

## Cost engineering...

by Klaus Methner Nov 2016/20

Can be much more than you may think at first glance.

The usual first approach is seeing a team of young men in black suits, white shirts, named “consultants” to tell you that all your well established processes and methods are... “having potential for improvements” – what they do not say because of “political correctness”, but mean: ... “rubbish”. ;)

Well – it’s not that easy, but very often in larger scale companies with a growth history and sometimes with a history that went through ups and downs, some bed ash had been produced and now smutch quite many corners and even some main routes. A clean-up would do good, even if it might hurt some old and well-accustomed habits. Similar is the situation with the “life stock” – the workforce. Some slog like crazy – some of them even with good effect – some others hide in the shadow zones. Often there are more Chiefs than Indians. And some of those Chiefs got their promotions not from good performance but of other reasons.

Such are the “usual suspects” to be treated by the typical black-suited young dynamic men of consultancy firms. - But there is more...

Latest since José Ignacio Lopez we all know: “profit comes from purchasing”. He proofed that squeezing the suppliers to sales prizes under their cost brings a short cost-down-effect only, it first compromises quality and then kills suppliers. Well, let’s call it “consolidation” – sounds more “politically correct”. After all vendors will have consolidated towards one big Tier-1 per parts-group, this one can dictate the prices. This problem even Senor Lopez understood. So he sent expert teams into the vendors’ factories in order to optimize their processes and manforce (procedure: see above). And he “sleeked” their purchases – so the Tier-2’s were the next to go through such experiences. All them searching help from the pros, the above mentioned consultants, growing such business since the last 20-30 years like crazy. But – what are they good for?

The logical next step at the OEMs was to feed their purchasers with very clear numbers for what cost they should buy the parts from the suppliers – as they now knew their processes and internal cost – so they could calculate the 5% margin to allow them to survive. Because even the Lopez-OEMs had learned from bad experience, that you need to feed the cow who should give you her milk in return. In order to gather those “should-cost”, some OEMs formed internal cost-calculation teams, some rely on the above young consultants, some even on experienced specialists on top. So, if all went right, the purchasers now know, how far down they can squeeze their vendors until it hurts them. However, even by achieving those cost, the nice final products still struggle to meet their business cases. How comes?

Here comes the spirit into the game. Not the holy spirit – the other one... The spirit of a manager is to not endanger his own job – so he avoids risk - if something goes wrong, he can wash his own hands in innocence. His solution: he puts a good portion of safety factor into his designs. Same counts for a proud engineer: his spirit guides him to make his part as good as he can do – no matter the cost. His pride asks him to do so, because he wants to have designed the best product of all. Unfortunately his employer cannot achieve the sales price enabling him to make enough net profit to survive. So – what's the consequence? Die or safe more cost. Dying is no option (at least for the most – don't mention Saab or elder examples) – so... how can we safe further, as we already purchase to lowest cost?

We need to design to the point. A famous chief designer of audio amplifiers once told me: “For a good engineer it's easy to design a world-class product if cost is no option. In order to make the best value for money, you need the very best engineers.” He told me this facing me being “just” a “cheapo” GM/Opel engineer. I liked this expression and still do. But, what tells it to us?

If cost is no option, you start with a block of gold. Then you hammer a piece off there and grind another portion from it there. Ending with a beautiful product made of massive gold. Massively over-engineered, but (hopefully) with a brand reputation that achieves the cost plus a quite reasonable profit, when sold. Not many customers will be able to afford your golden calf. But what can you do, if your product serves the same market, but you don't have “that” brand image? If you copy the gold-method, you will be bankrupt in less than a year. Well, you need to use the other method, invented by the alchemists in the medieval times: make gold out of dirt. Unfortunately, those guys forgot to keep the recipe. So we need to find a feasible procedure. Where can we find it?

Well, use the proven method: benchmarking. How others make their products (also study different products in other markets), how can the mfr. sell them for affordable prices and still survive? He first adopts the spirit. The spirit of each and every engineer in die process of concepting, designing, engineering and making the product. Using a car as example product: what does a car need at least to perform? Wheels, frame, powertrain, seats, and so on. Just a basic soap box, just a piece of dry bread without butter, without cheese or other “nice-to-have”s. Then you need to ask your specific customer, what he would like to spend his own money for. And you add this and this, following your customers request. Finally it will be a sandwich (a car) that is just as tasty as the customer wants to pay for. Not a little bit better. Sometimes such smart behavior brings its own brand reputation: SMART watches... We learn: make the sandwich to the customers taste, not to your own taste. This comes from respecting your customers needs more than your own pride. How can we overcome our (false) pride?

Just use your brain. - What if you make the best but over-priced products for your employer and the employer gets bust? You go see the job centre. Not an option? So, make sure your employer can make profit on the product you do for him. This is your personal responsibility! - Second thing to accept: the sandwich needs to please the eater – but not the cook. So, don't put more butter, better sausage or salad into the sandwich than the customer asks for. Just use exactly as much as he is willing to pay for. If you like cheddar cheese, but he wouldn't give a penny for it, why should you put cheddar cheese into the sandwich? So – why do you put aluminium links into the rear axle of your car, where he is fine with smartly made simple steel linkage? To please him? Him, who just gives a shit? No – all you just did, you burned your employers money just to satisfy your own pride! Is this how you want to make him survive?

So you see clearly now, what you need to overcome: your own pride to do "the best". The best what you think is the best. But you want your customer's money in your pocket. So you better do, what's the best from your customer's point of view. Concentrate on the things the customer asks for. And on the things, the customer perceives to give him the quality he values highly. This word is named "perceived quality", not "intended quality". Perceived by your customer – not necessarily the same quality grade as intended by the design engineer! The "gold-plated" drive shaft might please you as being the engineer who designed it. But the "gold" at an invisible part is absolutely unimportant to 99,99% of the customers. Ask those people in your company who have used thoroughly investigation to find out, what is of more and what is of less importance for "the" customer. And use your creativity to find smart adaptive/scalable options to please the more demanding customer without over-pricing the reasonable client. Learn and respect what and how a customer approaches your final product. Understand, that the first impression is the most important one. And the last is the least.

Imagine the situation: the new vehicle "ABC" is out to the market since yesterday and you see it the first time in real: when do you have the time to really enjoy watching it? In the moment it passes you in opposing traffic? Or then, when you get stopped just behind it, because the traffic light is red. So, what you see and watch first, is the back side. This can be your first optical impression. You dislike it? So you already are pre-conceived against this model. Just by an ugly ass. Or, if you first see the model at a show or a dealership's showroom. There you can enjoy its looks all around. Outside first. Like it? THEN you ask the personal, if you are allowed to open it. First part to touch?... no! The key! Then the door handle. Feel? Sound? Perceived quality! Still like it?

You enter. Not banged your head? Good! The seat is well adjustable, comfortable, the instrument panel looks nice? The A-pillar doesn't cover the

¼ quarter view out? Enough space to put all your affairs? You can reach the mirror adjustment without lifting from the seat? Good! Sit in the rear, look into the trunk, open the hood, even enjoy the pretty plastic cover under where they have hidden the engine. Still in favour? Your decision for the car is already positive by >80%, believe me. If the rest doesn't bother you too much, you will buy. The decision-importance gets less, the more you go further. Now, if you went this far, then you may ask for a test drive. If you disliked something before, you wouldn't even ask for it! Drive through the city: seat, pedals, steering wheel fit? Found your favourite radio station? Noises? Comfort? Ergonomics? Steering force? Steering precision? Parking ease? Fine? 98% decided. Race track? Will the dealer allow you to race his demo car? Well – you trust what the pro testers wrote. ☹ No fun today. If this is fun for you. >80% of car buyers don't regard this as their fun – not even every young male. They might prefer a good sound system.

Now comes my own pride: I am a chassis engineer! Why is my work so unimportant to the customer? I have spent months, blood sweat & tears into squeezing-out that last second of lap-time in Silverstone! And this bloody customer just wants to drive comfortably from A to B? Nasty customer! Why doesn't he/she go down to his knees to admire my pretty suspension system? Why did I put this highly sophisticated hollow-casted and those forged aluminium parts into my suspension system? Those expensive ball-joints? Those 22 inch tyres? Why does this customer think, the cheapo competitors model is as good, just because it's a BMW? I could have saved >200 pound sterling! Per vehicle! Shame on me!

Learned something?

Thought out during a consulting project at a well known client close to Birmingham In the year 2016 by Klaus Methner

