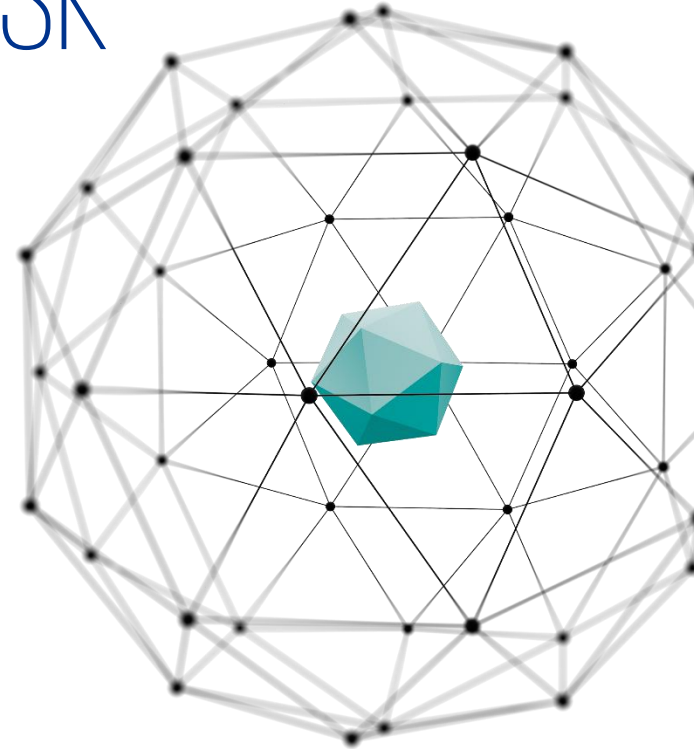




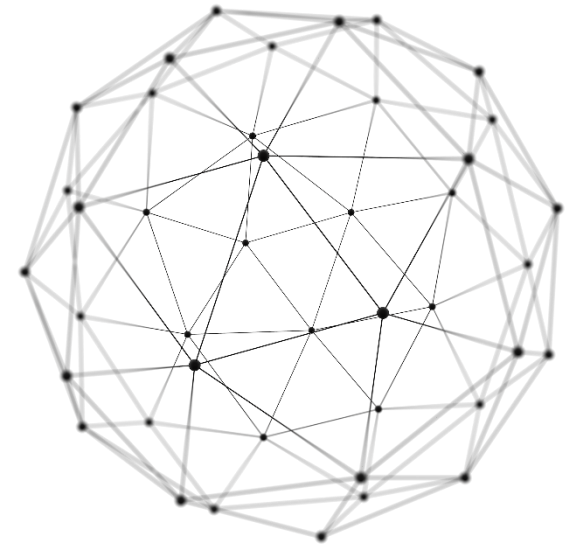
KPMG Dynamic Risk Assessment



June 2018

KPMG Dynamic Risk Assessment

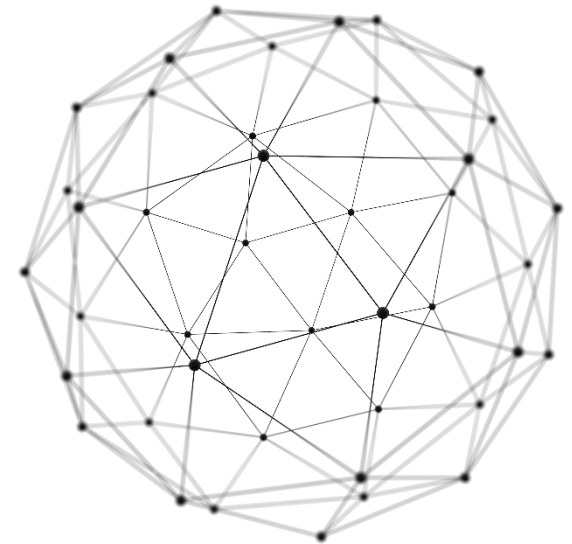
KPMG's Dynamic Risk Assessment (DRA) marks a groundbreaking shift in risk identification. DRA marks an evolution in risk assessment that applies actuarial theories, sophisticated algorithms, mathematics and advanced data and analytics (D&A) together in a KPMG proprietary methodology to identify, connect, and visualize risk in four dimensions.



KPMG Dynamic Risk Assessment

In today's highly interconnected and volatile world, dominated by new technology and emerging business models, the past is no longer a reliable guide to the future. Past data is a poor fit for the future as the forces and trends that shape our future have increasingly not manifested themselves before. Moreover, risks combine. They spill over into each other — they don't manifest neatly in isolation — and we no longer have the luxury of dealing with risks discretely.

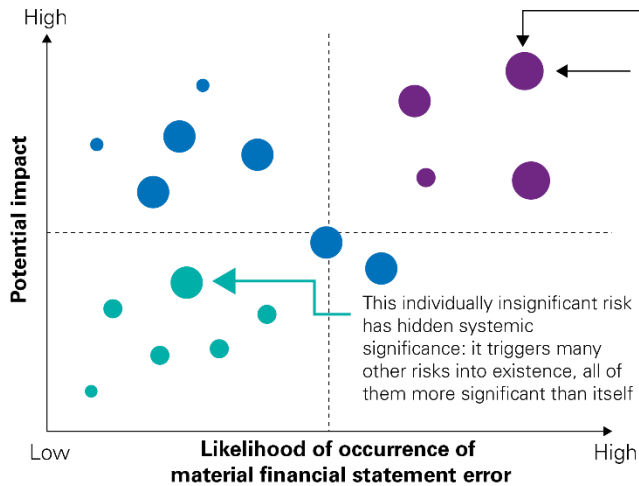
Instead, we need to consider whether and how risks can potentially cluster together, as well as the potential cumulative impact of such clusters. We need to advance beyond historical risk analyses comprised of two-dimensional depictions through expected probability and severity.



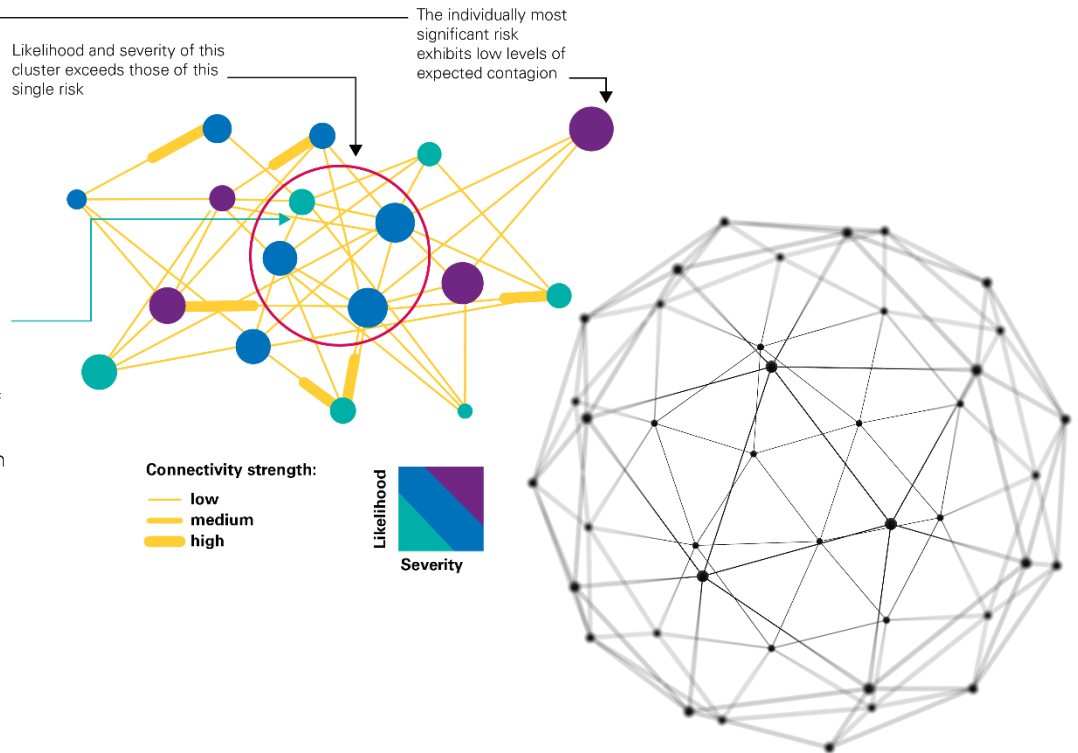
KPMG Dynamic Risk Assessment

We are required to consider a third, and also a fourth dimension: velocity and contagion. This — together with the consideration of the global trends that are shaping our world — is what DRA does.

Traditional, two dimensional risk map



Inter-connected view

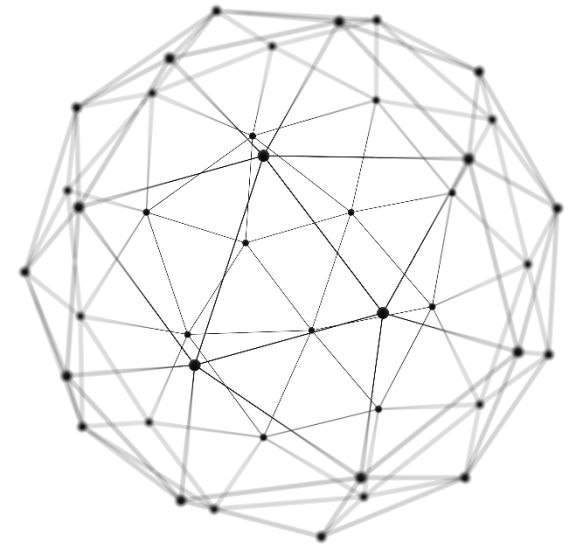


Source: KPMG International 2017

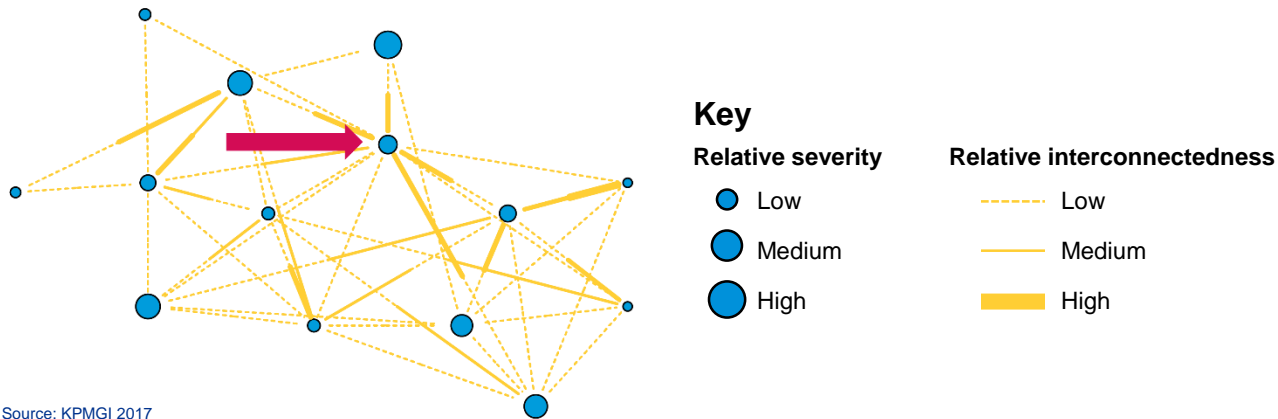
KPMG Dynamic Risk Assessment

DRA provides us with a sense of how the risk might spread, and the time horizon in which it could impact the business of a client. At the same time, DRA enables us to understand how individual risks may interact in terms of network effects — the expected contagion consequences between global and enterprise risks.

This has become critical because without understanding systemic risk in this way, our view on risk and emerging risk remains incomplete and we will continue to be surprised by downside risks. Contagion between risks is the missing link that needs introduction into boardroom discussions. Never before has risk been so prominent in the board. But if risk continues to be measured only by virtue of severity and likelihood, audit committees will miss the key critical dimensions that have escalated in significance in today's operating environment. DRA rebalances our assessment of risk by analyzing business risks' velocity and their potential interconnectedness.

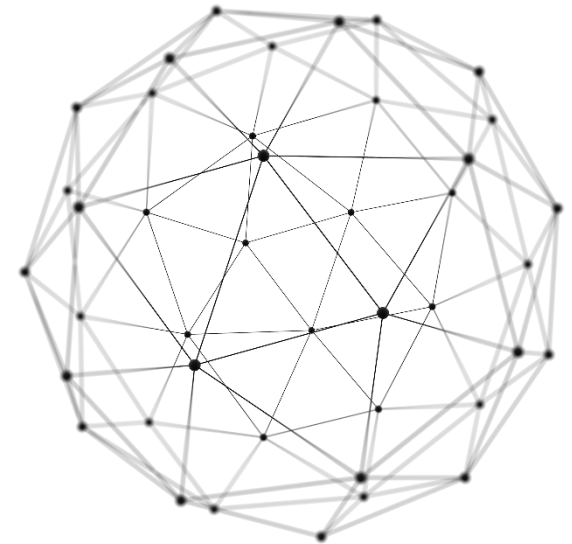


KPMG Dynamic Risk Assessment



Combines sophisticated mathematics with D&A

DRA applies graph theory, the science of expert elicitation, actuarial modeling, sophisticated mathematics and financial mathematical algorithms, advanced D&A, and accounting science to assessments from experienced risk and non-risk frontline and back-office individuals within the business. This is done in a KPMG proprietary (and patent pending) methodology to identify, connect and visualize risk in four dimensions.

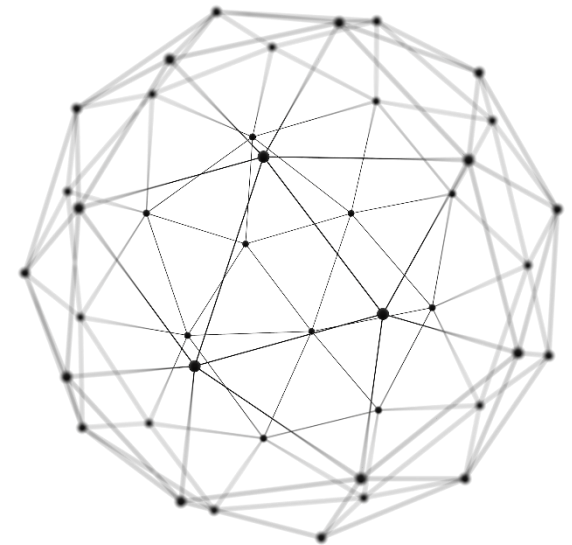


KPMG Dynamic Risk Assessment

It means that KPMG in East Africa is able to objectively measure the significant threats facing a client's business. It enables us to provide new levels of risk assessment and helps clients focus on the most significant risks — determined not only by assessments of the individual risks, but the way in which they are expected to interact with, even compound, each other. While the traditional assessment of risk focuses on single risk events with high likelihood and severity, DRA rebalances our assessment of risk by analyzing business risks' velocity and their potential interconnectedness.

These additional dimensions are critical in understanding the current risk environment. Risk contagion (i.e. flow-on effect) was, after all, central to the development of the most recent global financial crisis.

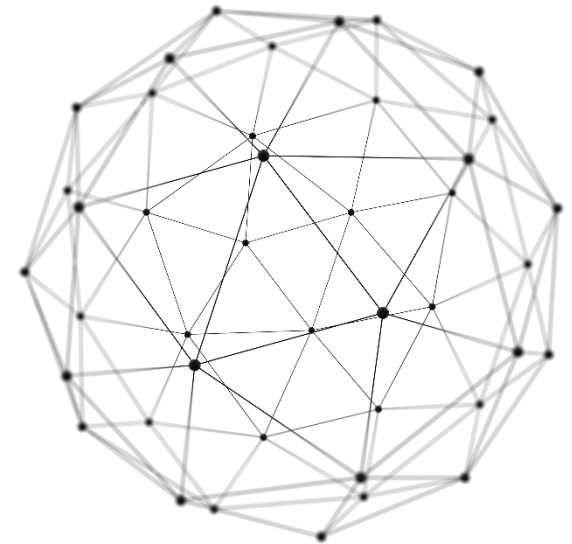
DRA marks a groundbreaking shift in risk identification. It has been developed to provide KPMG member firm clients with an enhanced, indeed superior, understanding of the risks their organizations face in today's complex world of developing technology, emerging markets, climate change, growing populations and other megatrends that interact and shape our future.



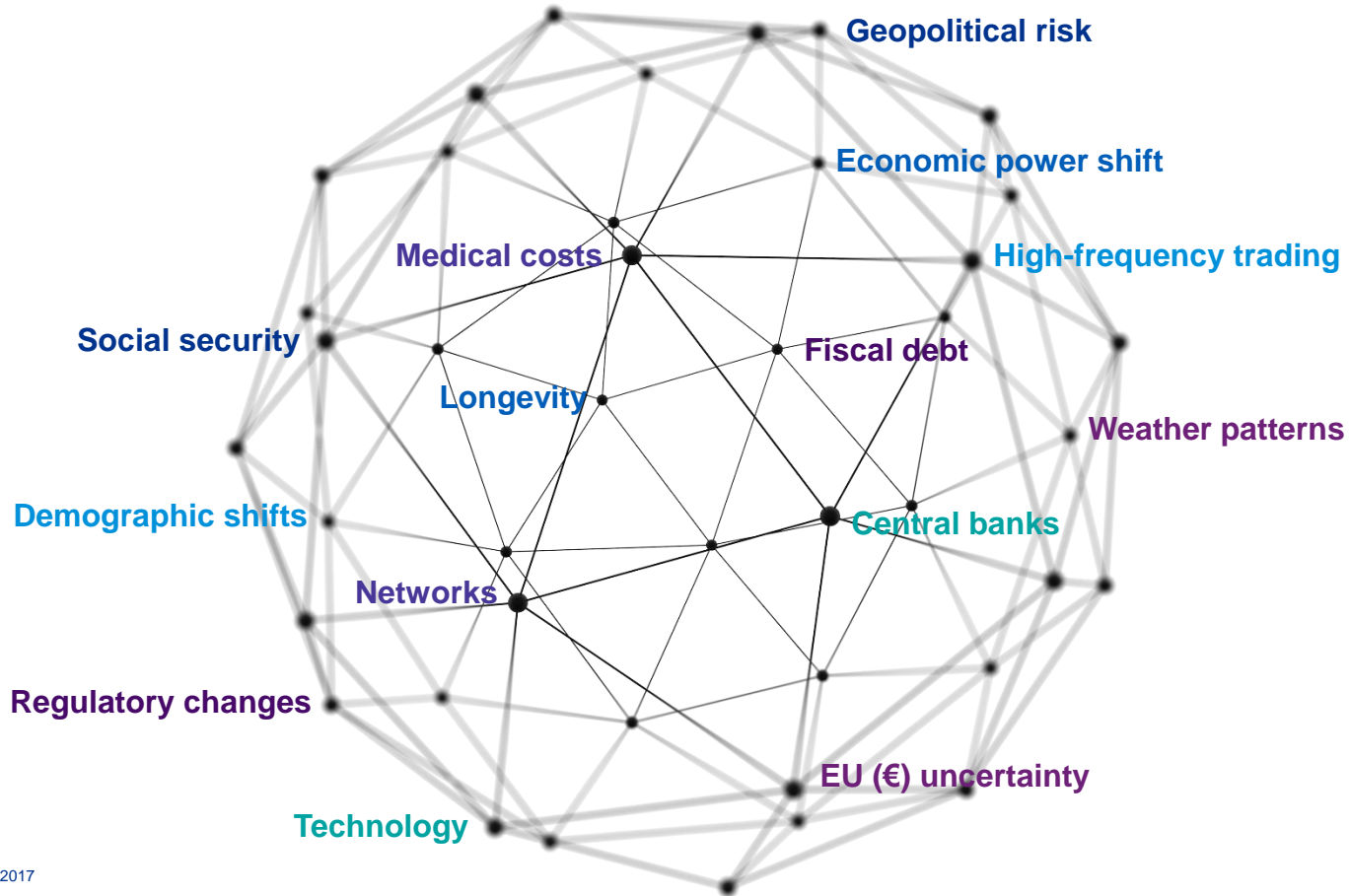
KPMG Dynamic Risk Assessment

Pioneered by Global Lead Andries Terblanché, a KPMG in the UK Partner and Research Fellow to the Institute of Global Finance, and a team of scientists, data architects, mathematicians, auditors and economists, DRA takes an unprecedented approach to gaining insights into clients' risk environments: it pinpoints central risks and sheds new light on the assessment of the effectiveness of controls in detecting, preventing and/or mitigating these.

In a dynamic, unpredictable world, DRA shows that KPMG is truly moving with the future to help clients stay a step ahead.



Megatrends influencing business today

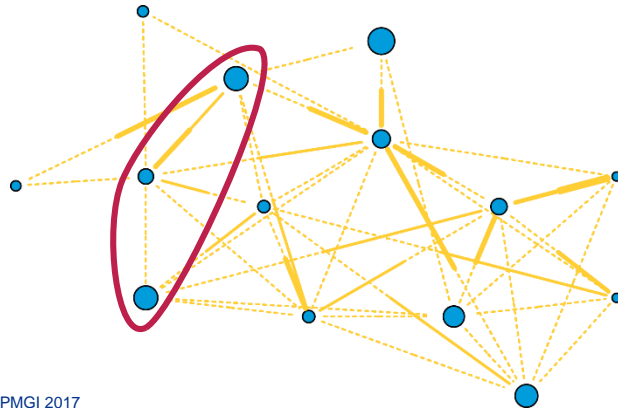


Source: KPMGI 2017

Volatility is the norm, and the past is no longer an indicator of things to come.

Why is the assessment of risk increasingly complex?

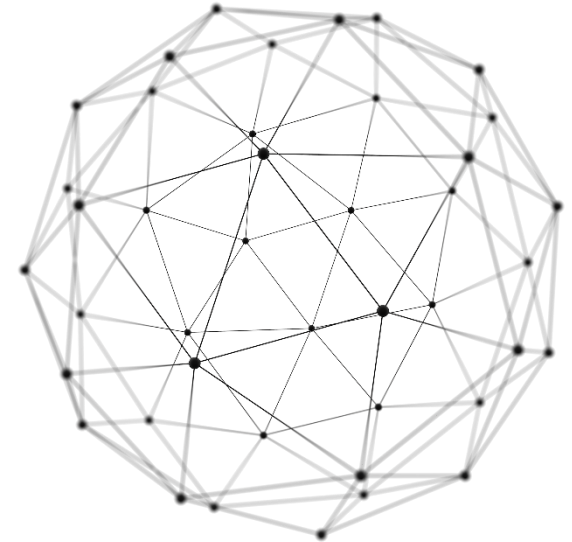
In a world where economic volatility is the norm, and the past is no longer an indicator of things to come, disparate events can become inextricably linked. This makes assessing risk exposure especially difficult because risk is unpredictable and contagious, and connected globally within complex organizational structures.



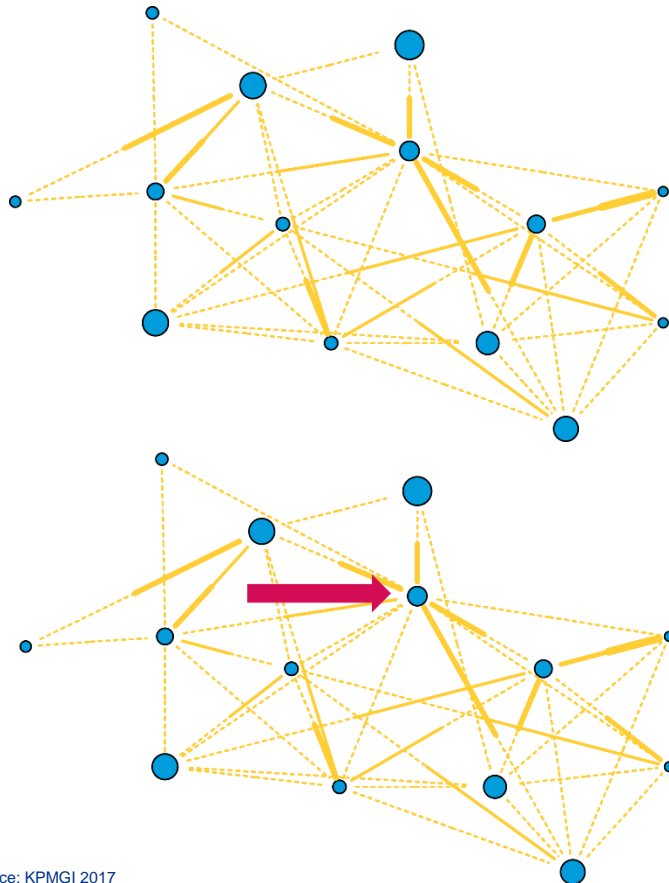
Source: KPMGI 2017

Certain risks connect more to each other than all other risks in the network, forming clusters.

We may have reached a tipping point where traditional, two-dimensional risk management methodologies that focus on single points of risk — with high likelihood and severity — may provide only limited value and insights in increasingly complex and globally interconnected organizations.



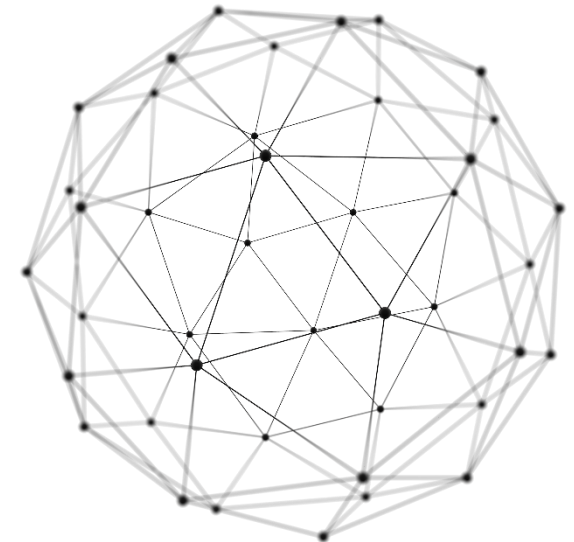
How does DRA actually make a difference?



Source: KPMGI 2017

Connectivity reveals the most contagious risk.

Combining the latest in applied science with insights from management, and extensive benchmarking, DRA modeling allows us to see where risks can be expected to form critical clusters or trigger 'contagion' with other risks. By exposing the expected contagion effects between global and enterprise risks, we can objectively measure the genuinely significant threats.





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