KPMG

Charting a safe and sustainable growth journey

Singapore Enterprise Risk Management Survey 2010

ADVISORY

AUDIT ▪ TAX ▪ ADVISORY

Foreword

The recent global financial crisis hammered home a painful but clear reminder that risk is pervasive, its impact can never be fully predicted, and it can also have far-reaching consequences sometimes affecting society at large.

While the concept of risk management itself is not new, globalisation and the increasingly complex business environment have made the management of risk more difficult.

Over the past decade, more companies in Singapore have adopted Enterprise Risk Management (ERM) and efforts continue to address various areas of risk in a coherent and consistent fashion.

ERM initiatives today therefore address a broader range of issues. Beyond the traditional ambit of finance and compliance, its implementation is also increasingly integrated into other business processes.

Risk management is therefore no longer a good-to-have but a must-have, and the importance of effective ERM programmes cannot be understated.

The recent financial crisis and series of corporate failures highlighted that ERM programmes existing in form rather than substance can lead to dire consequences. In an increasingly borderless business world, this impact may be felt both locally, and globally.

KPMG's series of ERM surveys are therefore undertaken to shed light on the state of ERM adoption in Singapore, and provide insight into how companies can improve their ERM programmes.

Our last survey in 2006 revealed that ERM adoption had jumped nine-fold from 2002. Another four years have passed, and it is therefore timely to determine if ERM adoption has taken yet another leap forward in Singapore.

We would like to thank all the companies that responded to our latest ERM survey, and hope that you will find the results of this latest survey interesting and insightful.

Irving Low
Executive Director
Head of Enterpise Risk Management Practice
KPMG in Singapore

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Executive summary

The recent financial crisis has underscored the importance of 'knowing one's risks'. While all risks cannot be totally eradicated or avoided, organisations employing risk management may understand the risks they face better and can take the appropriate action.

This survey was developed to identify the recent developments relating to ERM adoption in organisations across Singapore's private sector. It seeks to shed light on the focus and roles of the ERM function going forward.

The key findings of the survey are:

1 Overall, 78 percent of organisations surveyed have implemented or are planning to implement an ERM programme over the next one to three years. Of these,

- 51 percent of the companies surveyed had already implemented an ERM programme
- 27 percent of the companies surveyed are planning to implement an ERM programme within the next one to three years.

We therefore see an additional increase of 16 percent in ERM adoption now, in comparison to the 2006 survey where only 35 percent of the companies surveyed had implemented ERM.

2 In business management, ERM still plays a more tactical role rather than a strategic one. When asked about the extent of their ERM implementation effort, most organisations said that they had not fully implemented the key elements of an ERM programme:

- 29 percent of companies with an ERM programme have not defined their organisation's risk appetite
- 78 percent have not integrated risk management objectives with performance/remuneration
- 72 percent have not taken the effort to control risk mitigation costs.

Consequently, organisations maybe missing out on the more strategic benefits of ERM. The survey reveals that

- 77 percent of respondents expect their ERM programme to protect assets
- 26 percent see ERM as a means to seize opportunities, e.g. cost reduction, risk-adjusted business planning.

This suggests that ERM efforts are still focused on managing the downside risks, with only about a quarter reported benefiting 'to a large extent' from the more strategic and tangible benefits of risk management such as:

- improved decision making (26 percent)
- enhanced investor confidence (23 percent)
- reduced costs (9 percent).

This result is disappointing since the majority of companies that have implemented risk management programmes also have risk executives with direct access to the oversight committee/C-suite:

- 43 percent have a full-time Chief Risk Officer
- 54 percent have one or more full-time Risk Officers or equivalent positions at the managerial level
- 87 percent of the risk executives have direct access to the oversight committee/C-suite.

Organisations have to improve the effectiveness of their risk management executives by involving them in more strategic decision-making in order to reap the full benefits of risk management.

3 Risk management is still largely performed in 'silos' and more effort is required to drive ERM throughout all levels of the organisation. While 75 percent of respondents have appointed risk owners for identified risks, the responsibility for risk management often still resides at the top with the oversight committees and senior management.

- Only 34 percent of the companies said they have fully implemented initiatives to 'communicate ERM initiatives to all personnels in the organisation'.
- Only 27 percent have fully implemented a 'risk knowledge, management training and communication framework'.
- Almost half of respondents surveyed (43 percent) do not communicate the company's risk appetite across the organisation.

Anecdotally, we observe that most organisations that had implemented ERM have not integrated all associated risk-related functions to achieve a dashboard view of the risks on an enterprise-wide basis.

4 'People' are still the weak link in sustainable risk management practices. A large majority of respondents reported that the financial crisis has highlighted the need to improve in people-related areas of risk management including:

- risk knowledge and competency (93 percent)
- risk oversight and leadership (90 percent)
- risk communication across the organisation (87 percent).

Additionally, the survey revealed that the two most cited reasons for not implementing an ERM programme are due to the lack of qualified risk personnels and internal capabilities:

- lack of in-house ERM knowledge and expertise (51 percent)
- lack of internal resources/ manpower/budget (46 percent).

However, many organisations are planning to increase resources and focus on people to strengthen risk management capabilities:

- 42 percent of respondents intend to increase resources dedicated to risk management

Clearly, while the level of adoption of ERM in Singapore has continued to increase over the past four years, companies are still at an early stage of ERM development.

- enhancing risk culture across the organisation (e.g. through risk training) is ranked fifth of respondents' ERM priorities in the next one to two years.

Companies agree that softer issues such as corporate culture, values, mission and staff mindset are critical to the success of an ERM programme.

5 Companies with more mature risk management programmes feel more prepared to navigate in a more challenging risk landscape.

- Only 42 percent of respondents, overall, said that their organisation is currently able to manage its key risks to a large extent. In comparison,
- only 19 percent of the companies that have not implemented ERM believe they manage their key risks 'to a large extent'
- 31 percent of the companies that have implemented ERM for less than one year believe they manage their key risks 'to a large extent'
- 53 percent of the respondents whose organisation has had an ERM programme implemented for more than three years felt they are currently able to manage their key risks 'to a large extent'.

However more needs to be done. This is especially so since 89 percent of all respondents said that risks had increased over the past three to five years.

The survey revealed that the suite of benefits experienced from an ERM programme increases with the maturity of the ERM programme. The three areas where the highest increases are seen include:

- increase in the understanding of the risk universe and profile of the organisation
- reduction in operational surprises
- increase in risk management accountability.

6 Organisations that have implemented ERM agreed that it has helped them manage the uncertainties of the recent crisis. The crisis also highlighted the need to enhance and augment existing ERM programmes.

A large majority (91 percent) of respondents that have implemented ERM agree that it has enhanced their preparedness and resilience to the recent financial crisis.

A large majority of respondents also reported that this crisis revealed a need to improve in many if not all areas including:

- risk knowledge and competency (93 percent)
- risk oversight and leadership (90 percent)
- risk communication across the organisation (87 percent)
- risk management processes and tools (86 percent).

7 Companies are progressing towards aligning risk management with business growth and excellence.

This is evident in the ERM priorities revealed for the next one to two years:

- align risk management approach with business objectives (45 percent)
- integrate risk management into corporate management processes (45 percent).

However, companies still face challenges as risk management continues to be viewed independently from the day-to-day operations and extra time and effort is deemed necessary to manage risks. The key challenges faced by respondents in developing and sustaining an ERM programme are:

- lack of time and effort (58 percent)
- lack of support from senior management (52 percent).

Clearly, while the level of adoption of ERM in Singapore has continued to increase over the past four years, the level of adoption can still be regarded as being at an early stage of development.

Companies need to move beyond the 'form' of ERM and internalise the true value and spirit of establishing an ERM programme.

About the survey

Between October 2009 and early 2010, KPMG conducted this ERM survey in Singapore. This survey assesses the recent developments of ERM within private-sector organisations in Singapore. It also seeks to understand what organisations see as the role for ERM moving forward and what its likely focus could be.

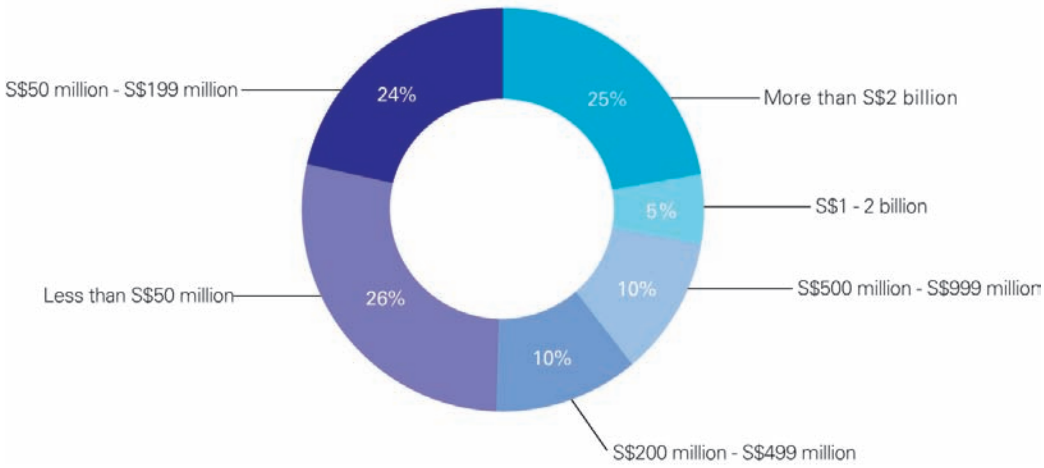
In all, 203 organisations participated in the survey. Participating organisations include both small and medium enterprises as well as major multinational companies operating in Singapore. Respondents surveyed primarily consisted of risk oversight members and those in the C-level suite:

- more than half (52 percent) were part of the senior management team
- a quarter (25 percent) were part of the company Board of Directors.

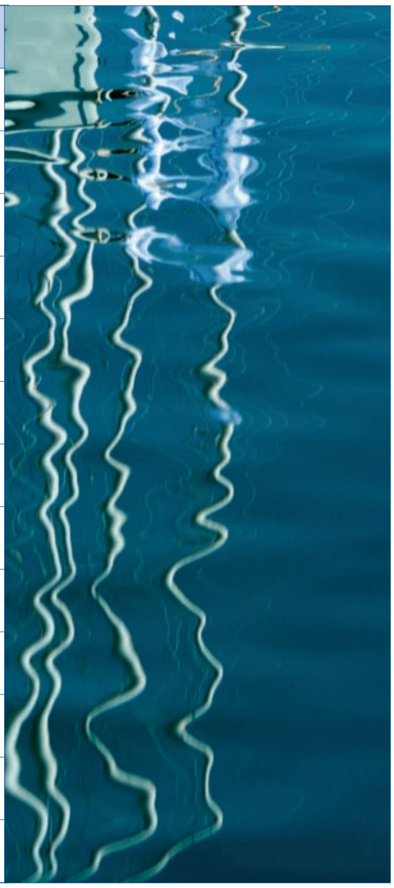
Organisations surveyed included a mix of publicly listed and privately held companies with operations both domestically in Singapore and internationally. In summary,

- 47 percent of the respondents represented publicly listed organisations
- 73 percent of the respondents were from organisations with international operations.

Respondents by global annual revenue



Respondents by industry	%
Manufacturing	17
Real estate/Construction	17
Financial services	15
Transportation/Logistics	7
Retail, recreation & tourism services	7
Trading & distribution	6
Oil & gas	6
Healthcare, pharmaceuticals and biotechnology	5
Information & communications	4
Utilities (Water/Waste/Electricity)	2
Education	1
Agriculture	1
Others	10



Current state of ERM

Recent economic conditions have spurred companies to re-think the adequacy of their risk management programmes. Almost 80 percent of respondents have plans to upgrade their risk management programmes.

ERM is being increasingly and broadly embraced in Singapore. Half of the respondents (51 percent) indicated that their organisation had already implemented an ERM programme, while a further 27 percent are planning to do so within the next one to three years. The implementation of ERM has grown significantly in the past few years from 35 percent in KPMG's 2006 survey, to 51 percent today.

Industry matters

In view of the recent financial crisis, we studied the state of ERM adoption in the financial sector. Among the financial institutions surveyed, whose sample comprise banks (25 percent), insurance companies (25 percent) and other financial institutions (50 percent):

- 61 percent of them have implemented ERM
- 29 percent plan to implement it within the next one to three years.

This result is quite disturbing in light of the recent financial turmoil which affected the sector badly.

Size and ownership matters

Rather unsurprisingly, the survey results suggest that ERM implementation is largely a function of ownership and size. Among publicly listed companies surveyed, 59 percent have implemented ERM. In comparison, 45 percent of the private companies have done so. Twenty percent of the public listed companies without an ERM programme today are not planning to implement ERM at all, which is alarming.

Seventy-eight percent of these publicly listed companies have communicated their ERM initiative to the entire organisation, indicating the

More companies are implementing ERM programmes

Year	Respondents who have implemented ERM
2006	35%
2009	51%
2012	78% (estimated)

Size and ownership matters

Of the publicly listed companies surveyed	
59%	have implemented an ERM programme
43%	currently manage their key risks to a large extent
78%	communicated their ERM programmes/ initiatives to all personnel in the organisation
20%	do not have an ERM programme and are not intending to implement one

The survey results show that publicly listed companies have become more effective in managing their risks and appear to take ERM more seriously when compared to the non-listed companies.

belief that ERM should be embraced by the entire organisation, and not 'left on the shelf'. Consequently almost half of these companies (43 percent) feel that they are 'effective' in managing their key risks. In comparison, this was 22 percent among private companies.

When ERM adoption is examined according to annual revenue,

- 73 percent of companies with more than $2 billion annual revenue have implemented ERM
- 26 percent of smaller companies with less than S$50 million annual revenue have implemented ERM.

However, a further 38 percent of the smaller companies plan to do so in the next one to three years. This is a clear indication that even the smaller companies are beginning to take interest in the potential benefits an ERM programme can bring.

Drivers for companies which have implemented ERM

By far, respondents in Singapore view ERM as a management tool, with nearly half of them (44 percent) identifying 'better management practice' as their organisation's primary driver to implement ERM. *(see diagram overleaf)*

This is a good sign as securing management 'buy-in' is crucial to successful ERM implementation.

Due to the fallout from the recent financial crisis, Audit Committees and Board members are under greater pressure to ensure that risks are properly identified and managed. It is therefore not surprising to see that satisfying the expectations of Boards of Directors/ Audit Committee comes second with 16 percent.

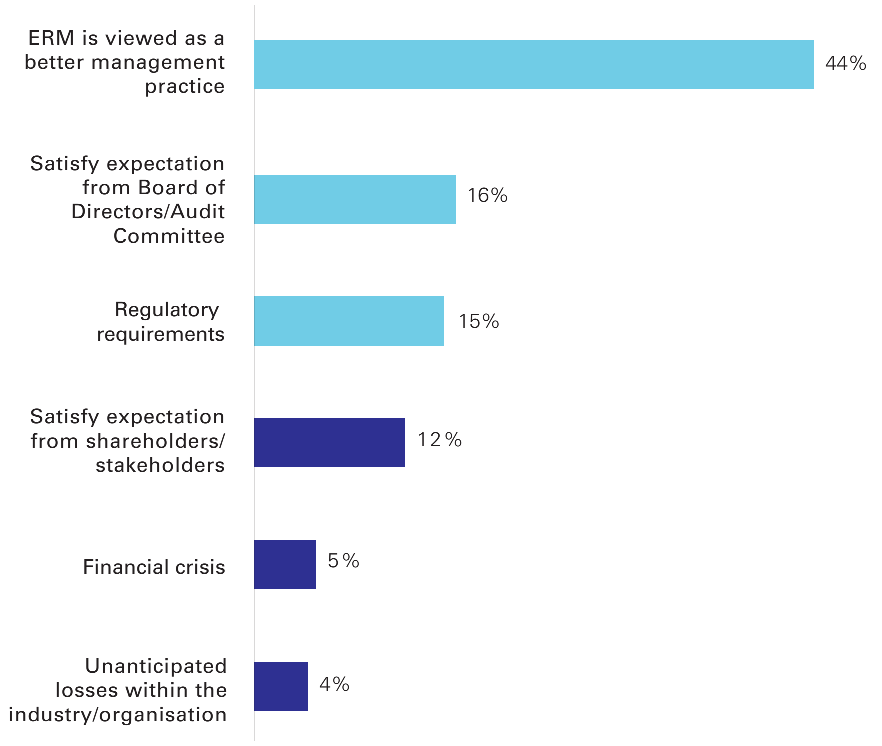
Forty-two percent of the publicly listed companies surveyed see ERM as a better management practice, while another 20 percent have developed a programme to satisfy requirements laid down by its Board of Directors or Audit Committee.

Surprisingly, only 10 percent of the publicly listed companies were driven to fulfil the expectations of stakeholders or shareholders. This raises questions about public accountability and risk transparency among listed companies.

Among financial institutions, the spotlight of the recent financial crisis, the drivers for implementing ERM are as follows:

- 40 percent of those surveyed see ERM as a better management practice
- 28 percent have implemented ERM to meet with regulatory requirements
- 11 percent of them have developed ERM only because of the financial crisis
- none have implemented ERM to satisfy Board of Directors or Audit Committees' requests.

Enterpise risk management drivers



The results seem to suggest that risk management is still not broadly viewed as a better management practice in the financial services sector. Many of them still view risk management as a necessary evil, or a knee-jerk reaction to the crisis. This casts doubts on the extent to which risk management is internalised in these organisations.

Our survey suggests that the emphasis of many ERM programmes among companies has been more tactical in nature, with a clear focus on managing the downside risks. When asked to rank the key objectives that respondents wanted to achieve when implementing an ERM programme, 77 percent said they expect ERM to protect assets.

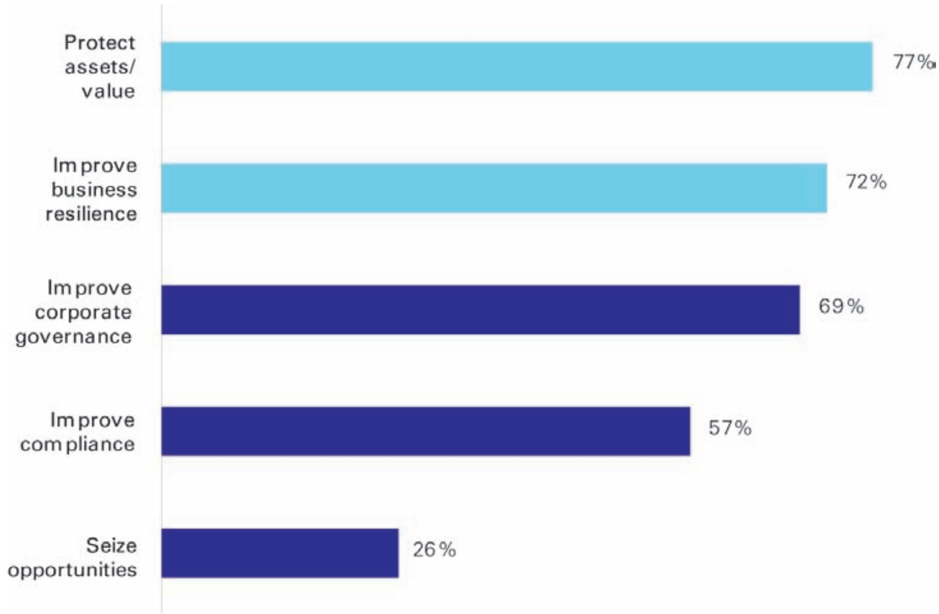
In comparison, only 26 percent see ERM as a means to seize business opportunities in areas such as business strategy and achieving cost savings. We can observe from the results of the survey that the expectations of ERM among publicly listed companies are fairly evenly distributed, with:

- 78 percent expecting it to protect business assets or company value
- 69 percent expecting it to improve corporate governance
- 67 percent expecting it to improve business resilience.

The same observation can be made for private companies, with:

- 77 percent expecting it to protect business assets or value and improve business resilience
- 70 percent expecting it to improve corporate governance.

Key ERM objectives



Barriers to implementing an ERM programme

The 2006 ERM survey revealed that obtaining the buy-in of senior management and corporate board members was the biggest challenge to implementing an ERM programme. Clearly, this is not the case today.

When asked to identify the reasons why their organisation were not implementing an ERM programme in this latest survey, the top three answers provided by respondents were:

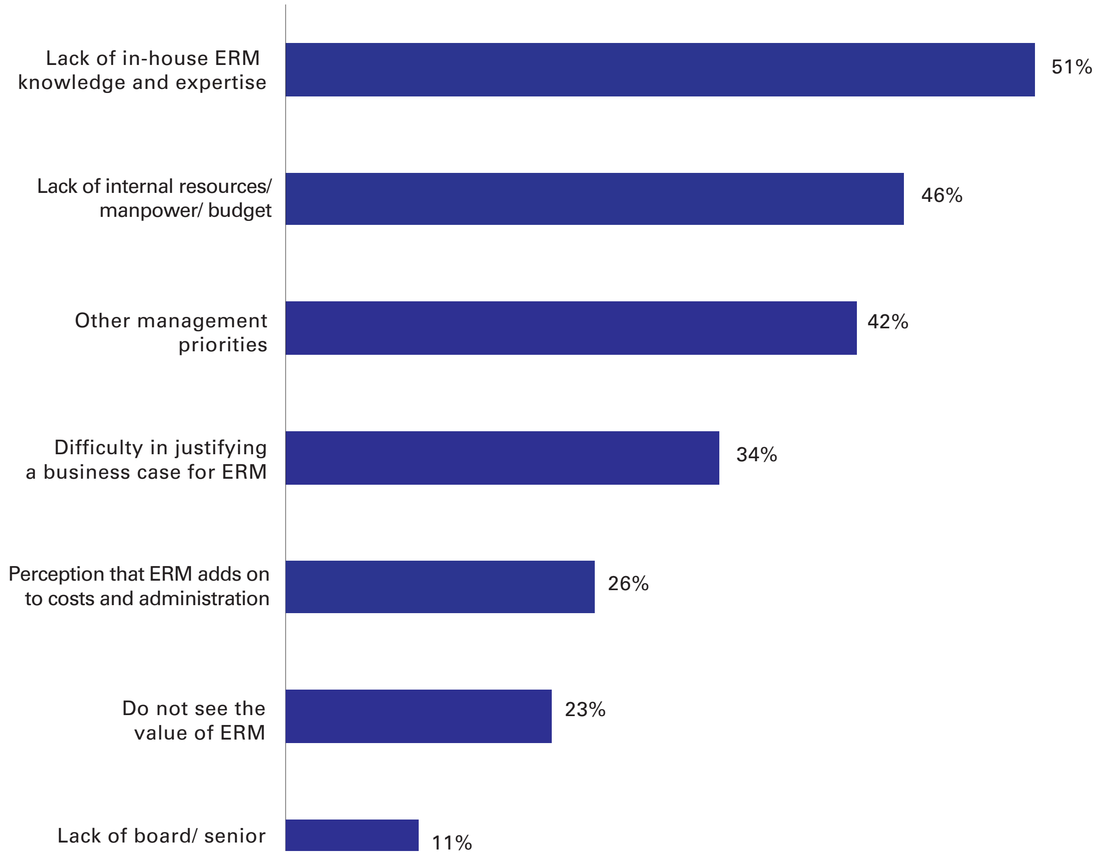
- lack of in-house ERM knowledge and expertise (51 percent)
- lack of internal resources /manpower/budget (46 percent)
- other management priorities (42 percent).

While the adoption of ERM has gained greater recognition and importance, the recent crisis has also caused most companies to think 'survival' and act 'short term', prioritising resources according to expected returns.

As trade slowed down and credit lines dried up, the focus on cost rationalisation likely diverted attention and resources away from ERM, supporting the finding that 'other management priorities' was the third most common reason for not implementing ERM.

The reasons for the lack of ERM expertise are less clear-cut, and probably vary from organisation to organisation.

Why companies are not implementing an ERM programme



Note | Respondents were asked to identify three reasons each, so percentages do not sum to 100%

While available literature on risk management (e.g. COSO ERM[1], ISO 31000[2]) suggests a wide range of features, attributes and 'how-to' guidelines for establishing an ERM framework, companies are often concerned about falling into the trap of 'over-engineering', (e.g. excessive documentation and failure to leverage existing management systems and processes). It is therefore important that the appropriate expertise and resources are used to customise an ERM framework that is fit-for-purpose, taking into account unique business models, industry idiosyncrasies, and organisational set-up and readiness.

To sustain an ERM programme and help it become widely adopted and embedded in an organisation, companies should:

- **clearly define** the objectives of implementing an ERM programme
- **communicate** the objectives to all the relevant stakeholders
- **establish** the right risk operating model in terms of people, process and systems which can facilitate the achievement of these objectives.

One way that companies can overcome the difficulties associated with implementing an ERM programme is through the help of professional advisors. Professional advisors can help design an ERM blueprint that lays down the initial foundation and prepare the roadmap which sustains the ERM programme.

[1] Committee of Sponsoring Organisations of Treadway Commission, ERM Integrated Framework (2004)
[2] ISO 31000:2009 (E), First Edition 2009-11-15

KPMG COMMENT

Your ERM investment: be focused

Risk management is no longer an option. Short term thinking – the lure of immediate gain, coupled with myopic perception, can cause people to focus on their objectives while neglecting the downsides from the possible risk.

This may lead companies to make badly calculated decisions which eventually jeopardise their long term sustainability. When financing and cost-cutting measures are at the top of a company management's agenda, they should nevertheless find cost-effective ways to kick start their ERM programme, managing their risks and giving it the attention it needs to help them protect and create business value.

Here are three key questions to consider:

1 Are you managing what really matters?

Define, clarify and communicate strategic thrusts and (emerging) influence factors that may affect your business.

By mapping identified risks to these objectives and factors, you can better focus on key risk exposures. This can increase your responsiveness to incidents and emerging issues.

Ultimately, managing what matters can enable a risk-based allocation of resources and avoid excessive controls or over-concentration of efforts in less risk-strategic or 'threatening' areas.

2 Is good risk behaviour encouraged and rewarded?

Avoid the 'not in my term of office' syndrome by encouraging and rewarding behaviour that seeks long term benefits.

Develop your performance appraisal and rewards system according to desired risk-taking behaviour. This includes a clearly defined promotion process, criteria and incentives which consider the individual's contribution and achievement in relation to risk and governance objectives.

Rewarding desired behaviour promotes sustainable organisational performance through effective and balanced risk-taking behaviour.

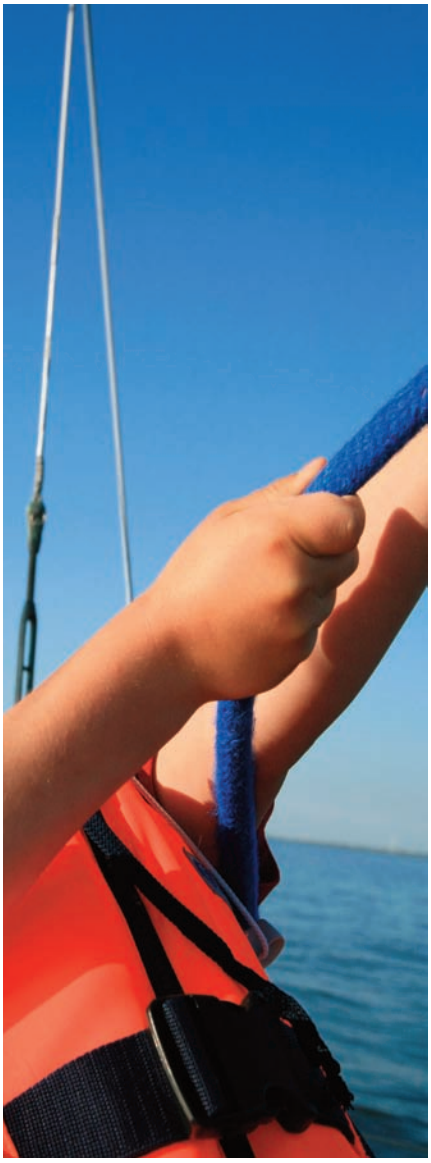
3 Does your ERM framework leverage existing IT systems and processes?

Expand your existing risk/Enterprise Resource Planning (ERP) systems to provide continuous monitoring capabilities and the timely escalation of events which may fall beyond your risk appetite and tolerance. This involves integrating key controls into your existing systems to achieve a single view of risks. This helps to share the costs associated with managing risks across an organisation, while increasing the effectiveness and quality of risk data.

LESSON FROM THE GROUND:

For a practical lesson on how to drive ERM adoption throughout the company, refer to page 33.

The risk suite



More companies are appointing personnels to dedicated risk management roles.

Oversight role

The vast majority of companies surveyed have assigned their risk oversight role to one of the following:

- Board Risk Management Committee (39 percent)
- Board of Directors (31 percent)
- Audit Committee (24 percent).

Only six percent of respondents indicated that they had not clearly defined and attributed the ownership of the risk oversight role.

This is a significant improvement from our survey results in 2006, where only 30 percent of the respondents who had implemented ERM had an oversight committee.

The improvement is a good indication of the relative importance that the directors in Singapore have since placed on effective risk management.

This is also in line with the Audit Committee Guidance Committee (ACGC) guidelines[3] (effective as of October 2008) where it is recommended that the Board adopts one of three models to fulfil its oversight responsibility:

a) the Audit Committee undertakes the oversight role

b) the Audit Committee with a separately constituted committee (e.g. Risk Committee) undertakes the role; or

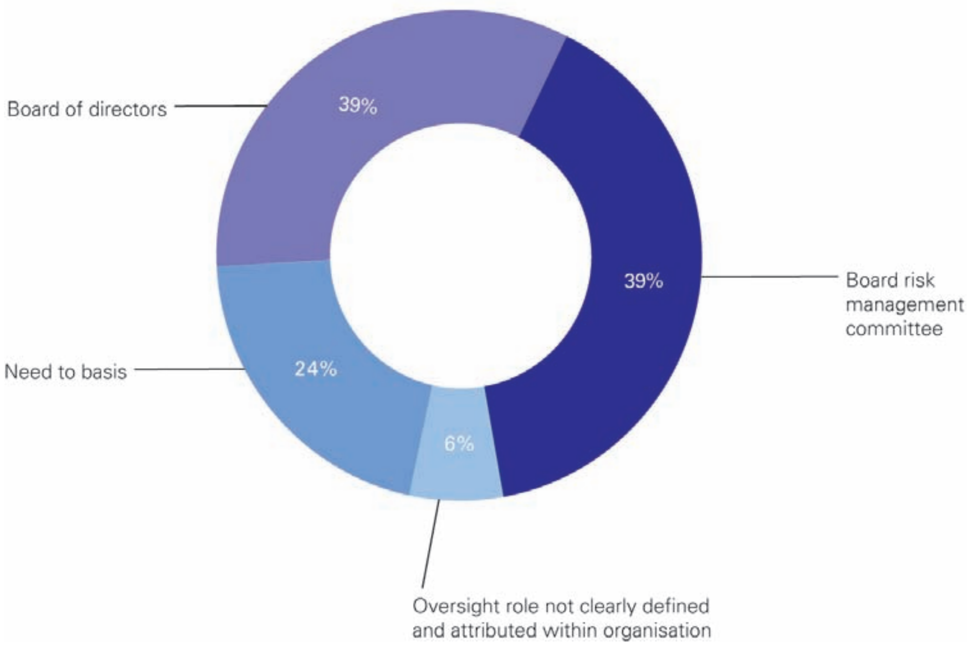
c) the Board itself review the adequacy of the company's risk management processes.

We understand that new proposed rules and guidelines such as those of the ACGC have heightened the awareness of risk management, and it is an important step towards embedding and institutionalising risk management.

We do not observe from the results of this survey a clear trend and relationship between the types of oversight committee that an organisation adopts (i.e. dedicated

[3] Audit Committee Guidance Committee Guidelines, issued in October 2008 by the Monetary Authority of Singapore, the Accounting and Corporate Regulatory Authority and the Singapore Exchange limited.

Responsibility for risk oversight role



risk committees or as part of Audit Committees) and the corresponding benefits that an organisation may reap. However, it has long been argued that the choice of the oversight body to undertake this role must dedicate adequate time to the risk management agenda. Risk oversight committees must give attention to risk management matters to promote the importance of a structured and disciplined approach to risk management that stands up to the scrutiny of regulators and investors.

More importantly, one of the key criteria to the appropriateness of the appointed risk committee is the composition of its members.

The composition of its members must provide a spread of knowledge and insights which provide management guidance over a wide range of issues from finance, to legal, and to operational issues.

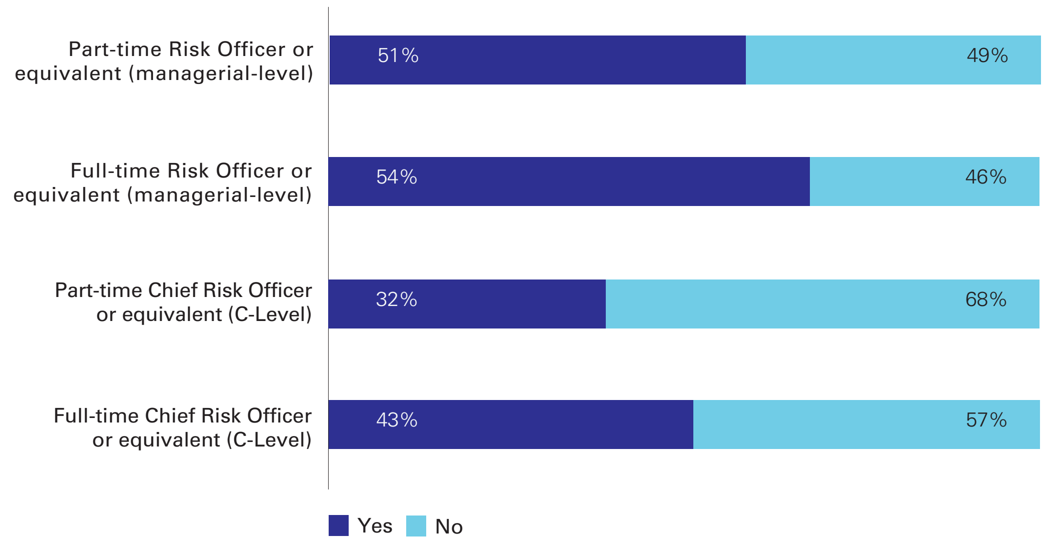
This is also in line with ACGC's 'better practices' that recommend that the risk oversight committee consider having at least one member with the relevant experience in order to effectively discharge its responsibilities.

When asked if oversight members have adequate risk experience and knowledge, two out of five respondents (37 percent) felt that their risk management oversight committees are not fully equipped with adequate risk experience and knowledge.

This indicates that there is room for improvement in terms of risk training and development to boost risk expertise in the boardroom.

Besides risk training, oversight committees must be encouraged to secure buy-in for ERM beyond the boardroom, through clear communication lines across the organisation and with shareholders and investors. The survey showed that only 34 percent have fully implemented

Risk related roles/committee in your organisation



initiatives to communicate ERM initiatives to all personnel in the organisation, and only 32 percent have fully implemented initiatives to disclose ERM programme to stakeholders.

Management role-Dedicated risk management resources

As companies further developed their ERM initiatives in recent years, a majority of them reported the establishment of a variety of dedicated risk roles (either part-time or full-time). A majority of respondents said that their company has appointed management-level risk committees (79 percent) and risk owners (75 percent).

Such committees and roles are important elements of ERM, as they enhance risk accountability and ownership, thereby reducing the likelihood of risks going unmonitored or unreported.

A significant proportion of the respondents also indicated that their organisation has a full-time Chief Risk Officer (CRO) at the C-level (43 percent) or full-time Risk Officers at the managerial Boards (54 percent).

This is another significant improvement over our 2006 ERM survey where only 31 percent of companies which had implemented ERM had appointed such roles.

Based on KPMG's extensive experience in working with organisations throughout the region, CEOs and boards have been struggling with the business case for appointing a dedicated risk executive.

This is especially so in economic booms where risk management has often been incorrectly viewed as the 'brakes' to speedy growth and expansion, and has often taken a back seat.

Dedicated risk management resources-appointment of risk managers

79% have appointed management-level risk committees

75% have appointed risk owners

In addition, assigning full-time roles for risk management reflects an organisational commitment to its management. It also recognises that managing risk requires dedicated attention that is often overlooked in past practices.

In the appointment of risk executives, CEOs and Boards should be reminded to keep the risk suite effective.

To be effective, risk management executives must be more than figureheads. Companies must empower risk executives, giving them direct access to decision-makers and involving them in strategic initiatives which will greatly improve their ability to make an impact to the company.

In our survey, while 87 percent of respondents said that their risk executives have direct access to their risk oversight committee and/or C-suite, the proportion of respondents whose risk executives are involved in strategic initiatives with the organisation is lower, at just 61 percent.

How are they running the show - Establishing a single view of risks

Companies with a Board Risk Committee are often the most diligent at carrying out formal risk reporting, with 78 percent of such respondents organising monthly or quarterly reporting. In comparison, this figure is 45 percent for Board of Directors and Audit Committees.

However, they should be cautious in developing a false sense of comfort based on the frequency of reporting. Beyond the parameters of what this survey can assess, the availability of quality risk information is critical to good risk management.

Such reports should provide the leadership and risk oversight members with a dashboard view of its key business risks to facilitate better decision-making.

They also need to establish a single dashboard view of risk, bringing together all activities related to risk management for centralised planning, coordination and reporting. This helps to implement a more cohesive, streamlined, cost-effective and integrated strategy for managing risks while establishing a common risk language.

It is heartening to see that slightly more than half (56 percent) of respondents indicated that their organisation coordinates or centralises all risk-related programmes and initiatives.

However more companies need to be convinced to do the same. KPMG's experience highlights that Boards struggle with an overload of risk information which makes it a challenge for them to focus on the key risk areas that the company is exposed to.

Managing risks at an enterprise level is easier said than done. While most companies can effectively manage their risks at the operational or division and department levels, they risk managing them in 'silos'.

'Divisional' and 'departmental' structures and hierarchy further amplifies this issue as it often limits the sharing of information that is important to breaking these 'silos'.

In fact, the more globalised and complex an organisation becomes, as opposed to a company operating in a single country, it becomes more critical to have an aggregate view of the organisation's risk profile.

The last global financial crisis, involving the failure of the largest financial institutions in the world, highlighted weaknesses in the risk aggregation process.

Post-mortem reviews highlighted that it was not a lack of risk management practices, but a case where risks across functions, departments, entities and subsidiaries across multiple jurisdictions were not aggregated or well understood at the Group level.

In short there was no 'single-view' of risks.

KPMG COMMENT

Who should be the risk manager

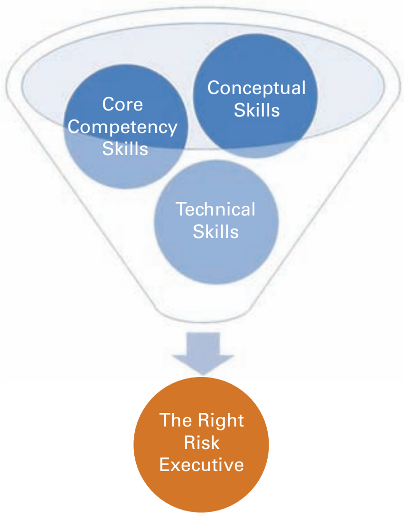
In order to establish a sound governance, risk and compliance environment, it is important for companies to understand the different risk roles and responsibilities in order to appoint the right person to the right role.

It is often tempting to appoint the internal auditor, the legal counsel, company secretary or compliance department to undertake the additional role of risk management due to their knowledge and close link with helping a company in managing its risks.

However, companies need to put in perspective the various lines of defence in an organisation to understand that risk managers are standard setters and should not become responsible for risk ownership or to undertake the assurance role.

The clear segregation of these roles is critical to maintain a healthy equilibrium between risk-taking and risk monitoring.

Considerations when 'right-sizing' the risk executive



Core competency skills

Interpersonal skills:
- Leadership
- Motivator
- Negotiations
- Consensus builder
- Team builder

Personal skills:
- Motivated
- Innovative
- Experienced
- Communication
- Consultative

Business skills:
- Accountancy
- Economics
- Finance
- Management
- Compliance
- Security
- Audit
- Behavioral
- Safety
- Legal
- Marketing
- Operations
- Statistics
- Human resources
- Information technology

Conceptual Skills:
- Planning
- Organising
- Decision-making
- Management process
- Ethical judgment
- Strategic thinking

Technical Skills:
- Risk analysis
- Risk management process
- Controls management
- Risk financing
- Project management
- Insurance knowledge

The three lines of defence:

A perspective to align risk roles and responsibilities

1 First Line of Defence
Business Owners

Risk Content Ownership

- Manage risks/implement actions to manage and treat risk
- Comply with risk management process
- Implement risk management processes where applicable
- Execute risk assessments and identify emerging risk

2 Second Line of Defence
Standard Setters

Risk Process Ownership/ Monitoring

- Establish policy and process for risk management
- Strategic link for the enterprise in terms of risk
- Provide guidance and coordination among constituencies
- Identify enterprise trends, synergies, and opportunities for change
- Initiate change, integration, operationalisation of new events
- Liasion between third line of defence and first line of defence
- Oversight within certain risk areas (e.g. credit, market) and in terms of certain enterprise objectives (e.g. compliance, regulation)

3 Third Line of Defence
Assurance Providers

Risk Process and Content Monitoring

- Liaise with senior management and/ or the Board
- Rationalise and systematise risk assessment and governance reporting
- Provide oversight of risk management content /processes, followed by second line of defense (as practical)
- Provide assurance that risk management processes are adequate and appropriate

Progressing in your ERM journey

Companies in Singapore are not at the end of the road in their risk management journey. In fact, the outlook is that Singapore companies look set towards advancing to a more mature state of risk management.

However, they need to stay prepared and vigilant to avoid the pitfalls of the unknowns in making ERM effective.

ERM in Singapore-a work in progress

ERM enablers are still at a relatively early stage of development. This is reflected in companies' focus on implementing the basic elements of an ERM programme, and not the more 'technical' or 'controversial' aspects of risk management. These include risk quantification, risk and risk-based remuneration policy.

Only slightly more than half of the companies which have implemented ERM said they have fully implemented the more basic elements of an ERM programme such as:

- documentation of key risks (54 percent)
- formalisation of a risk reporting structure (54 percent) and
- establishing a structured and disciplined approach to identify and manage key risks (56 percent).

The percentage of respondents which have fully implemented the more advanced elements of an ERM programme drops significantly to less than 30 percent, clearly indicating that ERM in Singapore is a work in progress. *(Refer to the Appendix for a full list of the ERM implementation efforts.)*

To respond to the ever-changing business environment, the culture of risk management must be encouraged across an entire organisation – forging a truly 'enterprise-wide' risk management.

From our experience, ERM is sometimes implemented to 'showcase' that a risk management framework or policy is in place. This eventually results in a case where ERM programmes become merely 'form' over 'substance'.

Everyone is responsible for risk management-People as your engine of change

Managing risks should not remain the responsibility of a few. To respond to the ever-changing business environment, the culture of risk management must be encouraged across an entire organisation-forging a truly 'enterprise-wide' risk management.

The success of an ERM programme will likely be gauged by the level of risk knowledge, competency and adoption reached within the companies.

Companies must expect investments in both time and effort for educating and training all personnel if they are to effect change and overcome any resistance.

Only then, can they instill a corporate-wide culture where risk management is everyone's responsibility, and risk decisions are made in a more coordinated and consistent fashion.

Most companies have recognised this deficiency, and 93 percent of the respondents feel that the recent financial crisis has highlighted the need in their organisation to enhance risk knowledge and competency.

Enhancing risk culture in an organisation (e.g. through risk training) is ranked fifth by respondents among their organisation's ERM priorities over the next one to two years.

As risk-taking activities increase due to pressures to ensure the creation of stakeholder value, inculcating the right risk behavior across an organisation is paramount.

The illusion of control resulting from over-confidence, coupled with short-term thinking can cause people to focus on the 'upside' risks while neglecting the 'downside' risks, thereby jeopardising the long-term sustainability of businesses.

Beyond forging a new culture of risk awareness, providing guidelines on the company's risk appetite is equally important in promoting healthy risk-taking.

Organisations' ERM priorities in the next 1-2 years

Rank	ERM priorities
1	Align our risk management approach with our business objectives
2	Integrate risk management into corporate management processes (e.g. corporate planning, budgeting, forecasting)
3	Improve risk assessment methodology/framework and/ or re-assess key risk exposure
4	Review/audit effectiveness of risk management programme
5	Enhance risk culture across the organisation (e.g. through risk trainings)
6	Integrate risk management objectives into Key Performance Indicators
7	Perform risk management forecasting, testing and scenario planning
8	Re-define risk management roles and responsibilities
9	Use IT systems and tools to embed ERM
10	Re-articulate and communicate risk appetite
11	Analyse inter-relationships of risks and develop a portfolio view of risks
12	Align and coordinate fragmented risk-related programmes/functions
13	Improve quality and frequency of reporting of risk information to stakeholders
14	Establish or develop a dedicated risk function

Our survey showed that 71 percent of the respondents with ERM programmes have established their risk appetite, but only 57 percent have communicated the risk appetite across the organisation.

This lack of communication may explain why the key benefits of 'healthy risk-taking behaviour' and the 'alignment of risk appetite to strategic objectives' have not been realised by some respondents.

While 86 percent of companies agreed that the recent financial crisis highlighted the need to review risk appetite, articulating and constantly communicating risk appetite is far from being a top priority for many organisations.

If defining a company's risk appetite is the foundation of an ERM programme so as to establish a common and consistent approach to risk-taking, the lack of urgency to communicate a company's risk appetite points to an alarming situation.

Companies need to build greater confidence as they navigate a more challenging and complex risk landscape

Despite the increase in ERM adoption in Singapore and relatively

LESSON FROM THE GROUND:

For ideas on developing a risk-aware culture, refer to page 35.

Companies with more mature ERM programmes are more able to manage risks

Respondents who said that they have managed their key risks 'to a large extent'.

19%	Among companies without an ERM programme
31%	Among companies with a one year old ERM programme
53%	Among companies that have implemented an ERM programme for more than three years

robust risk management frameworks, overall, only 42 percent of the companies surveyed are confident of their preparedness in navigating the increasingly challenging risk landscape and business environment. This number fell to only 19 percent for companies which have not implemented ERM.

Of the companies that adopted ERM, the figure increases to 31 percent for companies which adopted ERM for one year, and climbed to 53 percent among those which have implemented ERM for more than three years. This demonstrates that the effectiveness of ERM in helping companies manage risks increases as companies gain experience in ERM.

The overall lack of confidence in risk management capabilities is no surprise, in light of the relative early stage of development of ERM in Singapore, and the emergence of what many perceive to be an increasingly risky business environment.

The types and complexity of risks have increased in recent years, possibly reaching an all-time high.

Seventy-six percent of respondents said that risks had increased over the past three to five years, and a further 13 percent felt they had increased 'significantly'. The recent financial crisis also reminded companies that risks evolve, and its impact today is more far-reaching than it used to be.

LESSON FROM THE GROUND:

- For tips on how to right-size your risk appetite, refer to page 37.
- For tips on dealing with uncertainties, refer to page 38.

A riskier business environment

76% respondents said that risks had increased over the past three to five years

13% felt that risks had increased 'significantly'

26% said they do not continously flag, monitor and report on new and emerging risks

However, we still find that one quarter of companies do not continuously flag, monitor and report on new and emerging risks.

When asked about the typical types of risks companies may face today and in the future, we observed that the top five emerging risks are generally less controllable as compared to the risks companies face today. This trend, against the backdrop of a less than optimal state of risk management, suggests that there is no room for complacency; companies need to re-focus their ERM efforts in order to stay vigilant.

In fact, the need to codify some of the past risk management guidelines and make them mandatory is becoming more real.

In the past, regulators have encouraged the adoption of better risk management practices, rather than mandating them.

However more recently, regulators in Singapore are re-looking at how such guidelines may be refined further. Proposals include the Singapore Code of Corporate Governance, and changes to the Company's Act and SGX listing manual. The Monetary Authority of Singapore (MAS) has in 2010 issued

Key existing and emerging risks

Rank	Existing	Emerging
1	Competition (e.g. new competitors/non-traditional entrants)	Prolonged economic downturn
2	Prolonged economic downturn	Legal and regulatory risks (e.g. contracts, intellectual capital issues, labour and safety)
3	Product risk (e.g. product liability, changes in consumer demand)	People (e.g. key man risk, recruitment, retention and grooming)
4	People (e.g. key man risk, recruitment, retention and grooming)	Competition (e.g. new competitors/non-traditional entrants)
5	Market risks (e.g. interest rate, foreign exchange)	Increasing operating costs

a consultation paper seeking feedback from the public with a focus on risk management.

Companies need to move towards value-driven and sustainable risk management efforts to derive greater benefit

Companies in Singapore have certainly made progress in the implementation of risk management since 2006. They have thus benefited from their investment in ERM. The three key benefits of ERM programmes cited by respondents are:

- increased understanding of the corporate risk universe
- enhanced risk awareness culture
- increased risk management accountability.

Most of the benefits are relatively less tangible and strategic in nature. This finding ties in with the risk managers' expectations for their risk management programme where:

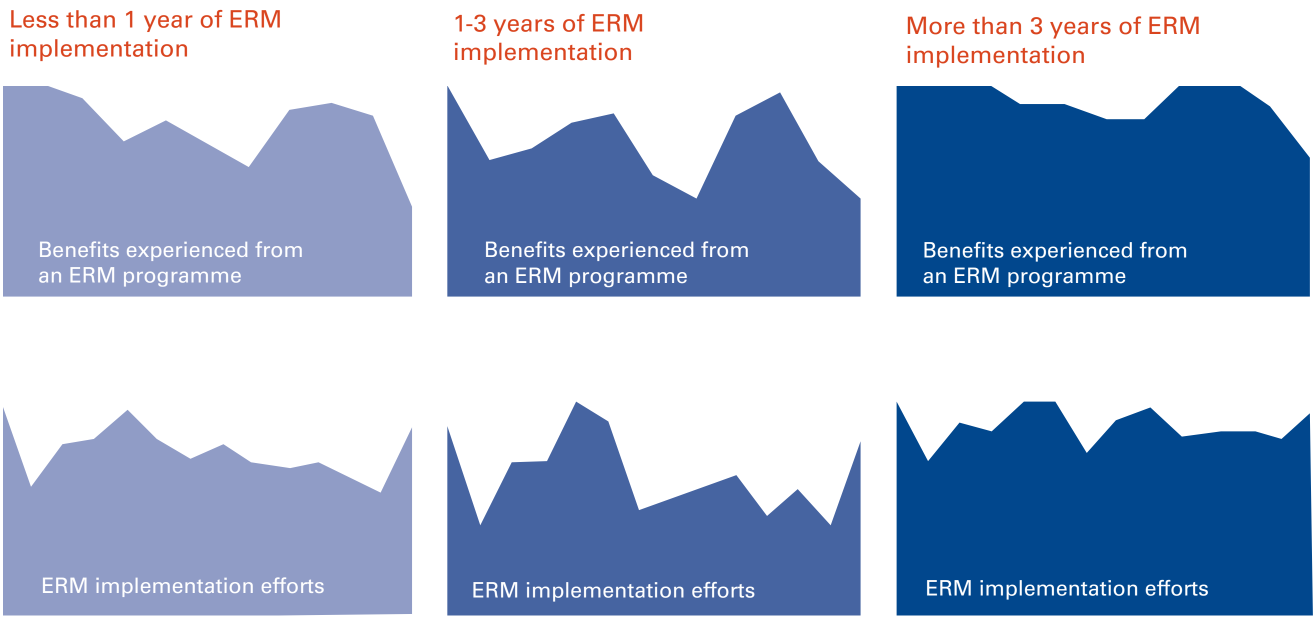
- a majority of the respondents (77 percent) are looking at using ERM to protect assets.
- only 26 percent are using ERM to seize strategic opportunities.

More needs to be done to move towards value-driven and sustainable risk management efforts to derive greater benefits, such as cost reductions and enhanced investor confidence.

ERM is not a 'quickfix' for operating in a business environment that is increasingly fraught with risks.

Instead, it should be viewed as a long-term commitment which will evolve hand-in-hand with the business, both in terms of the effort required and the returns achieved.

ERM benefits increase as ERM matures



Note | Refer to Apendix II for charts of ERM implementation efforts and benefits.

As organisations move along the maturity continuum of ERM, the suite of benefits derived from ERM often increase significantly.

ERM maturity and benefits reaped

The diagram above reflected that companies surveyed gained from a suite of benefits immediately within the first year of implementation, before benefits take a 'dip' in the second and third year. However, when ERM implementation enters its fourth year, a significant increase in the benefits experienced can often be observed. This is an interesting trend that resonates with our experience.

Organisations often experience 'quick-wins' during the first year of ERM implementation. Some of these include:

- an increased understanding of the risk universe or risk profile of the organisation
- reduced operational surprises
- increased risk management accountability.

As organisations enter their second and third year of ERM implementation, it appears from the survey that it is harder to sustain the pace of the initial risk management effort while enjoying a fuller suite of benefits in a truly 'enterprise-wide' manner.

The danger is that companies either do not see the progress they were hoping for, or they are satisfied with the progress they have made and have become complacent. This false sense of confidence ultimately holds back companies from achieving a more robust ERM programme and its associated benefits.

Challenges faced in developing and sustaining an ERM programme included a lack of time and effort, lack of support from senior management, and the difficulty of demonstrating tangible value.

At this stage, an exponential effort and investment into building risk management capabilities across the organisation becomes necessary to break down the 'horizontal' and 'vertical' silos within the organisation.

As horizontal silos are broken down, companies are able to reap the advantages of a coordinated ERM programme across all business units, with departments working together and sharing information.

When vertical silos are broken down, ERM effort can permeate all levels of the organisation. This drives ERM awareness, accountability and buy-in all the way from the Board and senior management, which is where ERM programmes often originate, down to middle management and operational staff.

In order to achieve this, an organisation requires a senior sponsor and an aggressive driver (risk executive) for ERM, to push the risk agenda amidst the competing management priorities.

With a lack of this, many organisations may never experience the full suite of benefits. Challenges faced in developing and sustaining an ERM programme included a lack of time and effort (58%), lack of support from senior management (52%), and the difficulty of demonstrating tangible value (51%). Until companies overcome the first two hurdles of prioritising risk management and gaining support from their senior management, companies will constantly struggle to find tangible value from their ERM programmes.

KPMG COMMENT

Getting the most out of your risk management investment

Companies often find it easier to assess the effectiveness and return from ERM in qualitative terms.

Nonetheless, it is very unlikely that a qualitative valuation of ERM returns will suffice to convince company management of the business case in ERM. This is especially so when in the minds of business leaders, these returns should be measured in dollar value.

Some companies have been successful to an extent in translating a quantitative value by measuring ERM returns in dollar savings or quantifying 'better decisions' in terms of more favourable insurance premiums. Others have measured it in terms of how it has lowered the potential for financial loss.

By and large however, discussions with risk practitioners suggest that many still find it challenging to justify its tangible value.

This is exacerbated by the fact risk management is often limited to playing a side role in the decision-making process.

In fact, no matter how rational a risk-adjusted decision may be, businesses seeking to maximise profits often view risk management as a stumbling block to capitalising on opportunities.

Providing more value

Synthesising risk information to drive down costs

One way that risk management can bring more tangible value to the business is by integrating and rationalising risk-related programmes within an organisation. Risk information can then be synthesised, thereby providing management with better risk information and at the same time reducing the cost of managing risk.

Drive value through continuous improvement process

In some sectors, we have also witnessed how redesigning and streamlining the value chain is

crucial to better risk management. Examples include the healthcare and services industries.

Through a continuous improvement process and a better understanding of what drives value within the organisation, risk management can help fill gaps that if left unattended, bring risk to the delivery of value, or even destroy it.

Reducing the chance of another fatal mistake

Performing root cause analysis of an incident or event can also provide feedback into the risk management system. It also often forces businesses to re-think the way their processes are performed and thereby reducing the chance of yet another fatal mistake.

Reducing the costs of capital

Around the world, credit rating agencies are increasingly integrating risk management into the credit risk ratings assessment of non-financial institutions.

An ERM programme can thus influence a company's ability to acquire external funding, and thereby reduce its cost of capital. This reduction in borrowing costs can be quantified and attributed to risk management initiatives.

Understand your risk appetite to reduce costs

Understanding the risk appetite and hence the extent of unmitigated risks puts companies in a better position to leverage insurance deductibles. This can be done if companies know how much risk they can afford to assume and what proportion may be financed externally. It can eventually reduce risk financing costs and avoid unnecessary redundancies in coverage.

Taking such an approach to risk management goes a long way in demonstrating long-term value to the operational effectiveness of an organisation.

Moving towards risk management excellence and sustainable growth

ERM has done well in supporting the business objectives of many organisations. A large majority (91 percent) of respondents which have implemented ERM agreed that ERM had enhanced their preparedness and resilience to the recent financial crisis. This suggests that ERM should remain a priority.

As we emerge from the economic crisis, the key to growth is sustainability. Consequently, ERM frameworks need to grow in tandem with business growth plans to ensure sustained performance by taking calculated risks.

A healthy trend is seen as many companies have indicated they would make it a priority to:

- align risk management approach with business objectives and
- integrate risk management into corporate management processes such as corporate planning, budgeting and forecasting.

These priorities are backed by plans to invest in ERM efforts:

- maintain spending on ERM (56 percent)
- moderately increase spending (40 percent).

This point towards attempts by many companies to keep ERM relevant and meaningful to their business.

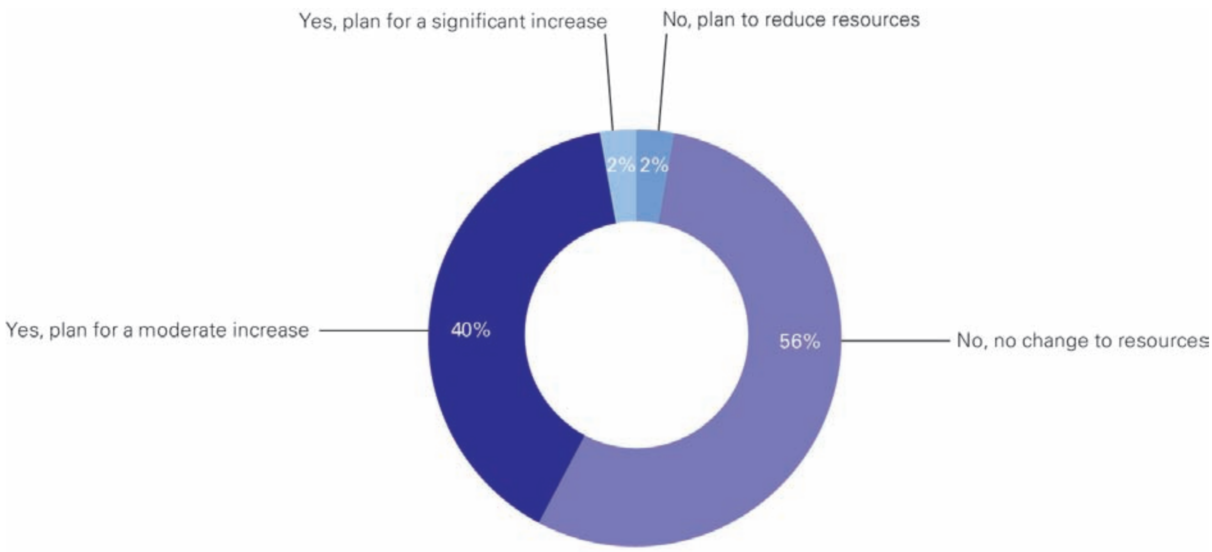
Some initiatives to explore include:

1) **embedding risk management** in the organisation's day-to-day operations.

2) **change management**, which includes:
   - targeted change strategies taking a real impact on all stakeholders, internally and externally
   - programmes to educate all personnel on acceptable risk-taking behaviour.

3) **people and capability management** to build credentials in risk management.

Do you plan to increase resources to strengthen risk management capabilities within the next one to two years?



Some factors to consider include:

- the choice of risk executives
- the effective use of risk executives
- boardroom training
- quality control of risk data
- the appropriate use of risk tools and systems within the organisation.

Conclusion

There are greater demands being made for robust corporate governance and risk management practices both in Singapore and abroad.

The need for an integrated governance, risk and compliance framework is thus not just here to stay, but has to continually demonstrate value and eventually enhance shareholder value and confidence.

The response from the international business community to these challenges can be seen from the recent establishment of ISO 31000[4] standards (better ERM practices) and the Standard and Poor's 'consideration' of risk management in credit ratings for non-financial institutions.

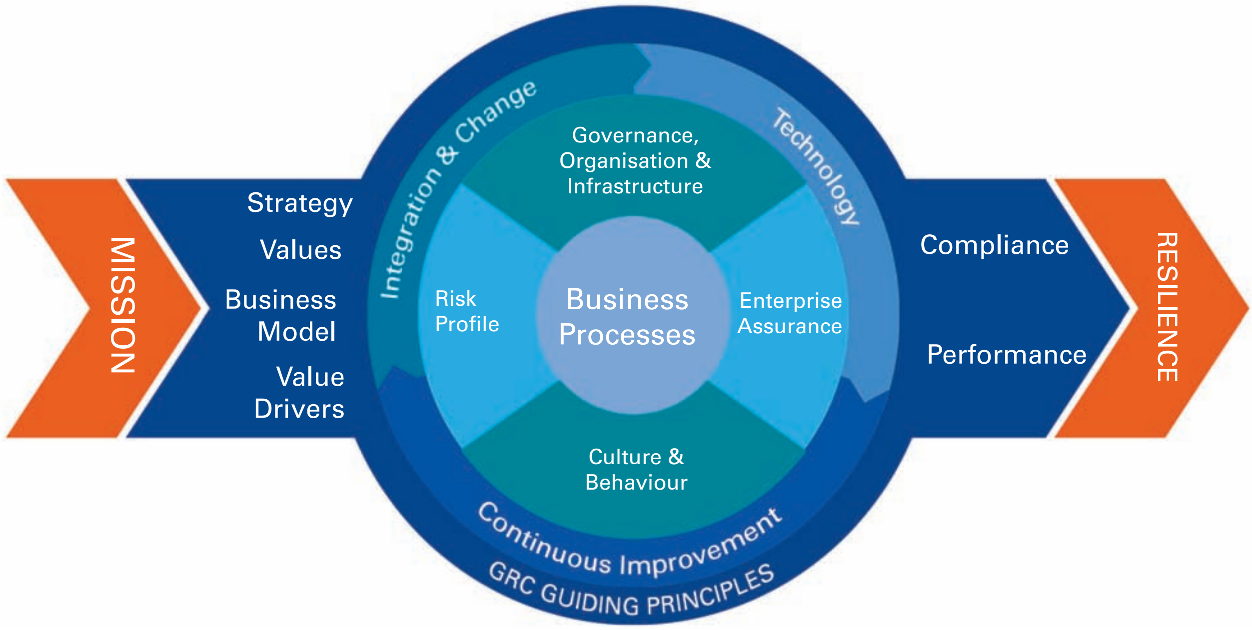
These developments demonstrate the need for risk management activities to take the 'front-seat' and not the 'back-seat'. The spotlight is thus on risk management, and why it needs to be a key agenda item at the board level.

In December 2009, the SGX released a consultation paper proposing changes to the listing rules. The proposed changes require Audit Committees to provide an opinion on the status of internal controls and risk management in their company.

More recently, the MAS proposed enhancing the code of corporate governance for financial institution, signalling a key focus on governance and risk management.

[4] ISO 31000:2009 (E), First Edition 2009-11-15.

Making it happen - KPMG Holistic Model - People, Process, Tools



It appears that Singapore companies are moving in the right direction for building business trust and confidence.

Yet, companies can do much more to increase the performance of their ERM programmes and the odds of its success.

The key to a sustainable ERM journey is to start with the objective in mind and define the right risk operating model.

Thereafter, complement this with incremental but 'bite-sized' efforts to take the journey in the right direction.

Although the survey suggests that there is a genuine willingness to achieve ERM maturity and sustainability, many companies are uncertain where to begin. The framework here is designed to provide a clear structure to help companies align their people, processes and tools in support of their ERM effort.

The first step is to link ERM with the mission of your company, including:

- **Strategy:** What do we want to achieve?
- **Values:** What do we stand for?
- **Business model:** How do we organise?
- **Value drivers:** What factors influence your company's success?

The business processes are at the core of the company and should have strong controls and reporting capabilities. Surrounding the business processes (and the GRC operational model) are four key components that must be balanced to enable resilience.

- **Risk profile:** understanding and quantifying risks facing the company.
- **Culture and behaviour:** embedding risk management within everyday behaviour.
- **Governance, company and infrastructure:** giving oversight of business processes and decision-making.
- **Enterprise assurance:** evaluating, monitoring, and reporting on the effectiveness of controls.

When the various elements of the model are working in harmony, a company should achieve the necessary compliance and continuously improve performance. This can help it move towards the goal of resilience, which puts it in a strong position to be able to deal with ongoing change and adapt quickly to unforeseen circumstances.

[5] ISO 31000:2009 (E), First Edition 2009-11-15.

Appendix I & II

I. Lessons from the ground

Lesson 1: Driving ERM adoption

Lesson 2: Developing a risk-aware culture

Lesson 3: How to right size your risk appetite

Lesson 4: Dealing with uncertainties

II. Supporting results from the survey

Appendix I: Lessons from the ground

Lesson 1: Driving ERM adoption

An interview with a risk practitioner

This following is an interview conducted with a risk practitioner from a company with interest in transport services.

How did you drive ERM adoption throughout the company?

Before we started the formal risk management process, bits and pieces of risk management were already in place in some areas of the business. This includes buying insurance, hedging, managing business disruptions, etcetera. We had different pockets of people managing all the different categories of risks. The challenge was to get the various business functions to shift from what was essentially silo-based risk management to a coordinated, enterprise-wide risk management effort.

This was achieved by formalising the processes for integrating and cascading risk management across the company, and enforcing their adoption.

The risk management group now gets reports from the different departments and integrates them into a true ERM strategy. But beyond just coordinating risk management, we also looked for gaps—areas where risks are not being managed—and then worked to fill the gaps. We focused on making sure that each area of the business has a clear and effective plan to remain resilient when a risk incident occurs.

What is your colleague's attitude towards risk management?

It is generally quite positive. The key for the risk management department is to show that we are listening, understanding, and then providing useful value-added methodologies. Do not behave like the police; get your hands dirty to help users find value.

What were the challenges in implementing ERM?

A lot of people talk about push-back when trying to bring in ERM, but for us it was more a case of lacking buy-in.

We had support from the Board and senior management, but further down, people felt they did not have the time or resources to take on more risk management responsibilities. This was largely because they did not understand the benefits of it. Fortunately, we had successes that showed how ERM can add value. For example there was an instance where a shortage of resources had resulted in a person taking up risks that he should not have. We saw the criticality of the issue and highlighted it to the management. Management agreed overnight they could add to their headcount; and it worked great. We saw much wider acceptance and buy-in for the ERM programme after that.

Is it a challenge to demonstrate the tangible financial benefits of your ERM investment?

Yes, this can be tricky, especially if you are talking about clearly defined financial benefits. An example is the idea that a good risk management programme should result in lower insurance premiums.

While this may be the case, with premiums dropping 10 percent or so, the insurance company will not itemise the reason for this reduction in premium. So for risk management to claim that they have saved the company 10 percent on its insurance costs can be difficult.

Our management is still realistic at this point and they are not insisting on financial returns. At the end of the day, our main focus is to use ERM to help the organisation become more resilient and prepared.

Finally, what advice will you give to companies that are just embarking on an enterprise risk management programme?

There are a lot of companies who are focused on following risk management standards-the latest being ISO31000. They are very generic and can be restrictive and not suited to the needs of every organisation. You should try to avoid a form filling exercise.

Risk management should be practical and value-adding. In our case, we took a pragmatic approach. We identified the risks, evaluated and prioritised them and then we managed the risks.

Lesson 2: Developing a risk-aware culture

A case study

A conglomerate with its main businesses in the offshore and marine, property and infrastructure sectors has had ERM practices in place for about nine years. In this time it has built a successful ERM programme which has brought significant benefits to the company.

Early in its ERM journey, the company faced significant resistance from staff to make changes required for implementing ERM practices. A common understanding of risk within the company was also lacking.

These two challenges were overcome by establishing a common risk language across the company, and by educating staff.

For example, new staff had to attend ERM seminars – a practice that the company continues today. The results, while not immediate, were noticeable. Resistance to ERM declined and staff accepted the need for risk management.

Having overcome these initial challenges, ERM is now a part of all areas in the company's operations. It has been embedded throughout the organisation, so that all personnel from middle management upwards have specific ERM responsibilities. Specifically, every initiative or project now has a risk register that is monitored and updated regularly and ERM also forms part of its balanced scorecard evaluation.

Today, the company's ERM practices are very much focused on processes, rather than on setting specific risk limits for every possible situation.

By building ERM into all its processes, the company has ensured that risk awareness and ownership is shared by all within the company and is not concentrated within a small group responsible for monitoring its limits.

With a successful ERM programme in place, the new challenge lies in both sustaining and evolving its ERM practices. To achieve this, the company believes it needs to avoid complacency and continue improving its communication about the importance of ERM within the company so that ERM remains relevant to the organisation.

Cultivating a risk aware culture

First steps

Secure buy in from stakeholders by:

- defining risk appetite
- establishing a common risk langauge and communicating risk appetite.

Next, encourage risk ownership and break down silos

Establish a single view of risk, bringing together all activities related to risk management for centralised planning, coordination and reporting.

- Set up a centralised risk reporting register for risk owners to update.
- Incorporate risk management indicators into employees' performance and rewards system.
- Communicate the benefits to all staff members and senior management.

Finally, sustain the ERM programme

Avoid complacency and continue to improve and communicate the importance of ERM by:

- continuously monitoring risks
- diligently performancing root cause analysis to an incident/event-this provides feedback into the risk management system
- quantifying and communicating risk management returns.

By building ERM into all its processes, the company has ensured that risk awareness and ownership is shared by all within the company and is not concentrated within a small group responsible for monitoring its limits.

Quote from a Senior Vice President of risk management

Lesson 3: How to right-size your risk appetite

A balanced risk diet

An organisation's risk appetite reflects the desired and acceptable level of risk exposure to both 'rewarded/upside risks' and 'unrewarded/downside risks'.

It is important to set clear parameters for risk-taking behaviour in an organisation. Defining the acceptable risk appetite and communicating it to all levels of management and the board can encourage appropriate risk-taking behaviour in pursuit of strategic business needs.

A proper definition and review of risk-taking boundaries can give crucial insight into an organisation's risk appetite. It can flag situations where organisations are:

- overdoing their 'risk diet'- taking too little risk so that opportunities are passed over.
- too 'risk hungry' – taking risks which are not adequately justified by the associated business case.

An organisation with a clearly defined risk appetite can reap the following benefits:

- achieve a 'balanced risk diet' through the use of a common risk language. A common risk language is beneficial in defining the corporate risk culture of a company and in communicating risk appetite to all levels of the organisation
- achieve an optimal allocation of resources using a centralised risk appetite assessment and prioritisation exercise.
- **encourage consistent risk-taking behaviours** across the organisation by providing a clear policy about the amount and types of risks to either accept or avoid, hence reducing the 'risk' of silo risk-taking
- **enhance confidence** in managing risks
- **introduce forward-thinking**, and unlocking shareholder value indicating the desired level of risk acceptable in the pursuit of business goals and objectives.

A clearly defined risk appetite can help risk managers focus on what matters, and avoid the following undesirables:

- **duplication of efforts** (arising from a silo approach to risk management)
- **excessive management of risks** which are not critical to business operations.

The risk appetite needs to be constantly reviewed and re-assessed as an organisation evolves. As the operating environment, market conditions, and stakeholders' expectations change, the risk appetite definition must reflect these changes.

In 2006, Lehman made the deliberate decision to embark upon an aggressive growth strategy. This involved taking on significantly greater risk and substantially increasing leverage as part of its capital. As the subprime residential mortgage business progressed from problem to crisis in 2007, Lehman was slow to recognise the developing storm or its likely spill-over effect upon commercial real estate and other business lines. Rather than pulling back, Lehman made the conscious decision to 'double down', hoping to profit from a countercyclical strategy. As it did so, Lehman significantly and repeatedly exceeded its own internal risk limits and controls[5].

[5] UNITED STATES BANKRUPTCY COURT SOUTHERN DISTRICT OF NEW YORK, Lehman brothers holdings Inc., Volume 1 OF 9, Sections I & II: Introduction, Executive Summary & Procedural Background Section III.A.1: Risk, March 11, 2010.

Lesson 4: Dealing with uncertainties

Predicting the Black Swan

In the wake of the sub-prime crisis, the talk about Black Swans has caught everyone's attention. These are high-impact, hard-to-predict and rarely occurring events beyond the realm of normal expectations. These events are not identifiable or measurable before they occur and we typically only know a Black Swan event after it has occurred.

Does the colour of the swan matter? Yes and no. Because Black Swan events are real and can happen without any forewarning.

"Yes" While past experience, data and an explanation of circumstances may provide forewarning of, and even a prediction to the extent of White Swan events (known situation, known outcome), Black Swans are by definition part of the 'future'. It is therefore important to understand the principles behind a Black Swan, as there is no risk too small to be ignored, and no entity too big to fail. Complacency can set the trap for future trouble.

While it becomes a futile exercise to predict a Black Swan event, what is remotely known should not be ignored and taken for granted. To quote Mr. Nassim Taleb[6] , "Do not give children sticks of dynamite, even if they come with a warning."

"No" because there is no silver bullet to know and manage what we do not know. The recent Icelandic volcano eruption which resulted in the largest air traffic interruption since World War II demonstrated that Gray Swans (or known-unknowns) can also be sudden, pervasive and catastrophic to an entire system. In the face of uncertainty, change is the only certainty. Risk management frameworks should therefore be dynamic and nimble at the same time.

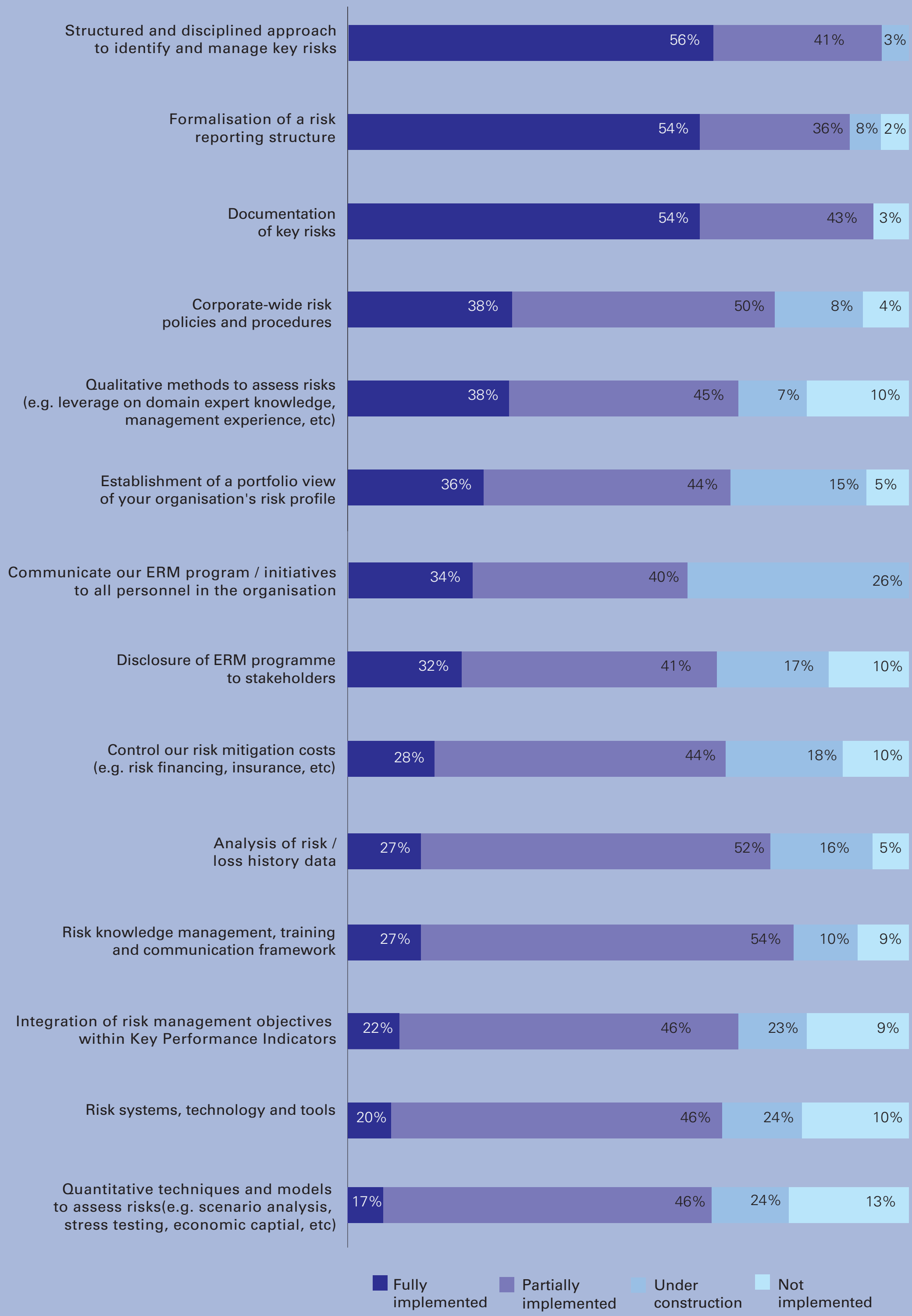
Any industrial, technological or sociological or change creates risks. Some quickly, some more subtly. Failure to recognise and respond quickly exposes organisations to unnecessary risk. Organisations need to manage and control what can be managed.

On the other hand, what cannot be managed requires a dynamic risk management framework allowing organisations to identify and respond more quickly to such events. This can create a competitive advantage in some situations, keeping companies ahead of their competition.

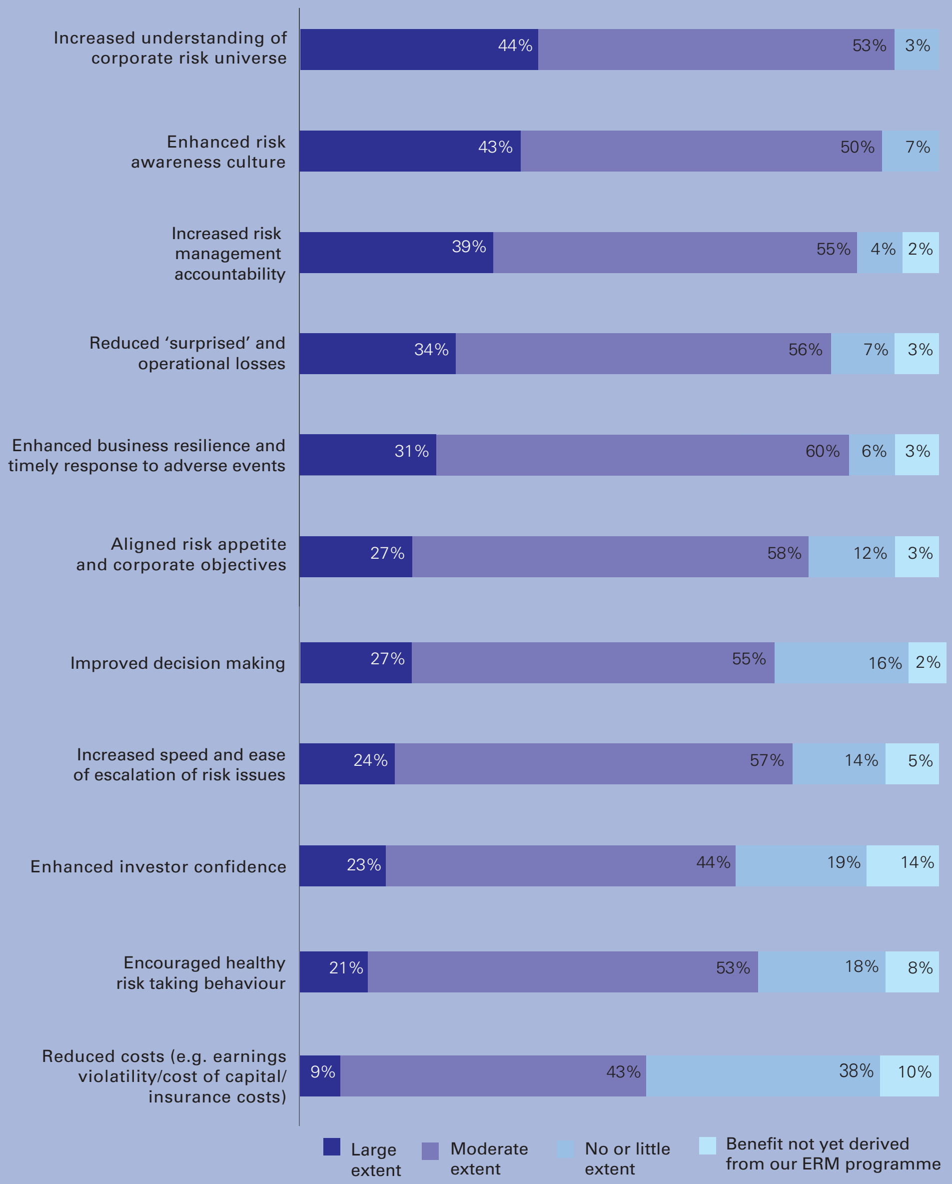
[6] Taleb, Nassim Nicholas (2007). The Black Swan: The Impact of the Highly Improbable

Appendix II:
Supporting results from the survey

ERM implementation efforts



Benefits derived from ERM programme



Contact us

Irving Low
Executive Director,
Head of Enterprise Risk Management Practice
Tel: +65 6411 8888
irvinglow@kpmg.com.sg

Richard Tan
Executive Director,
Internal Audit, Risk and Compliance Services
Tel: +65 6411 8181
richardtan@kpmg.com.sg

Leornie Quek
Director,
Enterprise Risk Management
Tel: +65 6411 8107
lquek@kpmg.com.sg

KPMG in Singapore
16 Raffles Quay #22-00
Hong Leong Building
Singapore 048581
Tel: +65 6213 3388
Fax: +65 6223 3118

kpmg.com.sg