

Auto Supply Chain Annual Validations

submitted by:

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“Quality enhancer or golden opportunity to eliminate a supply chain cost driver of limited added value?”

As part of some automotive OEM's and Upper Tier's customer requirements, an annual submission of data is required on parts already being shipped into their supply chain. This annual event is called an *Annual Layout* or *Annual Validation*. Some customer Annual Validation requirements specify only selected dimensional features, while others apply to everything covered in a part drawing. Some requests are for a full Level 3 PPAP, while others require minimal data or nothing at all. In each case, the requirements are very customer specific and the Tier requirements are often more demanding and costly to produce than the final end user requirements. Therefore, the question becomes what enhanced real value is supplied for the cost incurred in a supply chain whose financial health is already severely distressed? The recent “BBK Ratings Study” showed 22% of the total 80 top global automotive auto parts suppliers are distressed, and adding this kind of cost for no added value only seems to exacerbate this problem.

The purpose of the Annual Validation is, apparently, to provide the customer with the assurance of ongoing compliance by the supplier to the part requirements. However, the Annual Validation requirement does not acknowledge other tangible validation methods or considers the fact that such verification is provided by virtue of the inspection, receipt, and installation of the parts throughout the year. Annual Validation, therefore, becomes an added cost driver. In a limited survey of automotive fastener suppliers (11 companies), it was found that their cost for Annual Validations is about US\$2 million per year. Since Annual Validations apply across all suppliers for all product types, adding the full cost of this practice to the supply chain quickly becomes seriously big numbers.

An alleviation of the requirement for high performing quality suppliers alone could save substantial cost for the Tier's and OEM's internal operating cost, since someone has to specify, receive, verify and check, and follow-up on each part number's submission.

An industry-wide activity is to be “lean” and eliminate non-value added cost drivers. It is estimated that an Annual Validation can cost as much as US\$1,000 per submission, thus potentially costing the automotive fastener segment of the industry alone as much as US\$20,000,000 a year (if one assumes 20,000 part numbers used in Big 3 auto production). It would not be unreasonable to assume it costs the Tiers and OEMs an equal amount internally. That is a lot of non-value wasted cost that the supply chain as a whole could target for elimination. Of interest would be, “What do the ‘new domestics’ do with this issue?” Indications are that, to them, it would be considered an unnecessary redundant cost.

Some key points worthy of mention are:

- A given part number sold directly from the fastener manufacturer to an OEM may not have a requirement for an Annual Validation. This same part number, however, sold indirectly to that same end user via a Tier 1 could

be required by the Tier 1 to be annually validated by the manufacturer, even when the Tier 1's OEM customer does not require it from them.

- The wide variety and inconsistency among and between the Tiers and OEMs for this requirement strongly suggests that the requirement does not have value for bettering the automotive industry. If Annual Validation is truly important, then minimum criteria should be established for attaining their objective and universally applied by all.

Automotive parts are made based on a condition that a documented control plan is in place which places requirements on the manufacturing process to which the part is manufactured and controlled. The control plan contains the details, methods, and means that the manufacturer has determined necessary to make quality parts for regular shipment and use. The control plan applies for the life of the part and is only subject to change when a part revision is made that merits a change to the control plan. An initial PPAP submission is made for those parts under this control plan, satisfying the TS requirement as stated. The control plan's content is driven by an FMEA, which identifies the necessary controls; and the PPAP package contains the tests results derived from parts made to the control plan. In essence, if the part meets the control plan, and the part performs satisfactorily, then the control plan is validated and design intent is secured.

Customer approval (via the initial PPAP submission) is either given to the supplier through the customer's self-certification process (where the supplier has been given the approval authority to approve their own submission) or by the customer's PPAP review and approval process. In either case, product cannot be shipped until the PPAP, consisting of product test data, process test data, system registration data, gage integrity information, control plan, FMEA, and system data, is approved. Parts must continue to be made to the control plan, unless the part requirements are changed. The manufacturer develops and publishes his control plans as to how he intends to make the part in his particular system, and that determines what is delivered on an ongoing basis.

Ongoing part and system validation can take place at several levels and places in the company's manufacture of the product. These validations are fundamental, since they are the basis for the realization of final product that is delivered and satisfies the TS requirements as stated. Because of this methodology, the system provides parts that meet customer requirements. For a given part, the control plan and the means adopted by a manufacturer used to implement it may be different to that of another manufacturer making the same part number. Although the frequency of their verifications may be different, all must satisfy the same end product criteria. The OEM driven system of PPAP self-certification provides opportunity for Tiers to underwrite a supplier's innate ability to certify its own product in support of normally shipped

product throughout the year. Essentially,

- There does not appear to be a good reason for the supplemental requirement for Annual Validations, and they equate to only additional cost and waste for all involved in the process.
- The Annual Verification provides nothing that is not already achieved by the control systems already in place. It adds only a misuse of scarce resources due to their implicit redundancy. This misallocation of resources absorbs valuable manpower and dollars from other, more beneficial continuous improvement activities. The automotive supply chain must continue to identify all possible causes of waste, and cannot afford to deviate from that focus. Unnecessary and redundant activities should be evaluated as candidates for elimination as part of continuous improvement and waste reduction initiatives. Annual PPAP verifications should not apply to suppliers who practice the correct approach and have valid control plans.
- The use of a “one-size fits all” approach to all suppliers clouds the issue of where these supplemental requirements should apply and, thus, misses the opportunity for system wide cost and waste reduction.

To provide customers with the confidence in their choice of whether to impose supplemental Annual Validations, the following recommendations could be a starting point for discussions on methods that could be employed:

- Where it is determined that an Annual Validation is needed, a standard should be developed to identify a set of criteria that would provide every customer with a range of alternatives to be used for the supplemental validation that would be acceptable. Since the criteria should ideally be driven by TS requirements, there would be consistency in the approaches.
- The supply chain should take advantage of the opportunity to leverage off product “families” with common characteristics, tolerances, and manufacturing practices to reduce or eliminate duplication.
- The major end users should issue a letter of recommendation to their Tier suppliers with respect to their Annual Validation policies, and the granting of waivers from same, as they ultimately bear the cost of the practice.

Hopefully, this can open a dialog within the North American automotive supply chain; perhaps at **AIAG** or **USCAR**, to evaluate the potential supply chain cost savings in dealing with this issue. **FTI**

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