decision round.

Operating Profit per Drone Sold. Your company’s operating profit per drone sold in each region merits careful scrutiny as to how your company stands region-by-region against the industry-low, industry-average, and industry-high. However, to fully understand your company’s position vis-a-vis the benchmarks, you also need have a printout of page 3 of your Company’s Operating Reports in front of you—the top section of page 3 shows the performance of your company’s drone business *region- by-region* as concerns revenues, drone costs, operating profit per drone, total operating profit, and operating profit margin.

Anytime a company has negative operating profits per drone sold in a given geographic region, then decisive actions to correct this condition are called for in the upcoming year. It goes without saying that you and your co-managers should make every effort to avoid losing money on each drone sold in any region. Actions to boost profitability in a given geographic region are also called for if operating profit per drone is either barely positive (say less than \$20) or far below the operating profit per unit sold being achieved by many/most rival companies.

A company pursuing a low-cost/low-price strategy is likely to have an operating profit per drone that is below the industry-average (maybe even close to the industry-low). But the strategy of such companies, if they are to earn acceptable drone profits (or, better still, appealingly high total drone profits) in a region must be to capture

a sufficiently large sales volume/market share in the region so that its operating profit per drone times the number of drones sold produces an adequate/appealing *total* operating profit.

On the other hand, a company that produces/markets a high-end, premium-priced drone should definitely have an operating profit per drone sold that is above the industry-average and, preferably, close to the industry-high. Why? Because its sales volume/market share is likely to be below the regional-average owing to the premium price of its drones. Thus, it takes a high operating profit per drone sold to end up with an appealingly high total operating profit—and thereby help meet or beat the investor-expected EPS targets.

As a general rule, companies selling drones with above-average P/Q ratings at above-average prices should have above-average operating profits per drone sold, in order to realize acceptable or better total operating profits on their drone sales in each region. When this is not the case, management should investigate whether (1) their company's overall costs per drone sold are "too high" relative to rivals marketing drones of comparable price and performance/quality or (2) their drones are "underpriced," thus putting a squeeze on the operating profit per drone sold. Corrective actions then need to be pursued in the upcoming decision round.

A company whose operating profit margin equals the industry-high in a region, can take great satisfaction only if it considers the resulting total operating profit in the region (as reported in the top section of page 2 of its Company Operating Reports) is satisfactory or better.

Very likely, there will be sizable differences in your company's operating profit per drone sold across the four regions. In the region or regions where operating profit per drone sold is low, you need to consider actions to boost the operating profit per drone to a number close to (or even above) the number in the region(s) where operating profit per drone sold is higher. It makes little sense to turn a blind eye to the fact that in the just-completed decision round your company sold drones in one region and realized an operating profit per drone of \$80 while in another region your company's operating profit per drone was \$35. ***Big region-to-region differences in operating profit per drone sold are "giant red flags" signaling corrective actions are needed. Doesn't it make more business sense to adjust your company's marketing efforts and product offering in the upcoming decision round such that projected operating profits per drone sold across the four regions are roughly equal to (or above) the highest regional operating profit per drone sold your company earned in the prior decision round?***

Actions to boost operating profit per drone sold in a given geographic region are also usually called for whenever your company's operating profit per drone sold is either barely positive (say less than \$20) or meaningfully below the operating profit per drone sold being achieved by many/most rival companies.

Operating Profit Margin (in %) per Drone Sold. The operating profit margin benchmarks provide another measure for evaluating how well your company's profitability in the UAV drone market segment compares against rivals' profitability in each of the four geographic regions. Operating profit margin can be calculated either of two ways: (1) total operating profit divided by net revenues and (2) operating profit per drone sold divided by net revenue per drone sold. As with the operating profit per drone sold benchmarks, to fully understand your company's position versus the operating profit margin benchmarks, you need have a copy of page 3 of your Company's Operating Reports in front of you—the top section of page 3 shows the performance of your company's drone business *region-by-region* as concerns revenues, drone costs, operating profit per drone, total operating profit, and overall operating profit margin. Observe here that your company's operating profit margin in each region is shown on the last line of the "Revenue-Cost-Profit Breakdown" section at the top of page 3.

If your company's operating profit margins are at or near the industry-low in a region, then corrective actions are very likely needed—unless sales volume/market share in the region is sufficiently high to produce "OK" or better total operating profits. But even then, it makes sense to consider actions to boost subpar operating profit margins closer to the industry average (without greatly impairing sales volume) and achieve even better total profitability.

As was the case with operating profit per drone sold, *you will likely find that your company has meaningfully different operating profit margins for drones in the four regions.* In the region or regions where drone operating profit margins are low, you need to consider actions to boost the operating profit margin to a percentage close to (or even above) the percentage in the region(s) where the operating profit margin is highest.

It makes little business sense for your company's management team to be satisfied with results in the just-completed decision round indicating your company's drone sales in one region resulted in an operating profit margin of 18% while in another region your company's operating profit margin was 9%. ***Doesn't it make more business sense to adjust your company's marketing efforts and product offering in the upcoming decision round to produce projected operating profit margins across the four regions that are roughly equal (and are also at or above the highest percentage margin your company earned in the prior decision round)?***

Actions to boost the drone operating profit margin in a given geographic region are usually appropriate whenever your company's percentage margin is under, say, 5% or else meaningfully below the industry-average operating profit margins by many/most rival companies. Operating profit margins above the industry-average and/or very close to the industry-high are normally highly positive, unless accompanied by subpar sales volumes/market shares that result in total operating profits too small to help drive good overall company performance.

Warranty-Related Benchmarks. The two warranty-related benchmarks—the warranty claim rate and warranty repair cost per drone sold—enable you to make judgments about whether the length of your company's warranty period in each region might need to be increased/decreased and how the resulting warranty-related costs for drones compare against the industry-low, industry-average, and industry-high.

Plainly, both the warranty claim rate and the warranty cost per drone sold are largely governed by (1) the length of the warranty period (warranty claims and costs will be higher for a 1-year warranty than a 60-day warranty) and (2) drone P/Q ratings (claims tend to be higher for drones with 2-star P/Q ratings than with 7-star P/Q ratings). So when you look at how your company stands versus the industry-low, industry-average, and industry-high, you have to remember that the length of each company's warranty period and P/Q rating for drones impacts how each company compares against the industry benchmarks for both the warranty claim rate and warranty repair costs per drone sold.

However, the information in the CIR relating to the Comparative Competitive Efforts of Rival Companies provides you with complete details on each rival company's drone warranty period and P/Q rating in each geographic region. So, you are armed with the data to draw your own conclusions about whether your company's warranty claim rates and warranty costs in each geographic region compare favorably or unfavorably against the industry-low, industry-average, and industry-high benchmarks and to then take whatever corrective actions you deem appropriate.