The value of Bow-Ties and Critical Control Analysis in focusing risk management

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In many organisations, when managers and employees are looking at their risks, the numbers of controls that are in place for managing such risks can be overwhelming. And it can be argued that it is impossible to remain focussed on such large numbers of controls and sub-controls.

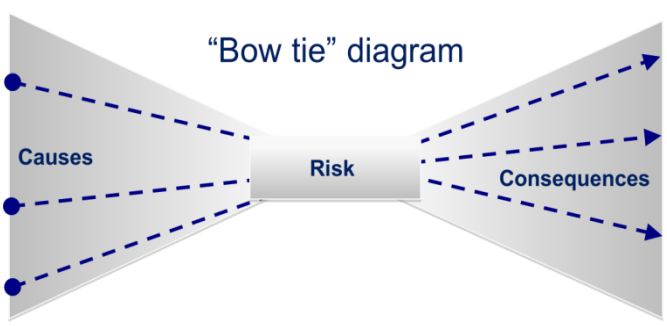
A recommendation that can be made to address this is to re-evaluate the risks through conducting a Bow-Tie Analysis and determining the most critical controls. The benefits that can be realised include having a clearer understanding of the risks, their causes and impacts and understanding the links between causes and controls and the impacts and controls and the targeted manner in the way good controls should be designed and operated. The importance of determining the most critical controls is to ensure that the balance of focus on the controls is on 20 % of the controls that manage 80 % of the risks.

The analysis of the risk in more detail involves the following process:

1. Establishing which are the biggest or most common causal factors of the risks;
2. Determining common causes or failure trends if any are evident;
3. Determining whether there is at least one control for each cause and at least one control for each impact;
4. Determining if there are any redundant or duplicate controls that are managing the same cause or control; and
5. Determining which of the many controls in place to manage the risks are the most critical.

The Risk Bow-Tie tool has been specifically developed to analyse risks further, and move us to a point of being able to determine and address critical controls.

The Bow-Tie Risk Assessment Methodology is based on well recognised Failure Mode Effect Cause Analysis principles (FMECA) and enables a more detailed understanding of risk causal factors, resulting in a better understanding of the controls that we employ to treat known risks.



By utilising the Bow-Tie, we are able to gather evidence as to whether each key cause is being treated and whether the controls are appropriate given the causal factors of the risk. We are able to determine if each

impact will be responded to in the event of the risk occurring and if the controls are appropriate given the potential impacts. The Bow-Tie also allows us to categorise controls in terms of reliability: engineering based controls are the most reliable, than system based controls, followed by people based controls.

This level of information giving a greater insight into the control environment, leads risk managers, managers and employees to a point of being able to determine critical controls. Given the many preventative and mitigating controls that are often in place to manage a risk, it becomes important for management to focus on the key ones that have the greatest potential to prevent or mitigate consequences.
Critical controls are typically those controls that are either the only barrier or layer of protection available, or are used to prevent multiple causes of the event. Critical controls need to be independent of other controls and the highest possible reliability.

In addition to the above attributes, critical controls need to receive management attention through the allocation of control owners, development of performance standards and consistent management verification of the adherence to these controls.
Performance Standards are a means of breaking down a critical control into attributes that can be managed by the control owner and verified through management inspection. Typically these attributes include: appropriate design of the control; defined benchmark or operating parameters; documented maintenance requirements and clearly defined accountability for the control. Frequency of testing and verification is also critical for inclusion in Performance Standards. It is recommended that the critical control owners be identified and given the responsibility to develop the performance standard(s) for their control. Once developed, these become the subject of inspection and audit and management verification.

Managing significant risks is a fundamental responsibility at all levels and functions across an organisation as the risks are well known and will cause significant impacts to the business and its people. Controls that are in place for both preventing and responding to significant risks are important, and of those controls, particularly the critical ones need to be maintained, tested and continually improved.

The management of significant risks will never be complete, but can be continually improved and become more focussed to strengthen management, employee and other stakeholder confidence.