Starting the engine...
Ian Hendra ponders

Some of my lovely clients are struggling with their quality systems. I've been pondering on how to restore their faith, quickly. Some of them are in dire straits, fire fighting like mad and longing for relief. I'm calling what I've come up with it "Starting the engine"; but it's really an old message in new overalls.

Lap times

Now, sorry folks, but I'm going to boast that back in July I took two seconds off my best lap time at The Surgery Intermarque Dual Car Sprint Series at Manfeild Raceway. Yep, two whole seconds. It didn't happen because I'd improved the car, but because I took heed of some excellent coaching from a good friend who was generous enough to share his 20 years' experience (clients, take note!). In hindsight all it boiled down to was my focusing more on the gas pedal than on the brakes... "Listen, Ian, if the front tyres aren't scrubbing, you're not going fast enough!" (I hasten to add for the concerned among you, that I'm not a Boy-Racer, I'm an Old-Guy Racer and I do it on proper race tracks!)

The 4 step going faster process

There are four lessons here vital to my "Start the engine" philosophy. You see, in my little white race car I go faster if I avoid using the brakes and I keep my right foot planted on the gas pedal. Then there's all the detail, the minutiae, the best fuel, new plugs, fresh oil, engine settings, my attitude on the day – am I brave enough? On the other hand, I go slower if I don't follow the rules or something unintended happens. But having said all that, none of it starts until the engine starts and the car moves, just as it stops when the engine stops, as my son found out the expensive way at the same event.... So what do we have to do to make our quality system go faster? First, we set everything up properly; second, we start the engine; third, drive it as well as we can; fourth, we measure our lap times. Only then will we be in a position to improve our performance.

ISO 9001's engine room

ISO 9001 is an awesome standard. Only those who haven't taken the trouble to read and understand it think it isn't for them. Trouble is though, that ISO 9001 is dry, it's a specification in the genre of the technical specification on

the back page of a TV's user guide. That means we have to deal with the words and sentences one at time. And that's OK; after all, we use a workshop manual in the garage or a recipe in the kitchen the same way. Anyway, the standard has eight sections, the first three say what it's about; they describe the course, to use the Manfeild analogy.

Extending the analogy, clauses 4 to 8 describe the requirements for the vehicle and how to maintain it, and for the driver and the pit crew and what they are expected to do; the set-up in other words. But the best bit is tucked away in three chunks of section 8; it's the engine, the part that makes it useful, that converts the receptacle into a vehicle that moves. Clause 8.3 sets the requirements of controlling nonconformity, 8.5.2 deals with what's required for corrective action to avoid recurrence and 8.5.3 deals with avoiding nonconformity in the first place.

These three clauses are ISO 9001's engine, they are what's under the bonnet, and they link to Management Review at 5.6 for both the gas pedal and the brakes, of course. So having built it, if we want our system's engine to go, we have to fire it up. Note that if we don't, our race car of a quality system simply goes nowhere.

A picture's worth heaps of words

I first produced the diagram at Figure 1 in 1998 in the context of describing the closed loop aspects of the older versions of ISO 9001 long before ISO 9001:2000 saw the light of day. The diagram here refers to the modern approach to risk management as a separate but integrated process. Let's work through it even though the flow is more or less self explanatory.

Inputs, transitions and outputs

It's a good classic process this, one input, a dozen transitions and two outputs. It starts with something unexpected. This would include anything out of spec, late, wrong price/cost, audit finding, accident etc or good news like a prize, or someone going the extra mile or a darned good idea. First step is to identify it so it doesn't get processed further until it's understood. Then it needs to be "fixed" (would include repair, rework, concession, alternative use, discard, or if it's good news, making the most of the opportunity). This is the first output, the fixed Whoopsie or the recognised Wow. Gordon Ramsay would say, "ISO 9001/8.3, done!"

The starter

The unfortunate truth is that for many in the QA business, to include many certifiers, this is as far as it goes. The "fix" transition is regarded as corrective and preventive action. Well it isn't, in our analogy, it's only the starter cranking over. We need fuel and ignition and something to combine them if the engine is going to get us anywhere.

Fuel & ignition

Next, having sorted the nonconformity back into normality, we need to investigate it. Since we're interested more in
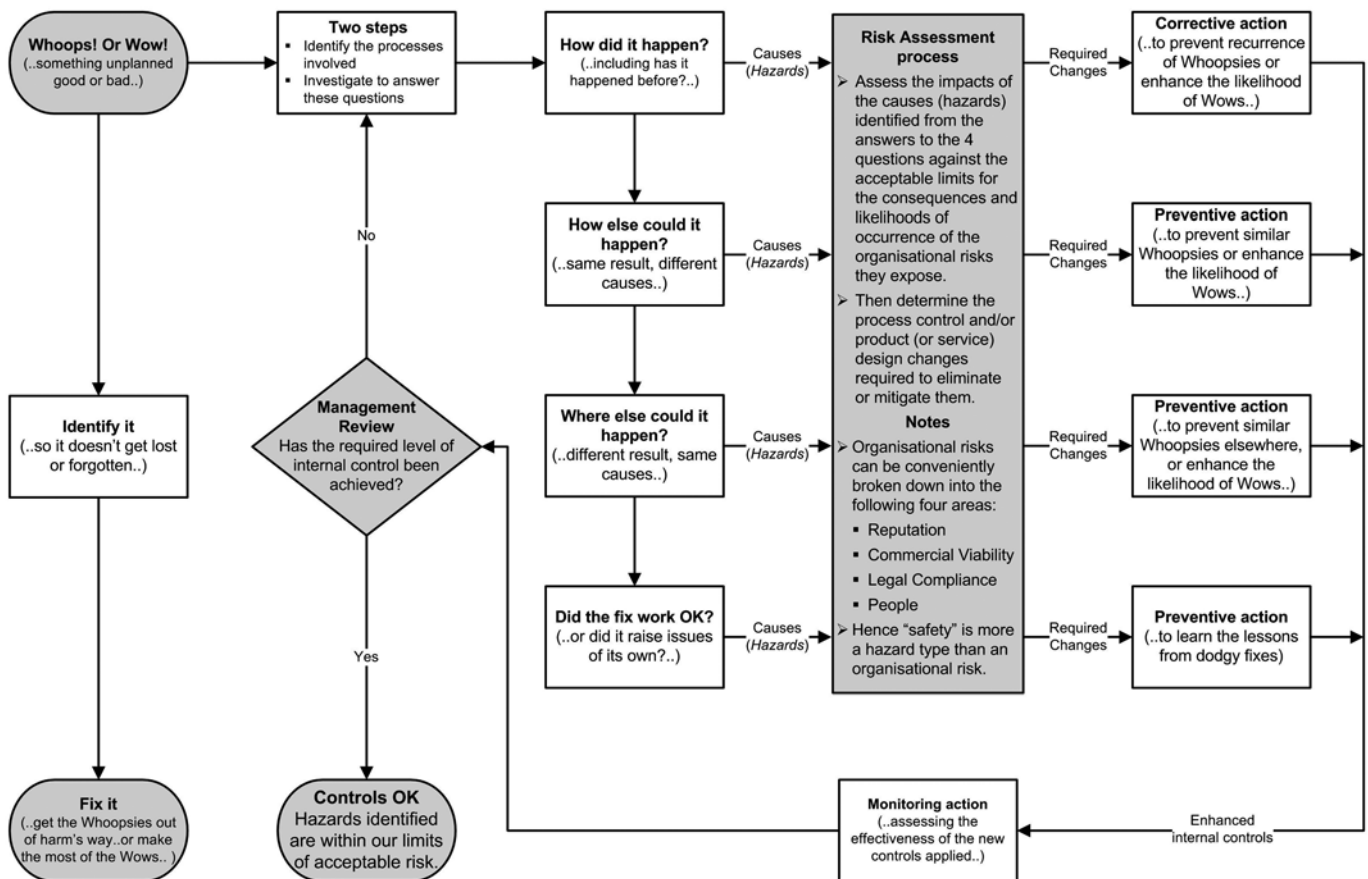
Figure 1: NC-CA-PA, ISO 9001's Engine.

avoidance and performance improvement than blame and shame, we need to identify the processes relevant to this nonconformity (bad or good), along with their sequence, interaction and performance data. We'll get nowhere without data (such as lap times, for example) because we won't be able to measure any changes. Right, that's the fuel, now for the ignition. Four questions, like four cylinders firing in order; they're in sequence down the middle column of Figure 1.

Producing the power
An engine converts fuel to energy so that it supplies power. The risk assessment block in Figure 1 does the same. ISO 9001 clauses 8.5.2 and 3 refer to outputs as action "appropriate to the effects". The answers to our questions are lists of causes, or hazards to put them in a hard-nosed context. ISO 31000 "Risk Management – Principles and Guidelines" calls them "risk sources" but hazards are what they are (e.g. a slippery floor). When we apply these hazards to our suite of acceptable consequences and their likelihoods (probabilities) of occurrence (e.g. zero lost-time-injuries in a year) we get clear indications of where we need to enhance our controls or even relax them, of course. We need to eliminate, avoid or control the impacts of hazards by taking corrective and preventive action as shown in the right hand column of the diagram. These actions are about changes in processes and how they're controlled or to our deliverables themselves, but we really do need to assess that these actions achieve the desired results. This is where

heightened inspections and audits play an important part, and closer attention from top management. In our analogy, this is where we measure and record our lap times.

Did it work?
Finally we need to review our new controls to see if we've maximised the opportunity for improvement; lap times are down, but at what cost, for example? That's for Management Review as per ISO 9001/5.6. If we've succeeded, our actions have worked and we're back in control; we have the second output. The nonconformity will not recur; our risks will not be exposed like this again. On the other hand, if there are still exposures that concern us, we have to decide whether or not we need to go round the loop again to get the outcomes we want. In other words, work on the engine a little more.

So there we have it, the engine in our quality system driving us on our ride to success ever closer to the chequered flag. We'll get there no other way.

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