Seeing the bigger picture

Risk registers often fail to convey the systemic complexity in enterprise risks. Visualisation can help reveal the bigger picture

··· BY NICO LATEGAN

Writing as a risk professional with 15 years' experience, I have a confession to make. I loathe risk registers. Let's face it, they are boring, one dimensional, and poorly-prioritised lists that lack context and often serve to satisfy a requirement rather than a purpose. Risk registers can be useful in some contexts, but I believe a risk visualisation approach is a far better way to accomplish the aims of risk management and support better decision making. So, what is risk visualisation, and how do we implement it?

Risk visualisation is a relatively new concept, which traces its roots back to data visualisation. Data visualisation is itself a broad theme, ranging from charts and graphs to geographical mapping and highly-stylised infographics. It is supported by a mature set of applications, from the ubiquitous Microsoft Excel, to sophisticated business intelligence and big data analysis tools.

The late Dr Hans Rosling pioneered the concept of telling compelling stories by combining data visualisation and the fourth dimension – time. His TED talks, "The best stats you've ever seen," and the shorter, "Hans Rosling's 200 countries, 200 years, 4 minutes," are both classic examples of his approach, which you can view on YouTube.
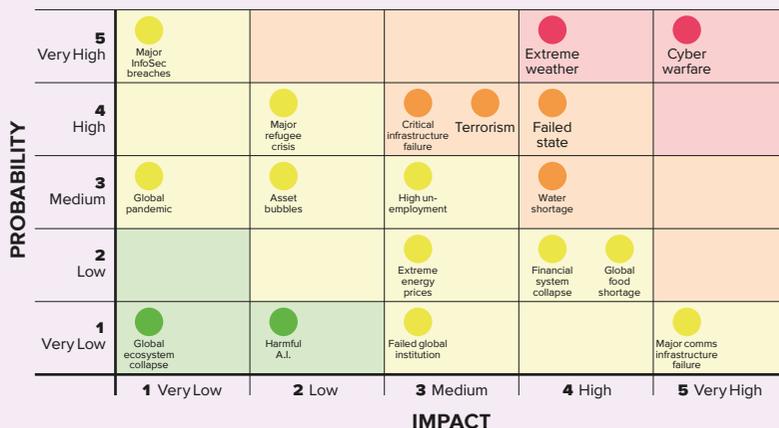
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FIGURE 1: A TYPICAL PROBABILITY IMPACT DIAGRAM (PID)

PROBABILITY		1 Very Low	2 Low	3 Medium	4 High	5 Very High
5	Very High	Major InfoSec breaches			Extreme weather	Cyber warfare
4	High		Major refugee crisis	Critical infrastructure failure · Terrorism	Failed state	
3	Medium	Global pandemic	Asset bubbles	High un-employment	Water shortage	
2	Low			Extreme energy prices	Financial system collapse · Global food shortage	
1	Very Low	Global ecosystem collapse	Harmful A.I.	Failed global institution		Major comms infrastructure failure

IMPACT

Source: Nico Lategan

Risk maps

An early version of risk visualisation has been with us for decades in the form of the risk heat map. It is usually depicted in a three-by-three, or a five-by-five matrix. Probability, or frequency, runs along one axis, while impact, or consequence, runs along the other. The map is often referred to as a probability impact diagram, or PID.

A heat map is a slight improvement on the traditional risk register approach in the sense that it transfers a lot more information to the reader at a glance. Users of the information can intuitively zoom in on the risks requiring intervention through the use of colour, size and position of the risk elements on the grid. Beyond this however, heat maps are somewhat limited in providing context, conveying systemic complexity and aligning

risks to organisational goals.

Another form of risk visualisation includes shading areas on a geographical map to indicate risk levels, or using dots of varying sizes and colours to indicate location-specific hazards.

These are more useful for organisations or institutes where a geographical context is important, such as those showing the risk of travelling in different countries. They simplify a large amount of data into an impactful image that draws attention to key areas of risk.

Current developments

Tools now exist to enable the creation of richer, more context-aware risk visualisations based on information captured through normal risk identification and analysis processes. These can model the

systemic nature of risk causality and interconnectivity. To understand this concept, let's examine the global risks we face in 2017.

Global risks do not exist in isolation. Those that materialise could have an exacerbating effect on the materialisation of others. For example, any combination of risk categorised as asset bubbles, extreme energy prices, water shortages, or financial system collapses could result in the risk of a failed state. This in turn can exacerbate the risks from terrorism, a major refugee crisis, further water shortages and extreme energy price increases.

This concept of systemic and interrelated risks can equally be applied to enterprise risks in an organisation. For example, cyber threats can be affected by, and in turn affect, the materialisation of related risks across the organisation. In this way, risk visualisation highlights the need to reach across organisational silos to effectively manage and mitigate the strategic threats facing an organisation.

Furthermore, risk visualisation can illustrate a rich array of information across multiple dimensions, including – but not limited to – risk proximity (how quickly risks are likely to materialise), categorisation (against predefined risk categories or organisational objectives), control effectiveness (the effectiveness of mitigations currently in place), impact

quantification (the actual numerical value of impacts measured, for example, in pounds sterling) and risk trajectory (risk exposure reduction over time). In these circumstances, risk visualisation can be a powerful aid in getting a message across to decision makers, enabling them to prioritise and highlight appropriate risks for immediate attention or identify opportunities for collaboration on risk mitigation efforts.

Benefits

Risk visualisation is far more engaging to users of risk information than simply relying on risk registers to convey the same message. This is due in part to the rich context of the risk information combined with the ability to tailor the information to suit different audiences. Interactive visualisations can be used to highlight risks that exceed an organisation's risk appetite, risks with poor controls, risks against certain key objectives, or any combination of such criteria.

Visualisations can also be used to present high-level strategic risk information to executives, whilst retaining the ability to drill down into the details for appropriate audiences. Increased engagement and understanding of enterprise risks leads to better decision making at all levels of the organisation, from frontline staff all the way up to the board room.

Systemic modelling of risk interconnectedness has a profound effect on the way people perceive risk. Instead of focussing solely on risks in their own silos, there is a genuine understanding of the strategic nature of enterprise risks, and this encourages a collaborative approach to risk mitigation.
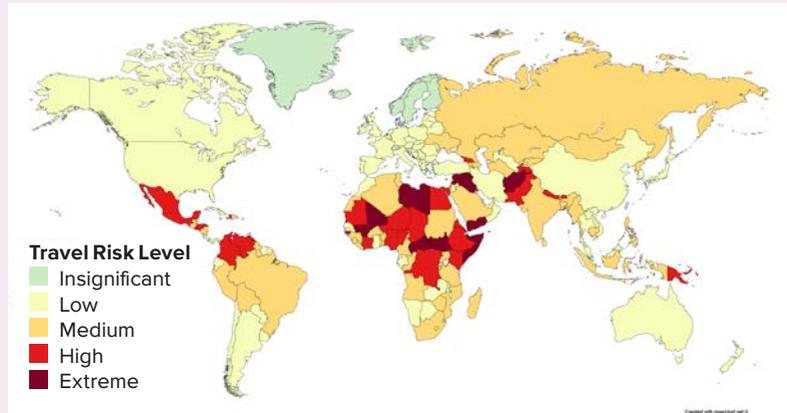
Implementing risk visualisation

Technology is often the easiest component of adopting a risk visualisation approach. It is far harder, but absolutely crucial, to implement a comprehensive risk framework that encompasses all the elements of an ISO 31000 approach. The framework should include a methodology for comparable analysis of risks against stated objectives and a defined organisational risk tolerance and/or appetite.

The old adage applies here – garbage in, garbage out. Risk visualisation will only ever be as good as the information behind it. Designing, communicating and embedding this framework successfully allows the right information to be collated in order to build a risk visualisation model that can support effective decision making, and ultimately, effective risk management.

Once a risk framework is in place, it is relatively straightforward to design a risk visualisation
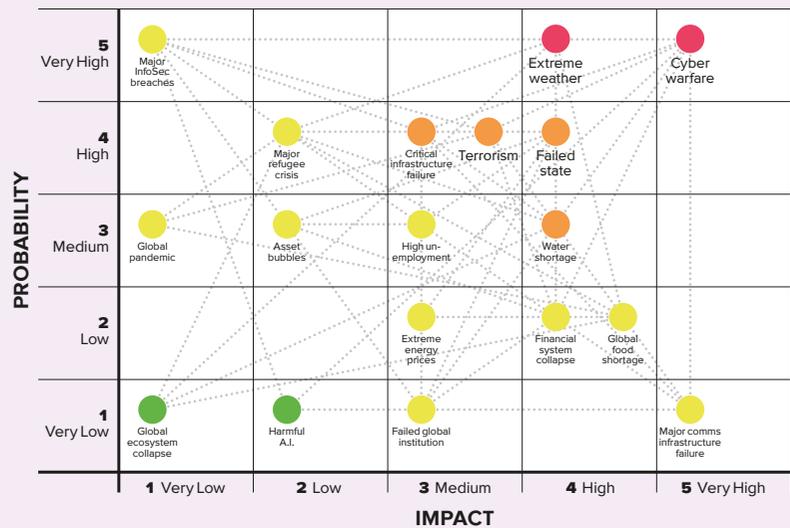
strategy based on information captured through the risk process, organisational structure, and desired outcomes from adopting a risk visualisation approach. It is important to note however that there are some technical design issues to consider. Examples include the specification of information required, the flow of data from the point of capture through to storage and presentation, the integration between various databases and toolsets, and whether these are managed on-premises for better security or
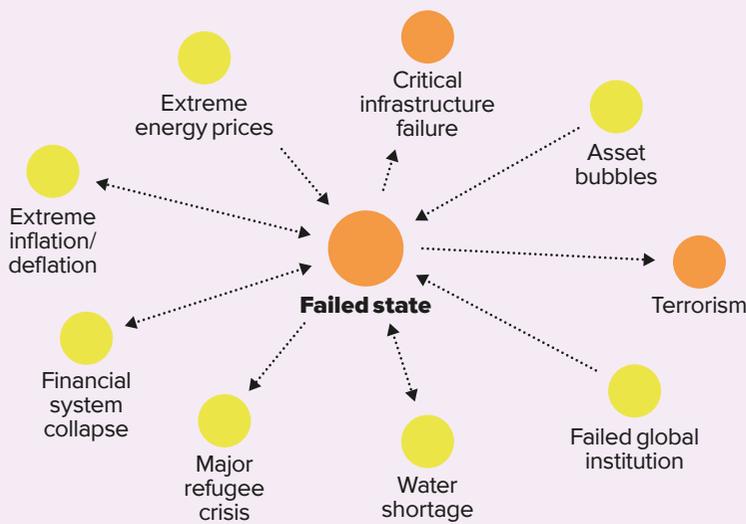
FIGURE 2: TRAVEL RISK MAP

Source: Nico Lategan

FIGURE 3: SYSTEMIC VIEW OF INTERCONNECTED RISKS

Source: Nico Lategan

Enterprise Risk

FIGURE 4: THE SYSTEMIC NATURE OF INTERCONNECTED RISKS

- Extreme energy prices
- Critical infrastructure failure
- Asset bubbles
- Extreme inflation/deflation
- **Failed state**
- Terrorism
- Financial system collapse
- Major refugee crisis
- Water shortage
- Failed global institution

Source: Nico Lategan

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in the cloud for easier access and collaboration between entities.

Risk visualisation technology can be inexpensive relative to commercial, off-the-shelf enterprise risk management solutions, and fairly easy to implement. It is flexible enough to be configured to reflect organisational and risk process changes, and can model threats, opportunities, causes, consequences, controls, improvement actions, key risk indicators and anything else organisational risk processes require.

Challenges

People can naturally be sceptical about the benefits of new approaches and technologies, and risk visualisation is no exception. With risk visualisation, however, seeing is believing. It is easier to convince decision makers of the benefits of adopting a risk visualisation approach using a well-designed proof of concept rather than presenting a standard business case.

Providers of risk information can be another source of inertia preventing the risk process from evolving. This is especially true once they come to the understanding that risk visualisation will expose data quality or risk maturity shortcomings to senior management. Working with them to set a realistic deadline for the collation of risk information with the expectation that the board will be shown all risk visualisations can be a catalyst for positive change in this area.

The future

Risk visualisation is the natural evolution of and ultimately a replacement for traditional risk registers. It is a far more engaging and useful approach when attempting to understand the context of systemic risks, prioritise risks, and tailor risk information to audience requirements. Risk visualisation has the added benefit of encouraging

providers of risk information to comply with risk processes to ensure current and detailed risk information is presented to the board.

The next step requires organisations to embrace the concept of visualisation to the point where risk visualisation is no longer an isolated approach, but is linked to every part of a business including strategy, assurance, compliance, business performance and change programmes. This pervasive embedding of risk management across an organisation to achieve business success is the ultimate aim of risk management. Enterprise risk professionals with their strategic overview of their respective organisations are uniquely placed to influence the development of approaches that can enhance business success. Risk visualisation is the first step in this direction. ⒺⓇ

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