Engineers Australia's Stage 2 Competencies

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6

IDENTIFY, ASSESS & MANAGE RISKS

Checklist

1. As an engineer, your objective is flawless execution in risky situations – not the elimination of risk – and there is a neat four-stage process that can help achieve that goal: a) Understand the engineering environment and all the actors on risk; b) Identify the risks by asking yourself the question "What could go wrong?" c) Develop a mitigation strategy – controls and tasks – if individual risks can't be eliminated; d) Regularly review risks based on actual experience and recalibrate accordingly. Then? Start over at a) and repeat.

2. Risks are dynamic. They routinely change in complex operational settings and don't always translate from a design environment to the field. We learned this as graduate engineers writing control software for offshore oil and gas platforms. Never make the assumption that risks are static and become fixated on a singular mitigation or control strategy. Instead, monitor the environment and adjust your risk management strategies.

3. Risks should be properly documented in a risk register that should also contain controls and tasks to mitigate the risk. It should be a living document subject to regular review. Tasks should be assigned to individuals not teams and evidence provided to confirm they have been acquitted. If ever there's an industrial accident, this document will be crucial to your defence.

4. Ensure there is a documented chain and hierarchy of decision-making when implementing risky interventions or solutions. These will be your best friend in the case when something goes wrong. And when something does go wrong, especially in the case of injury or death, everyone will be out to save themselves, not you. Protecting yourself by documenting decision-making is a good place to start.

5. Do what a nuclear-powered aircraft carrier does. They're called High Reliability Organisations (HRO) because, while you could reasonably expect lots to go wrong most of the time, it actually doesn't. They do five things exceptionally well and so should you: a) Always ask the person with the expertise regardless of their organisational status; b) Be extremely sensitive to operations, looking for weak signals that something might – or is about to – go wrong; c) Become obsessed with failure rather than just celebrate success, identifying everything that could go wrong and applying elimination, mitigation and control techniques; d) Go deep when looking for causality, don't accept simple explanations; e) Master resilience, the ability to persevere, overcome and remain committed to operational excellence.

6. Recognise that low-risk and safe environments, the ultimate objective of risk management, are actually outcomes, not inputs. They occur when a state of operational excellence is achieved. Maximising and optimising process efficiency and efficacy go a long way to risk-minimisation in field and operational settings. The words "safety" and "risk" are rarely used in some of the world's most high-risk environment. "Operational excellence" is.

7. Risk mitigation is not costless. Elimination, if it can be achieved at all, is often costly or even cost prohibitive. Fortunately, the law in most jurisdictions doesn't require you to bankrupt

yourself trying. Study the legislation, be clear on what's required and then measure the trade-offs. Generally, you'll be required to do what's practicable not prohibitive.

8. KRisk is routinely quantified in terms of likelihood and consequences so risk management is the practice of reducing both. It stands to reason that the risks with the greatest likelihood and consequences are treated first. But what happens if there are many in that category or thereabouts. Then you need a third dimension and that's called value. After likelihood and consequence further prioritise your risk strategy depending how much value accrues to your business by eliminating or mitigating the next risk. So in future think likelihood-consequence – and value.

9. Most organisations you will work for will require you to create and commit to a development plan. Be specific and align your competencies to develop opportunities on offer. Seek out further training, project roles and secondments etc. so you can continue to enhance your practise on-the-job. It's an easy and efficient way of sharpening all the tools in your arsenal as you go.

STILL HAVE MORE QUESTIONS?

Just email us at tellus@myengineerexchange.com and we'll get right back to you.