# ALARP & Optioneering

What is it?

The concept of ALARP (As Low As Reasonably Practicable) is widely used in high risk industries and lends itself to a wider breadth of industry sectors. ALARP is used to address risks, their mitigation and as a tool in decision making. At the core of it is the concept of 'reasonably practicable' which requires a judgement of the risk against money, time and effort invested to address it. Loss consequences, such as, length of IT downtime, loss of critical/confidential data or loss of revenue can be set as goals in evaluating whether the current system and process risks are ALARP or not. A new variable introduced into the system can then be evaluated to see the effect on those risks. This provides a more holistic view of risks and identifies the 'true' risks in the system. Furthermore, the risks are prioritised to allow informed decisions to be made and where best to concentrate resources.
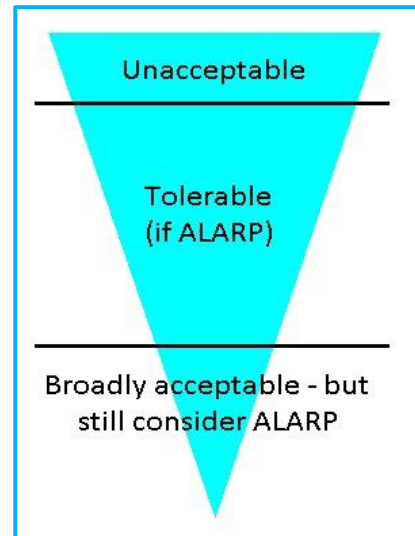
ALARP assessments always take account of qualitative considerations as well as quantitative considerations as appropriate. Quantitative cost benefit analysis may also be carried out, however, not all ALARP assessments will need to have a full quantitative analysis. Deciding whether a risk is ALARP or not requires the stakeholders to evaluate the risk, its consequences and to apply judgement. In the area of judgement, CRA is pioneering work on Structured Expert Judgement to evaluate and quantify various opinions from experts which may be subjective in nature.

If a shortfall is identified, optioneering is carried out to determine all possible solutions to overcome the shortfall. For more complex issues with several options, ALARP workshops are often held to allow a collective decision to be made to identify the most ALARP solution.

Why is it important?
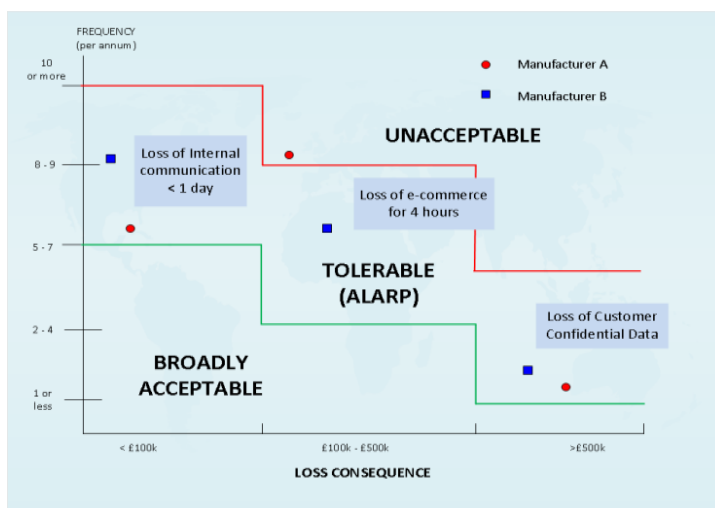
Management systems and processes are moving towards a risk based approach where focus is put on the factors which may detract systems and processes from achieving its intended results. ISO9001 Quality Management Systems and ISO3100 Risk Management – Principles and Guidelines, the latter more familiarly known as Enterprise Risk Management, are examples of such standards. Risk based approach provides an insight into an organisation's performance.

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Quantification provides more meaningful representation of risks. ALARP and Optioneering assessments support a more objective framework for management decision making.

These methods can be applied to all industry sectors and its processes. Some examples include implementation of new IT hardware or strategies, Cyber Security, Facilities Management (Mechanical & Electrical equipment; e.g. HVAC).

What we do

Some of our technical capabilities are listed below:

- Quantitative ALARP calculations (including using probabilistic methods and models)
- Optioneering for identified ALARP shortfalls
- Preparation of material for ALARP Workshops
- Facilitating ALARP Workshops
- Producing ALARP Workshop reports
- Optioneering technical /process modification/ human performance solutions where there is an ALARP shortfall
- Structured Expert Judgement

Our work

Our key team members have carried out ALARP assessments and optioneering for a number of projects. These include full quantitative assessments, optioneering workshops, preparing, facilitating and reporting ALARP workshops and writing ALARP justifications for hardware, IT systems and processes.

Projects where ALARP and optioneering workshops have been performed by the CRA team include:

- Tape vs Cloud IT Backup and Disaster Recovery
- Loss of Credit Card Information in Retail Environment
- Loss of HVAC to critical IT systems