Operational Risk Management Takes Hold

Findings from the Global Financial Services Industry Operational Risk Survey Conducted by Protiviti and Operational Risk Magazine
# TABLE OF CONTENTS

Survey Demographics ........................................................................................................... 2

Impact of Operational Risk Management .............................................................................. 5

Operational Risk Management Program Design and Development ................................. 11

Operational Risk Management Program Staffing ............................................................... 20

Operational Risk Management Program Cost ................................................................. 24

Implementation of Basel II Operational Risk Management Standards ....................... 29

Operational Risk Management Technology ........................................................................ 41

Obstacles Facing Operational Risk Management ............................................................. 45

Regional Observations ......................................................................................................... 48
Introduction

Financial institutions globally are evolving a more common view of the purpose, function, and value contribution of operational risk management, as evidenced by the third annual Global Operational Risk Survey conducted by Operational Risk magazine and Protiviti. The results presented within this document are based on more than 170 completed submissions from risk management professionals affiliated with financial services firms across the globe. Since this survey’s initiation in 2003, ORM programs have continued to mature with focus on the identification, measurement and communication of operational risk exposures becoming the widely held standards.

The new Basel Accord and related domestic regulations continue to be the most significant stimuli for the development of operational risk programs globally, with 90 percent of respondents citing Basel II as a significant factor, and more than half the respondents naming it as the primary factor impacting the development of their programs. Even in the United States, where only the largest banking organizations are required to comply with the Accord, 85 percent of banks under $10 billion in assets identified the Accord as the most influential factor. This also suggests operational risk management will become pervasive across institutions of all sizes.

In light of the recent delay by U.S. regulators in announcing proposed rules, some may be concerned that support for ORM programs may weaken. However, performance-based motivations have gained in significance since the first survey in 2003. More than 60 percent of the respondents to this year’s survey identified internal best practices benchmarking exercises, concern over levels of operating losses, and industry initiatives addressing operational risk as critical factors in the formation and growth of their ORM programs.

While regulation might have been the impetus behind creating initial demand and awareness, value creation and improved results appear to be the drivers of the next wave of evolution and adoption. A majority of respondents cite improved business and performance management and reductions in operating losses as key program benefits. Interestingly enough, more than one in four respondents acknowledged “optimized allocation of economic capital” and “reduction of regulatory capital” as having little or no impact on the success of their ORM programs.

A Converging View of the ORM Framework

In 2005, more than 92 percent of respondents have a formal ORM program in place, up from 81 percent in 2003. Nearly 60 percent of ORM programs have a distributed ORM framework, led by a chief operational risk officer or central governance structure supplemented by dedicated (35 percent of respondents) or part-time (24 percent) risk professionals at the business unit level. And the scope of ORM is branching out. While early ORM initiatives were often handled by audit and/or compliance departments, we now see indications that ORM departments at larger financial firms (more than $100 billion in assets) are picking up selected compliance responsibilities, such as Sarbanes-Oxley Act compliance.

A common set of responsibilities also has emerged, with 70 percent of respondents identifying three primary functions within the ORM program:

- Creation and management of operational risk policies and procedures,
- Administration of operational loss database, and
- Administration of the risk control self-assessment program.

Functional responsibilities such as oversight of business continuity (41 percent), internal fraud (31 percent), and information security (22 percent) were also identified within the mandate of some ORM programs, but did not represent a systematic trend among respondents.
The average size of dedicated ORM teams is also expanding. Nearly 30 percent of respondents reported team sizes of 11 or more members versus 18 percent last year, with expectations for continued hiring by more than half of all respondents in the next 12 months. The most common backgrounds of ORM team members include audit and general banking, cited by more than 50 percent of respondents, with other source groups being operations (37 percent), and finance/controllers (27 percent).

More than 60 percent of the respondents projected that costs related to ORM will rise over the next 12 months, with less than 7 percent anticipating any decrease in funding. Top categories for future expenditures are support for increased reporting (60 percent), increased staff (52 percent) and training expenditures (50 percent).

**Further Opportunity**

The impact of ORM programs is being realized in many ways. More than 90 percent of respondents noted that ORM information is widely used to support risk assessment, while more than half of all respondents used such information in the approval of new products and initiatives. ORM programs are promoting the development of an ORM culture through increased reporting to senior management (75 percent), the board of directors (69 percent) and business units (55 percent) – all at levels higher than in past surveys. And the use of ORM tools is steadily increasing over prior years, as more than 70 percent of respondents identified current or planned implementation of self-assessment tools, internal loss databases, external operational loss databases, statistical modeling for economic capital measurement, and internal reporting tools. Key risk indicators were most commonly identified as part of future tool development.

Despite these trends, it is disconcerting to see that organizations are not yet linking the value of ORM programs more closely to critical performance indicators. Less than 20 percent cited the use of ORM information in annual budgeting or product profitability, indicating that the information has yet to make its way into the risk reward analysis of many financial firms. Likewise, programs such as linking compensation to ORM performance, and the use of the code of conduct to recognize employee responsibility for ORM exposures, were identified by fewer than 20 percent of the respondents as critical to promoting cultural awareness. Not surprisingly, the key obstacle to successful implementation of ORM most commonly cited was a lack of overall awareness and knowledge of operational risk issues among general staff. For the first time, this obstacle outweighed concerns raised in past surveys for measurement and data issues.

**In Conclusion**

Based on these most recent survey results, ORM is clearly taking hold as a standard risk practice of financial firms. Additional progress is needed, however, in linking ORM performance to the performance of the firm, before the full value of these programs can be fully realized.

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Independent Risk Consulting

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Survey Demographics

Who are the respondents?
More than 290 participants responded to the Third Annual Global Operational Risk Survey, conducted by Protiviti and Operational Risk magazine. The results presented within this document reflect the 170 completed submissions from respondents that explicitly indicated their affiliation with a financial services firm. Submissions to the Operational Risk Survey originated from all parts of the world, including the European Union (45 percent), the United States (15 percent), North America (excluding the United States) (14 percent), and the Asia-Pacific region (11 percent). Respondents from The Middle East, Africa, Central and South America, and Non-EU European countries – denoted as the Other Markets region in this presentation – accounted for the remaining 15 percent of the total responses.

Respondents represented the full spectrum of financial services firms, both in size and business activity. Financial institutions with total assets of $250 billion or more represented nearly 25 percent of the respondents. In reviewing the responses on the following pages, it is important to keep in mind that smaller firms are also very well represented, with more than one out of three respondents representing firms that are less than $10 billion in total assets. Overall, the survey received broad participation relative to size based on total assets.
Many sectors of the financial services industry were represented by those surveyed, with the majority of respondents coming from retail and commercial banking, as well as integrated financial services. Nearly one in three respondents represented firms involved in capital markets activities, including investment banking, asset management, insurance and brokerage.

Finally, respondents came predominantly from the Risk Management area of their respective institutions (70 percent), with Finance, Audit, Compliance and Insurance professionals bringing the total percentage of respondents with responsibilities related to risk management to more than 75 percent. The remaining one in four participants hold positions with the various lines of business within their respective institutions.
Impact of Operational Risk Management

Key Findings:
- Value creation and improved results appear to be the drivers of the next wave of evolution and adoption, moving beyond historical pressures of regulatory compliance.
- The impact of ORM programs on operational losses is anticipated to be significant over the next 12 months.
- Operational risk information and awareness programs, while used in several key areas of business decision-making, are still not strongly tied to performance measurement and compensation programs.
- Respondents are uncertain as to the ultimate relationship between regulatory and economic capital allocation for operational risk.

VALUE WILL ALWAYS TRUMP REGULATORY COMPLIANCE as a compelling and sustainable argument for pursuing operational risk management. Regulation, however, has been the catalyst for introducing and accelerating broad adoption of operational risk management programs. With this year’s survey, we see greater recognition of the value gained through the business impact of operational risk management than on its compliance benefits.

Despite these trends, it is disconcerting to see that organizations are not yet linking the value of ORM programs more closely to critical performance indicators. Less than 20 percent cited the use of ORM information in annual budgeting or product profitability, indicating that the information has yet to make its way into the risk reward analysis of many financial firms. Likewise, programs such as linking compensation to ORM performance, and the use of the code of conduct to recognize employee responsibility for ORM exposures were identified by fewer than 20 percent of the respondents as critical to promoting cultural awareness. Not surprisingly, the key obstacle to successful implementation of ORM most commonly cited was a lack of overall awareness and knowledge of operational risk issues among general staff. For the first time, this obstacle outweighed concerns raised in past surveys for measurement and data issues.

Benefits of Successful Operational Risk Management
While regulations such as the Basel II Accord may have been the impetus behind initial demand and awareness of operational risk management, value creation and improved results appear to be the drivers of the next wave of evolution and adoption. Nearly 60 percent of respondents globally identified improved business and performance management as well as reductions in operating losses as key benefits to their ORM programs. Despite many early predictions that capital recovery was a significant motivation for adoption of ORM, more than one in four respondents identified “optimized allocation of economic capital” and “reduction of regulatory capital” as having little to no impact on the success of their ORM programs.

A majority of respondents were of one mind in identifying a broad range of benefits for their ORM programs. More than 90 percent of the respondents chose five of the seven possible responses as high to significant benefits (with the two omissions being “reduction in regulatory capital” and “optimized allocation of economical capital”).
From a regional perspective, U.S. respondents see reduction of operational losses (81 percent) and improvement in business and performance management (76 percent) as the most significant benefits to their ORM programs. By contrast, respondents from North America (excluding the United States) more frequently cited benefit from greater levels of accountability (70 percent) and protection against loss of reputation (70 percent), than a reduction of operational losses (48 percent) or improved business and performance management (61 percent). Interestingly, greater levels of accountability and protection against loss of reputation were seen as more secondary benefits in the United States.

For respondents from the largest firms ($100 billion in total assets or larger), reductions in operating loss (67 percent) was the most cited choice as a significant benefit of operational risk management, followed by protection from loss of reputation (65 percent), and improved business and performance measurement (65 percent). There was no potential benefit that was identified as having “no impact” by more than 10 percent of the respondents – recognition of a broad base of benefits for these large organizations.

In contrast, respondents from firms in the $10-100 billion total asset peer group placed regulatory compliance as a highly significant benefit (62 percent) ahead of these performance-related benefits. More than 13 percent of respondents expect no benefit in improved business and performance management and more than 10 percent expect no benefit in terms of reduced operational losses based on their operational risk management program.

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1 Throughout this presentation, references to North America exclude the results for respondents from the United States, unless otherwise noted.
Use of Operational Risk Information in Business Decisions

When asked how operational risk information was used by management for decision-making within their firms, nearly all respondents identified its use to support risk assessments and internal audit activity (90 percent). ORM information was also used by a majority of respondents to support the approval of new products and new initiatives (55 percent). These management activities are explicitly identified by Basel II and Bank of International Settlements (BIS) guidelines on operational risk as ORM recommended practices.

It is surprising that despite the relatively high percentage of respondents who cited business and performance management as a significant benefit of the ORM programs, operational risk information is used by fewer than expected respondents in performance measurement (32 percent), annual budgeting (19 percent), and product profitability (13 percent). These results are consistent across firm size, indicating that the operational risk information has yet to make its way into the risk-reward analysis of large and small firms alike. Hopefully, this situation will be transitional, as respondents noted growth in expenditures to support increased reporting.

It is interesting to note that regardless of the maturity of the respondents’ ORM programs, they identified the same top three uses of operational risk information. Differences did emerge regarding the other uses of information, where more mature programs were likely to use operational risk information to support outsourcing/vendor selection decisions as well as performance measurement.

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Promotion of Operational Risk Management Culture and Awareness

The most cited methods of promoting an operational risk management culture and awareness were through regular reporting, at levels significantly higher than in prior year surveys. More than 75 percent of respondents say they promote awareness through reporting to senior management (as compared to 29 percent in 2004), and 69 percent promote awareness through reporting to the board of directors (compared with 24 percent in 2004 and 20 percent in 2003). Reporting in a majority of firms occurs at multiple levels, with those firms that regularly report to senior management more likely to also regularly report to the board of directors (75 percent) and within business units (65 percent). U.S. and EU firms use regular reporting to senior management to build operational risk management awareness – more so than their counterparts in other regions.

How Firms are Creating an Operational Risk Management Culture and Awareness

<table>
<thead>
<tr>
<th>Method</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular reporting to senior management</td>
<td>75%</td>
</tr>
<tr>
<td>Regular reporting to the board of directors</td>
<td>69%</td>
</tr>
<tr>
<td>Regular reporting within business units</td>
<td>55%</td>
</tr>
<tr>
<td>General operational risk awareness-raising communications campaign internally</td>
<td>52%</td>
</tr>
<tr>
<td>Regular operational risk workshops/training within business unit</td>
<td>45%</td>
</tr>
<tr>
<td>Increased disclosure to shareholders/external stakeholders of ORM practices and position</td>
<td>23%</td>
</tr>
<tr>
<td>Specification of operational risk responsibility in employee job descriptions</td>
<td>22%</td>
</tr>
<tr>
<td>Linkage of operational risk management to performance management and compensation</td>
<td>19%</td>
</tr>
<tr>
<td>General employee OpRisk management responsibility stated in code of conduct</td>
<td>18%</td>
</tr>
</tbody>
</table>

It is interesting to note that almost 13 percent of respondents regularly report to their board of directors but not their senior management, and another 12 percent do not regularly report to either senior management or the board of directors. Those firms that report only to their board of directors and not to their senior management represent firms across asset sizes from the EU and Other Markets. A majority of these respondents who do not report to either the board of directors or senior management represent the smallest firms (less than $25 billion in total assets) of the survey, and are a clear minority when compared to their peers.

Beyond reporting, firms are broadening operational risk management awareness through internal campaigns (55 percent) and training (45 percent). Based on responses, Asia-Pacific (61 percent), U.S. (54 percent), and Other Markets (50 percent) institutions rely more on internal general communications campaigns than other regions. Training is more prevalent as an awareness building device for firms in the EU (45 percent), Asia-Pacific (44 percent), and Emerging Other Markets (42 percent), while only 19 percent of U.S. respondents employed training to build awareness.

It is disconcerting to see that programs linking compensation to ORM performance, and the use of the code of conduct to recognize employee responsibility for ORM exposures, were identified by less than 20 percent of
the respondents as critical to promoting cultural awareness. U.S. respondents appear to be the furthest along on the use of these programs, with 27 percent of U.S. respondents linking ORM to performance management and compensation, and 23 percent of respondents capturing ORM accountability within their code of conduct.

**Impact of Operational Risk Management on Economic Capital**

It is not surprising that a majority of respondents anticipate that the level of economic capital will remain the same (57 percent), given the limited impact cited by respondents for reductions in economic capital levels and the low level of importance associated with optimizing allocation of economic capital. Approximately 24 percent of the respondents expect the firm’s economic capital to decline by less than 10 percent, while 11 percent actually expect the levels to rise by 1 percent or more.

![Impact of Operational Risk Management on Economic Capital](image)

Asia-Pacific has the highest number of respondents expecting economic capital requirements for operational risk to rise over the next 24 months – with more than one in three respondents citing an increase of 1 percent or more, and over 15 percent of those individuals expecting increases in excess of 25 percent. The concerns over increased levels may reflect the more stringent capital management requirements being introduced through the proposed adoption of Basel II in that region.

When queried as to the relationship between the firm’s economic operational risk capital allocation and the applicable regulatory operational risk capital allocation, more than 58 percent of respondents were unsure at this time. Those respondents that have an opinion are relatively evenly divided across greater, equal to or less than. There were no regional differences evident. While the majority of respondents in each of the peer groups were unsure of the relationship at this time, there were differences among the size peer groups as to the “runner-up” view. Firms over $250 billion anticipate that economic capital will be greater than regulatory (24 percent), as do firms with $10-25 billion in total assets (22 percent). Regulatory capital is expected to be the higher amount for respondents representing those firms $100-250 billion in size (17 percent), while those with $25-100 billion expect the capital requirements to be equal (28 percent).
Impact of Operational Risk Management on Operating Losses

While economic capital is not expected to fall, operating losses universally are. The impact of ORM programs on operational losses is anticipated to be significant over the next 12 months, with 24 percent of respondents seeing losses declining by 10 to 24 percent, and another 33 percent anticipating reductions under 10 percent. Only 7 percent of respondents expected any increase in operational losses in the coming year.

Increases in expected losses are largely attributed to respondents with programs in place less than two years, or with no programs currently in place. There were no respondents expecting operational losses to increase over the next year, from the following sectors: North America, the Other Markets, and firms with total assets of $25–$250 billion.

Relationship between ORM Economic Capital and Regulatory Capital

Not surprisingly, nearly 60 percent of all respondents are unsure of the relationship between economic capital and regulatory capital for ORM at this time. Those that have an opinion, are relatively evenly divided across greater, equal to or less than. This result is consistent with the absence of confirmed calculation requirements for operational risk economic capital as each jurisdiction is now reviewing and ratifying proposed regulations. The impact of limited internal data and reliance on scenario analysis and other more judgmental measurement methods also introduces uncertainty in what will be the ultimate relationship between economic capital and regulatory capital.

Uncertainty over this capital relationship was most pronounced among respondents representing firms less than $250 billion. More than 30 percent of the respondents from the largest firms anticipating economic capital will be greater than regulatory capital – the largest showing among all the size clusters. Respondents representing Asia-Pacific firms differed from their counterparts in other regions, assigning equal likelihood to “unsure,” “greater economic capital” and “greater regulatory capital” – interestingly, no respondents from that region anticipated that the allocations would be relatively equal.
Operational Risk Management Program Design and Development

Key Findings:

- More than 9 out of 10 respondents have a formal operational risk management (ORM) program in place; 6 out of 10 respondents have had formal programs in place for two years or longer.
- On average, firms from the European Union and North America have had formal ORM programs in place slightly longer than any other region.
- Operational risk management is taking hold in firms of all sizes. Nearly 85 percent of the survey’s smallest firms, those with less than $10 billion in total assets, have some kind of ORM program in place – largely influenced by Basel II and related regulations.

OPERATIONAL RISK MANAGEMENT is a relative newcomer when compared to credit risk and market risk management disciplines, which both boast a multi-decade track record of investment and development. The first Basel Accord tackled credit risk in the late 1980s and market risks in the mid-1990s. But it wasn’t until 2003 with the issuance of Sound Practices for the Management and Supervision of Operational Risk by the Basel Committee that the financial services industry saw initial guidance on operational risk practices promoted at a global level. Like the youngest child in a large family, operational risk management (ORM) is learning to develop faster, speak louder for resources, and adopt quantitative approaches more quickly against expectations that have been set through the strides made by its older risk siblings.

Tenure of ORM Programs

As this most recent Operational Risk Survey captures, formal ORM programs are rapidly becoming an integral part of the risk management framework for financial services firms globally. In 2005, more than 92 percent of respondents globally had a formal ORM program in place – up from 81 percent when this survey was first conducted by Risk magazine in 2003. While nearly one-third of respondent programs are in their initial two years of development, another one out of three respondents report their firm has had an ORM program in place for three or more years – up from one in four programs in 2004.

On average, firms from the European Union (EU) and North America (excluding the United States) have had formal ORM programs in place slightly longer than other regions. Over 57 percent of firms within the European Union and 61 percent in North America have had a formal program in place for two or more years, the highest percentages globally. This longer tenure is reflected in the size of the regions’ ORM staff and ORM expenditures, as well as consistent with the greater progress made by these regions in the implementation of Basel II operational risk management standards relative to the rest of the world.

By comparison, only 43 percent of U.S. firms have had an ORM program in existence for two years or more, the lowest percentage of all regions. This comparison is somewhat misleading, reflecting the distortion resulting from the more limited application of Basel II requirements within the United States. Over

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The authors acknowledge the inaugural effort of Incisive Media, through its publications Risk magazine and Operational Risk magazine – and its sponsor, SAS, who conducted the 2003 and 2004 surveys.
27 percent of respondents representing U.S. firms have programs that are more than five years old, with nearly all of these institutions reporting assets in excess of $250 billion.

Formal ORM programs in the United States appear to have developed in multiple stages, with the initial stage being led five years ago by Basel II “mandatory banks” (defined as having total assets greater than $250 billion and/or $10 billion in international total assets). These firms embraced operational risk management early for business improvement and/or regulatory reasons. The next wave of program development captures the “early adopters” – largely those U.S. firms with asset sizes of $10-250 billion that represent the majority of respondents whose ORM programs have an average tenure of two to five years (23 percent). More recently, a third “wave” is evident, as firms with asset sizes of $10 billion or less represent more than 54 percent of respondents with ORM programs two or less years old. As will be discussed later in this presentation, U.S. firms view Basel II as a significant influence in their decision to create and maintain ORM programs, even in the absence of a regulatory mandate.

This general trend of the largest firms leading the adoption of operational risk management extends outside of the United States. In fact, there is a strong relationship between the tenure of ORM programs and the size of institution. The greater the size of the institution, measured by total assets, the longer the tenure of the institution’s ORM program. More than 84 percent of institutions with $250 billion or greater in total assets have had an ORM program in place for two years of more. Only 15 percent of these institutions have programs that have been in place for less than two years. For institutions with $100-$250 billion in total assets, over 70 percent of respondents indicated their ORM program had been in place for two or more years and an additional 35 percent indicated their program had been in place for five years or more.

The number and tenure of ORM programs at smaller firms is growing, with the advances in risk management practices of large firm “pioneers” being embraced more broadly. More than 65 percent of all institutions with total assets between $25-$100 billion and more than 52 percent of the institutions with total assets between $10-$25 billion indicated their firm has had an ORM program in place between two and five years. For the smallest firms, with total assets under $10 billion, formal ORM programs are still in the early development stages. Two-thirds of these institutions have had an ORM program in place for two years or less. While these smaller institutions dominate the list of those without ORM programs, nearly 85 percent of these firms have...
some ORM program in place — a striking statistic given market perception of the cost and newness of operational risk management programs in general.

**Factors Impacting Development of ORM Programs**

The new Basel Accord and related domestic regulations continue to be the most significant stimuli for the development of ORM programs globally, with more than 9 out of 10 respondents citing Basel II and related domestic regulations as a significant factor, and more than half the respondents naming it as the primary factor impacting the development of their programs. Even in the United States, where only the largest banking organizations are required to comply with the Accord, 85 percent of banks under $10 billion in assets identified Basel II as the most influential factor in the development of their programs.

Beyond regulatory impetus, more than three out of four respondents cited internal best practices benchmarking efforts as significant drivers for ORM program development in their firms. The many recent industry and consultancy studies as well as the growing number of operational risk forums sponsored by professional associations and regulatory agencies globally are having an impact. This is evident in the latest Loss Data Collection Exercise undertaken by the Federal Reserve Bank of Boston, where 23 institutions voluntarily provided detailed loss histories in return for insight into the frequency and severity of operational risk losses industrywide.

The remaining factors selected by respondents demonstrate sharp regional differences, largely driven by domestic issues. While concern over internal losses ranked highest in the Asia-Pacific region (selected by 83 percent of respondents), it ranked lowest with U.S. respondents (at 58 percent).

![Top Factors Impacting the Development of Operational Risk Management Programs Globally](chart.png)

Blue bar indicates the respondents who choose the category as the most important factor. Combined length of grey and blue bar indicates the percentage of respondents who selected the category within their top five choices.

Instead, U.S. and North American respondents were more influenced by recent accounting scandals and their attendant regulatory response through the enactment of the Sarbanes-Oxley Act — selected by more than 95 percent of U.S. respondents and more than 80 percent of North American respondents. This linkage between ORM programs and Sarbanes-Oxley compliance has led to a push for integration of systems, assessment programs, and data capture in recognition of perceived redundancies as well as opportunities for strengthening program effectiveness. It is also worth noting that globally, for respondents with programs in place for two to five years, prominent accounting scandals and regulatory response was the second most cited driver — with initial development of their programs coinciding with the peak of the accounting scandals.
While terrorism and related business continuity concerns tend to dominate popular press and political arenas, it did not dominate the list of significant factors in the development of ORM programs – ranking last among factors listed for all size groups, and in all but the Asia-Pacific region in the regional analysis. Even in the U.S. and North America, where terrorism continues to be a major “top of mind” issue, only 30 percent of respondents see terrorist attacks and related business continuity issues as a factor in the development of their ORM programs.

Finally, it is interesting to note that industry/association operational risk technology initiatives have an influence on the development of ORM programs created within the last two years. Expectations that the growth of industry consortiums targeting development of methodologies and resources such as KRI libraries and external loss databases will influence the broader adoption of operational risk management appear to be well-founded when considering the survey responses of newer entrants.

**Organizational Design of ORM Programs**

The first critical questions addressed by a firm in designing its ORM framework center on its location within the organization and the span of control. Should the ORM department be centralized at the corporate level? Or decentralized within the lines of business? Or is a hybrid of these options, namely a “distributed framework,” the right answer? And does this organization design change over time as the ORM program matures within the firm?

In general, firms have three organizational models from which to choose when designing a dedicated operational risk management function.

<table>
<thead>
<tr>
<th>Centralized Corporate Activities</th>
<th>“Centralized”</th>
<th>“Distributed”</th>
<th>“Decentralized”</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORM Officer/Committee</td>
<td>No dedicated business line support</td>
<td>Business Line ORM managers and/or dedicated staff members</td>
<td>Largely independent ORM programs managed by each business line</td>
</tr>
<tr>
<td>Business Line Activities</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

- “Centralized” designs are defined as having a central operational risk management function at the corporate level, usually characterized by an operational risk management officer and/or operational risk committee with responsibility for oversight of a centralized operational risk management function.

- “Decentralized” designs reflect the creation of operational risk management functions within selected or all lines of business and infrastructure support areas (e.g., technology and operations). This design usually does not have a unifying organizational framework across the firm, and tends to be directed by line of business management to address operational risks relevant to its own business proposition (e.g., fraud intervention for consumer checking accounts within a retail line of business).

- “Distributed” design represents a hybrid of the two prior approaches, with a core operational risk management function (operational risk manager and/or operational risk committee) at the corporate level, supplemented by operational risk managers at the business unit level. The line of business risk managers can be either dedicated or “part-time” resources, and may report directly or indirectly to the corporate operational risk function.
In lieu of having a dedicated operational risk management function, firms may opt to assign responsibility to another risk management department within the firm, such as compliance or internal audit. This alternative design tends to be associated with the very introductory stages of the ORM program development, where a “temporary home” is desired until the justification of permanent resources can be made. This design is also a more common option outside of the financial services industry.

The clear preference for organizational design among the respondents is a distributed structure (55 percent), with a centralized structure coming in second at 45 percent. Less than 2 percent of all respondents are using a decentralized structure – primarily institutions less than $10 billion in total assets. A closer examination of survey results for program design relative to the tenure of ORM programs and the size of the firm yields some interesting results.

Survey responses indicate that the ORM framework employed by firms is strongly related to the tenure of the firm’s ORM program. Whereas centralized programs tend to be more prevalent among new ORM programs, distributed programs become increasingly preferred as the tenure of programs increases. For programs three years and older, distributed frameworks outnumber centralized programs by nearly a 6 to 1 ratio. In addition, for those organizations using a distributed approach, there is greater use of full-time staff at the line of business level for more mature programs, while newer programs are more dependent on shared- or “part-time” resources (71 percent of distributed programs less than two years old use part-time resources versus 40 percent of distributed programs over two years). Overall, as ORM programs mature, they are more likely to have strong, dedicated presence in the lines of business to execute their ORM initiatives.

### Operational Risk Framework: Centralized or Distributed?

<table>
<thead>
<tr>
<th>Total Assets (US $)</th>
<th>Centralized</th>
<th>Distributed</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; $10 billion</td>
<td>45%</td>
<td>20%</td>
</tr>
<tr>
<td>$10 - $25 billion</td>
<td>20%</td>
<td>47%</td>
</tr>
<tr>
<td>$25 - $100 billion</td>
<td>16%</td>
<td>64%</td>
</tr>
<tr>
<td>$100 - $250 billion</td>
<td>17%</td>
<td>61%</td>
</tr>
<tr>
<td>&gt; $250 billion</td>
<td>8%</td>
<td>76%</td>
</tr>
</tbody>
</table>
There is also a strong relationship between the choice of operational risk management framework and the firm’s size. Centralized operational risk management programs are most predominant in institutions with total assets less than $10 billion, which are also most likely to have newer programs in place (25 percent). Distributed programs, however, become the preferred structure for institutions larger than $10 billion. While this design is most often associated with very large financial services firms, there is clear evidence of a preference for a distributed framework even among institutions with $10 - $25 billion in total assets. Nine out of 10 firms using a distributed framework in this asset range rely on shared or part-time resources at the line of business. By doing so, these firms are able to enjoy the benefits of a broader span of influence within the organization on a more cost-effective basis. However, given the preference for dedicated full-time resources among more mature programs as well as at larger financial institutions, further research is warranted as to the effectiveness of part-time resources as a permanent staffing model for operational risk management.

Interestingly enough, no meaningful regional differences in the operational risk management framework employed are found. Despite what differences may occur in regulatory mandate, or other driving factors for the creation of an ORM program, its design appears to be driven more by the size of firm and tenure of the program than its geographic location.
ORM Program Functional Mandate
Another challenge for operational risk managers has been the clear and consistent statement of mandate and the attendant definition of responsibilities. It is not uncommon to hear anecdotal evidence of there being as many unique job descriptions for operational risk managers as there are ORM programs. While this lack of consistency and clarity can be typical of emerging disciplines, it is heartening to note that a common set of responsibilities is emerging from these most recent survey results. More than 70 percent of respondents identified three common, primary functions within the ORM program:

- Creation and management of operational risk policies and procedures
- Administration of an operational loss database
- Administration of the risk control self-assessment program

And three out of four of those firms with this trio of responsibilities also had responsibility for administration of the firm’s operational risk committee or its equivalent in the governance structure.

ORM departments also manage a wide variety of functional responsibilities, such as oversight of business continuity (41 percent), internal fraud (31 percent) and information security (22 percent). However, no clear systematic trends in combinations of functions were evident. ORM programs in larger institutions are more likely to include responsibility for Sarbanes-Oxley compliance (nearly 30 percent of firms over $100 billion in total assets), while firms under $10 billion were more likely to combine their compliance departments with their ORM function (over 25 percent). EU firms had fewer respondents identifying responsibilities outside of the primary three mentioned above, with responses ranging between 10 to 30 percent for inclusion in their ORM program mandate. Conversely, Asia-Pacific firms were more likely to have broader functional responsibilities.
mandates, with oversight of internal fraud and business continuity being identified by half of their respondents. Asia-Pacific firms are also more likely than peers in other regions to oversee compliance functions (33 percent) as well as to be responsible for external fraud and AML oversight (39 percent).

An examination of ORM mandate in terms of program tenure yields some highly intuitive results. For ORM programs in their first two years, the initial mandate appears to be very simple – create and manage operational risk management policies and procedures (83 percent). Some new departments also take on responsibility for creating and administering an operational loss database (76 percent), introducing and/or administering a risk self-assessment program (76 percent) and administering the operational risk committee (61 percent).

For those respondents in their second to fifth years of their ORM program, the composition of responsibilities does not change. However, the number of respondents citing these four responsibilities significantly increases – with 80 percent or more conducting all but the administration of an operational risk committee (64 percent).

Nearly 9 out of 10 respondents from firms whose ORM programs are five or more years old are overseeing ORM policies and procedures, as well as administering RCSA programs and loss databases. It is interesting to note that more than half the respondents with highly mature programs also identify responsibilities for oversight of risk mitigation techniques like insurance (65 percent) and oversight of transaction processing failures (50 percent).

While respondents noted additional responsibilities beyond those cited above, these responsibilities did not appear to be linked systematically to the maturity of these programs.
**ORM Program Evolution**

The development path for ORM programs implied by the survey results is very consistent with the Capability Maturity Continuum we see for risk management programs in general. The preliminary focus of these programs is to establish a “beachhead” ORM function around a small group of professionals that target key “first” programs like the risk control self-assessments. This “initial” phase is followed over time with programs that become more “repeatable,” with eventual focus on measurement and effective management of programs.

As the survey results above demonstrate, the ORM programs move from highly centralized efforts with limited focus, to a more distributed management model that embraces a broader mandate. As this progression continues, we would expect future ORM programs will continue to progress toward greater emphasis on risk quantification (“managed”), eventually leading to issues resolution through migration and knowledgeable risk-taking (“optimizing”).
Operational Risk Management Program Staffing

Key Findings:

- The size of ORM teams is increasing, with the number of teams with 11 or more members doubling from 2004 to 2005.
- Further increases in staff size are expected to continue through 2005. Nearly 49 percent of firms are expecting increases in the level of investment in staffing.
- Audit and general banking experience are the most frequently identified skill sets for ORM team members.

STAFFING IS THE KEY to getting the job done, and operational risk management is no different in this regard. However, unlike the credit and market risk disciplines, which rely heavily on dedicated individuals to be actively part of the execution of a risk management program as well as to formulate policy, ORM functions appear to run a much smaller staffing model. As discussed earlier under ORM program mandates, this smaller staffing model may be in part due to the stronger focus on policy as well as dependence on business units for execution of programs such as risk self-assessments. Some of the more labor-intensive execution of risk mitigation activities often reside more within the lines of business, or with risk specialists that reside outside the actual ORM department managing areas such as fraud and corporate security.

ORM Team Size

The size of ORM teams is increasing, as evidenced by a comparison of results in the 2005 Operational Risk Survey to results gathered in 2004.\(^\text{4}\) The number of respondents with no ORM team in place declined from 17 percent in 2004 to less than 12 percent in 2005, a reduction of more than 30 percent. There were smaller declines in teams of one to two and three to five members, as newer teams were formed and matured while moving into these two categories during the course of the year. The number of teams with 11 members or more than doubled in the intervening year, at 29 percent of total respondents versus 14 percent in the prior year. The growth in staff anticipated in last year’s survey appears to have been realized in the observed shift in staff sizes noted in this year’s results.

Operational Risk Management Program Staffing

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\(^{4}\) More detailed findings for the 2004 Operational Risk Survey sponsored by Risk magazine and SAS can be found at www.sas.com.
Intuitively, the size of the ORM staff should bear some relationship to the overall size of the institution – and the survey results confirm this expectation. A majority of firms under $10 billion in total assets have two or fewer dedicated full-time staff, and more than 20 percent have no staff at all to support the ORM manager. For firms that are $10 to $25 billion in size, departments with staffing levels of five or fewer dedicated staff are in the majority, while the most prevalent staffing size for firms in the $25-100 billion slot is 6 to 10 staff members. Nearly 40 percent of the ORM programs for firms over $250 billion in size are staffed with 21 or more members. Firms in the $100 to 250 billion group present a slight anomaly, with close to 30 percent of respondents with staff levels of three to five employees and 11 percent of that group noting there was no team in place under the operational risk manager. All firms reporting no operational risk staff also reported they were in the first year of their ORM program. Analysis by tenure of program, structure of ORM program (centralized, distributed or decentralized), region and other factors did not yield potential reasons for this anomaly.

Regional results are largely influenced by the size of organizations responding from the region. North American firms, which had nearly 70 percent of its respondents representing firms $100 billion or more in total assets, also had the largest operational risk staffs of all the regions, with more than 70 percent of their respondents stating their firms have six or more ORM staff members. U.S. firms have the smallest ORM teams of any region, with 57 percent of respondents stating their firms had between one and five staff members – very consistent with the 58 percent of respondents self-identifying with firms under $25 billion in size. Likewise, all of the U.S. respondents with ORM teams of more than 10 staff members represented institutions having more than $250 billion in total assets. In a slight contrast, the Asia-Pacific region, with more than 70 percent of its respondents from firms under $25 billion, had a majority of its respondents identify staffing levels between 3 and 10 staff members. This contrast is noted, but not considered significant given the small sample size of respondents.
Anticipated Growth in Staffing

When queried on the expected change in the level of investment, the results were evenly split between those that expected some level of growth (totaling 49 percent) and those who anticipated no change in staffing levels over the next 12 months (49 percent). This result indicates higher levels of investment than in the prior year, when only 42 percent of respondents anticipated increased staff levels.

The largest growth rates are projected for firms with $10-25 billion and $100-250 billion in total assets. This result is not surprising given that programs in place for five or more years (including many of the firms with $100-$250 billion in total assets), and firms implementing the Standardized Approach for Basel II (including many of the firms with $10-$25 billion in total assets), are seeing the most significant anticipated increases in staffing. As will be discussed later in this presentation, these two peer groups are also at the early stages of Basel implementation, and the most heavily involved in Basel II.

Regional differences in staff growth are apparent in the survey results. The largest staff increases are projected by respondents in the North American and Asia-Pacific regions, with better than 45 percent of North American respondents and 35 percent of Asia-Pacific respondents anticipating growth in excess of 10 percent over the next 12 months. In contrast, nearly half of respondents from both the EU and U.S. are expecting little to no change. This is not surprising for the EU respondents, given the relative firm size and maturity of the ORM programs they represent. For the U.S., however, it may be more a reflection of concerns for already high staffing levels for other compliance initiatives (e.g., Sarbanes-Oxley) as well as uncertainty surrounding the timing of Basel II implementation, given recent regulatory concerns over the impacts of that mandate.

Finally, about 2 percent of respondents anticipated a decline in staffing levels in the near term. These respondents primarily represent a “bar bell” of the smallest firms and the largest firms – perhaps a reflection of jumping too quickly into an overstaffed position for the former firms, and sizing adjustments for the latter.
Staff Skill Set
Audit is the most common background of most ORM professionals (55 percent), with general banking ranking second among respondents (52 percent). An audit background is most common for professionals from North America (70 percent) and Asia-Pacific regions (56 percent). In the EU, general banking background is the most common prior experience base (49 percent). Actual operations and back-office professionals were more common sources of staff in the U.S. (46 percent) and Asia-Pacific regions (50 percent), as well as for firms over $250 billion in total assets (50 percent). It is interesting to note that specialists in specific operational risk disciplines, such as business continuity, fraud and technology, were not common sources of staff for respondents, who tended to favor backgrounds from an oversight tradition like audit.

### Common Backgrounds within a Firm’s Operational Risk Management Program

<table>
<thead>
<tr>
<th>Background</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Audit</td>
<td>55%</td>
</tr>
<tr>
<td>General banking</td>
<td>52%</td>
</tr>
<tr>
<td>Back office/Operations</td>
<td>37%</td>
</tr>
<tr>
<td>Finance/Controllers</td>
<td>27%</td>
</tr>
<tr>
<td>Compliance</td>
<td>21%</td>
</tr>
<tr>
<td>Other</td>
<td>19%</td>
</tr>
<tr>
<td>Technology</td>
<td>17%</td>
</tr>
<tr>
<td>Business continuity</td>
<td>11%</td>
</tr>
<tr>
<td>Bank regulation</td>
<td>10%</td>
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<tr>
<td>Fraud management</td>
<td>9%</td>
</tr>
<tr>
<td>Legal</td>
<td>5%</td>
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</tbody>
</table>

Most regional and size differences were attributable to differences in ORM program mandate. Finance/Controllers experience is the preferred background for U.S. (35 percent) and North American (35 percent) ORM programs – consistent with the influence of Sarbanes-Oxley in the development of programs in those regions. In contrast, Asia-Pacific has the highest preference for staff with compliance experience (33 percent), as would be expected given ORM’s mandate in that region to oversee AML and other compliance initiatives.
Operational Risk Management Program Cost

Key Findings:

- Initial programs cost less than $1 million to establish, with only one-quarter of respondents citing their firm’s spending to be more than $1 million annually in their first year.
- The type of expenditure is strongly linked to the maturity of the firm’s ORM program, with newer programs focused on sourcing management talent, and more mature programs spending on increasing staff as well as addressing training and reporting needs.
- Future expenditure growth is targeted to increased reporting and staffing.

“How much will this cost me?” is one of the first questions executives should, and do, ask in creating an operational risk management program. The response, when focused on annual expenditures excluding technology, differs depending on the size of the firm, the tenure of the program and the mandate the program embraces. In general, initial programs cost less than $1 million to set up, but can expect to grow well in excess of that budget with the introduction of new responsibilities as the program matures, and with the evolution to a more distributed management framework as ORM broadens its reach within the firm. Growth in future spending is largely focused on increased reporting and staffing to meet the demands of maturing ORM programs.

Annual Expense for ORM Programs (Excluding Technology)

There is a direct relationship between total operational risk spend (excluding technology) and tenure of the operational risk management program. The longer the operational risk program has been in place, the larger the expected spend. For firms with new operational risk management programs in place for less than a year, only one-quarter of respondents cited their firm spending to be more than $1 million annually. Firms spending more than $1 million in their first year may be correcting an existing issue by developing an ORM program, as these firms represent all asset sizes from less than $10 billion to more than $250 billion.

This relationship is partially explained when considering that the maturity of a program is linked to the size of the firm. More than half of the firms that cite total operational risk spend of less than $1 million were firms with programs in place for two years or less. This group is dominated by smaller firms (41 percent are less than $25 billion), which can influence relative spending patterns. When examining the spending on behalf of
the longest tenured programs (more than five years), all of the firms spending more than $5 million have assets in excess of $100 billion.

Because of the strong linkage between size and operational risk management spend, total spend by region reflects the size distribution of the firms within that region. North America has the largest proportion of higher expense programs (61 percent spending more than $3 million), while the United States comes in at a distant second (33 percent). The remaining regions are dominated by firms spending under $1 million, with Asia-Pacific firms having the highest percentage (71 percent), followed by Other Markets (64 percent) and the EU (52 percent).

A trend analysis can be tentatively pulled from an examination of the average operational risk spend relative to program tenure for each of the size peer groups. For firms with $100 billion in total assets, it appears that annual expenditures for operational risk initially increase with a peak and eventual decline as the ORM program matures. The peak occurs earlier for larger firms ($25-$100 billion in total assets) in the peer group, potentially driven by the ability to accelerate expenditures given larger budget support. The average spend for smaller firms follows a longer but similar trajectory at lower spending levels.

![Average Operational Risk Management Program Spend By Tenure and Firm Size](image)

Given that firms with $100–250 billion in total assets had few representatives with programs of tenure less than two years, the earlier expenditure pattern is unknown. However, for programs of tenure greater than two years, these firms see ORM program costs continue to increase as the programs age past five years. More data is also needed to evaluate the largest firms in the survey, those with $250 billion or more in total assets. A trend for these firms has yet to emerge, which may be a result of the unique nature of some of the world’s largest institutions. For firms with total assets of $250 billion or more, operational risk spend appears independent to the length of time an operational risk management program has been in place, with size potentially playing a more significant role in the expenditure than program tenure. In addition, the choice of spend buckets may be too low to incorporate the sizeable spend of some of these institutions. Likewise, the “less than $1 million” bucket may not provide enough granularity for smaller institutions to recognize change patterns in their ORM program spend.
Growth in ORM Program Annual Expenses (Excluding Technology)

Spending levels in 2005 are the result of significant increases in annual expenses in ORM programs over the past two years. Globally, more than 63 percent of firms have seen an increase in operational risk spend. During the same period only 8 percent of firms experienced a decline in ORM costs and the remaining 29 percent saw no change in costs.

As operational risk management continues to gather momentum as a discipline, expenditures will increase as an ORM program increases in sophistication. Overall, two-thirds of all firms with programs in place for more than one year experienced increases. Almost one-third of firms with programs in place less than three years saw no change in ORM expenditures and less than 5 percent saw a decrease. Firms surveyed did not see decreases in expenditures of their program until after their program’s third year – where declines were experienced only by 10 percent of firms with programs in place three to five years and 20 percent of firms with programs in place more than five years.

As with actual expenditure levels, size is an important driver of the growth rates experienced over the past 24 months. Larger firms experienced the highest growth rates over the past two years, with one-third of firms with total assets greater than $250 billion growing at 25 percent or higher. Even firms with total assets of $100 - $250 billion experienced significant growth, where nearly 30 percent of respondents experienced growth of 10-24 percent, and 30 percent of respondents saw growth in excess of 25 percent. Interestingly, this peer group also had the largest group of respondents reporting declines in spending during the prior 24 months (18 percent).

Respondents from smaller firms (with less than $10 billion in total assets) said their firm saw no change or a small increase of less than 10 percent (36 percent and 24 percent respectively) in their ORM spend over the previous two years. This is in strong contrast with firms in the next peer group, where 31 percent of respondents from firms with $10-25 billion in total assets experienced growth rates in excess of 25 percent – a reflection of the growth in staffing levels and relative starting point for expenditures for that peer group.

Once again, regional differences are more driven by size and tenure of programs than unique regional factors. North American firms have seen the most significant expense growth, with 39 percent experiencing increases in excess of 25 percent. More than 70 percent of Asia-Pacific firms have experienced increases, although most of the increases are less than 10 percent. Firms within the EU also experienced significant growth (31 percent with growth in excess of 25 percent), but also had the largest group of firms (6 percent) indicate expenses had declined by more than 25 percent during that same time period. There has been some relief for a small portion of U.S. firms, as 9 percent of U.S. firms experienced declines in ORM costs.
Future Growth in ORM Program Annual Expenses (Excluding Technology)

Looking forward, more than 61 percent of respondents expect their firms operational risk management costs to increase from prior period expenditure levels, while only 6 percent expect a decrease. However, future increases are expected to be slightly smaller than increases experienced over the last 24 months. Only 15 percent of respondents expected increases of 25 percent or more, as compared to the 26 percent of respondents who faced that growth rate over the previous two years. More respondents expected little or no change (when compared with growth experienced over the prior 24 months) – with 21 percent of respondents expecting increases of 10 percent or less (versus 16 percent) and 32 percent of respondents expecting no change in expenditures (versus 29 percent).

Almost 40 percent of EU firms and North American firms that have seen the most significant increases of 25 percent or more in operational risk spend over the previous 24 months are now expecting no change in ORM costs over the next 12 months. North American firms are still not out of the woods yet – almost 60 percent of North American firms are expecting increases of 10 percent or more. Asia-Pacific, which also has seen considerable increases in operational risk spend, is expecting the largest increases in ORM costs of any region over the next 12 months. More than 76 percent of Asia-Pacific firms expect an increase, with 41 percent of firms expecting increases of 10 percent or more. The majority of U.S. firms are also expecting an increase, primarily in the range of 10-24 percent. However, 14 percent of respondents representing U.S. firms are anticipating a decrease.

Institutions with $100-$250 million in total assets are seeing the largest increases. Over 73 percent are anticipating increases, with 53 percent expecting increases of 10 percent or more. In contrast, respondents representing firms with total assets of more than $250 billion are expecting lower increases or no increases after two years of significant increases in ORM costs.
Where is the Additional Operational Risk Management Spend Expected to Occur?

Increased reporting and staffing expenditures top the list globally for those respondents anticipating increased expenditures in 2005. Overall, increased reporting is expected to be the most significant use of the additional expenditure – cited by 60 percent of respondents in selecting the top three types of expenditures in the coming year. However, it is important to note that increased staffing was identified most frequently by respondents as their “most important factor,” regardless of region or size, by a margin of 2 to 1. Even firms anticipating the small changes in annual spend (either increase or decrease), continue to see additional spend on increased reporting (19 percent), increased management (16 percent) and increased staff (18 percent). The highest priority for firms expecting small increases or decreases is training (21 percent).

The tenure of the ORM program has a strong link to the type of spending that occurs. Increasing spend on management (26 percent) and training (26 percent) is the highest priority for programs not formally in place yet, with focus shifting to increasing staff levels and reporting after formal adoption.

Training is also a significant source of operational risk expenditures for all programs in place for less than five years (19 percent). Audit support (9 percent) and use of consultants (12 percent) were the most likely expenditures for programs in their first year.

Regional differences were minor, with the exception that respondents from Asia-Pacific have a higher focus on training expenditure (60 percent) and audit support (22 percent) than any other region. This may be reflective of the overall catch-up that firms are accelerating as they embrace ORM and other risk management initiatives in anticipation of widespread adoption of Basel II in this region.
Implementation of Basel II Operational Risk Management Standards

Key Findings:
- Standardized approaches for calculating economic capital are more prevalent among survey respondents.
- More than half of the respondents noted that their Basel II ORM programs are at least midway through their implementation or better, with AMA programs closest to completion.
- The Loss Distribution Approach (LDA) is used by nearly 50 percent of those firms adopting the Advanced Measurement Approach.
- Firms have made little progress towards implementing Pillar 3 disclosure requirements.

BASEL II and related domestic regulations were universally identified, by more than 90 percent of respondents, as the most significant stimuli for the development of operational risk management programs. Even in the United States, where only the largest banks are required to comply with the Accord, 85 percent of firms with less than $10 billion in assets identified the Accord as a significant factor in the development of their programs. The following findings provide a look through the current window of Basel II implementation, as firms globally work toward varying levels of compliance with this international standard in 2007 and beyond.

Choice of Basel Approach Used for Operational Risk

When considering banking institutions that are potential Basel II adopters - retail, commercial and integrated financial - 12 percent plan to adopt the Basic Indicator Approach, 44 percent plan to adopt the Standardized or Alternative Standardized Approach, and 40 percent plan to adopt the Advanced Measurement Approach (AMA). The remaining 4 percent of institutions plan to continue using Basel I where operational risk is accounted for indirectly by holding additional capital above the minimum capital requirements for credit risk.

When compared to last year’s survey results, fewer respondents appear to be using the Advanced Measurement Approach to calculate economic capital (40 percent versus 44 percent in 2004), while a greater number of respondents are selecting the Standardized Approaches (44 percent versus 33 percent in 2004).

Significant differences in the distribution of approaches are apparent when examining respondents by region. The distribution of approaches planned by U.S. firms differs significantly from all other regions due to the restriction of U.S. headquartered institutions by U.S. regulators to adopt only the Advanced Measurement Approach or continue using Basel I. The small percentage of U.S. firms adopting the standardized approach most likely reflects those U.S.-based subsidiaries of foreign headquartered firms that have the latitude to adopt the other Basel II methodologies.

<table>
<thead>
<tr>
<th>Basel Approach Employed</th>
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<tr>
<td>Advanced Management Approach (AMA)</td>
<td>40%</td>
</tr>
<tr>
<td>Alternative Standardized Approach</td>
<td>6%</td>
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<tr>
<td>Standardized Approach</td>
<td>38%</td>
</tr>
<tr>
<td>Basic Indicator</td>
<td>12%</td>
</tr>
<tr>
<td>Basel I</td>
<td>4%</td>
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North American firms and those in the Other Markets are planning to implement the Standardized Approach more often than any other region. This result is particularly surprising given the large proportion of respondents from large North American firms or firms with more than $100 billion in assets from the region participating in the survey. North American firms may be taking a wait and see approach to the Advanced Measurement Approach, particularly given their uncertainty as to the relative positioning of economic versus regulatory capital allocation (52 percent), and the few respondents who expected reductions of 10 percent or more in operational losses over the next 12 months (22 percent).

Asia-Pacific respondents indicated their institutions plan on implementing less sophisticated approaches on average more than any other region. This is not surprising given this region has the shortest average tenure of ORM programs relative to other regions (33 percent in place less than two years and 11 percent with no program in place), as well as the largest proportion of firms with assets under $10 billion in assets (53 percent).
Intuitively, one expects that the larger the firm, the more likely it is to leverage the cost and benefits of more sophisticated ORM economic capital approaches. Survey responses largely support this hypothesis, with some surprising results.

Respondents representing firms with assets under $10 billion have the highest proportion firms adopting the Basic Indicator Approach or remaining compliant with Basel I. What is somewhat surprising is that better than one in five respondents representing firms with less than $10 billion in total assets is implementing the Advanced Measurement Approach. One possible explanation may be the sample selection bias introduced through the distribution of this survey to Operational Risk magazine subscribers, who themselves may be more likely to represent adopters of more sophisticated methodologies than those who have no interest in such publications.

Over two-thirds of institutions with $10-$100 billion in total assets are implementing the Standardized Approach, with the majority of the remaining third implementing the Advanced Measurement Approach. For institutions with more than $100 billion in total assets, more than one-half plan on implementing the Advanced Measurement Approach, with the majority of the remaining implementing the Standardized Approach. Those adopting the Advanced Measurement Approach tended to have longer tenured programs than those adopting the less technically sophisticated approaches.
Implementation Stage of Basel II ORM Standards

With parallel testing quickly approaching for many jurisdictions, it is interesting to note that 27 percent of respondents are only in the initial stages of implementation, while 19 percent have not started implementation. Only 19 percent stated that Basel implementation was at or near completion.

When implementation status is viewed in terms of which approach is being implemented, those respondents adopting the Advanced Measurement Approach are furthest in their implementation – with almost 80 percent at least midway through implementation. Given the informational requirements of the Standardized Approaches, nearly 60 percent of respondents adopting these approaches were midway or better in the implementation efforts. In contrast, nearly 80 percent of those respondents adopting the Basic Indicator approach are in the initial implementation stages or have not as yet begun implementation. This latter status may be more a reflection of the simplicity of the approach than a seriously delayed exercise that should draw general concern.

Press accounts that U.S. firms are behind EU firms in the adoption of Basel II appear to be borne out by survey responses. U.S. firms are slightly behind the rest of the world in implementing the Advanced Measurement Approach – with one-half of all respondents citing their firm is not yet midway through implementation based in the United States. While 50 percent of EU respondents indicated AMA implementation is almost completed or actually completed, only 22 percent of U.S. respondents noted they were almost complete. In a recent speech, Federal Reserve Governor Susan Schmidt Bies noted that “the Federal Reserve would not be comfortable qualifying any [U.S.] bank based on the results of QIS4, if Basel II were to be applied today.”

Inputs to Calculate Economic Capital for Operational Risk

The inputs required to calculate economic capital for operational risk vary by methodology employed, with AMA having the most extensive input requirements (internal data, external data, scenario analysis, and business environment and control information), and the standardized approaches requiring internal loss information in addition to line of business data. It is therefore not surprising that almost 90 percent of all respondents cited their firm is collecting operational loss data. Scenario analysis (54 percent) and external data (49 percent) run distant second and third positions respectively, and are characteristically used to enrich what are currently sparse internal loss databases.

Survey results demonstrate that information inputs are driven by more than economic capital calculation requirements. While only institutions planning to adopt the Standardized or Advanced Measurement Approaches are required to collect loss data, data collection among other institutions is remarkably strong. Nearly 92 percent of firms implementing the Basic Indicator Approach are collecting loss data. Whether firms planning to adopt the Basic Indicator Approach are looking to operational loss data to improve operational risk management or plan to adopt the Standardized Approach in the future is unknown, but the number of respondents collecting loss data signals the significance of operational loss data in operational risk management.
While AMA firms are required to also use external data, scenario analysis and information on the institution’s business and control environment in their calculation of economic capital, less than 40 percent of all AMA respondents cite their institutions as currently using all three of the four required inputs into the economic capital for their operational risk models. Only 80 percent of firms are conducting scenario analysis and 70 percent of firms are using external data. The weakest area is in the use of business environment (52 percent) and control effectiveness (42 percent) indicators. While these information sources are not required for economic capital calculation for the standardized approach, nearly 40 percent of those respondents adopting the standardized approaches are using external data, scenario analysis and business environment information as part of their calculation program.

Key risk indicators are used by a majority of AMA respondents (53 percent) and 40 percent of those adopting the standardized approaches. Even those respondents adopting the Basic Indicator Approach are using KRI as part of their ORM tool kit (31 percent). Although an increasing number of firms are selecting KRI as part of their information set, more work is needed in establishing the purpose, definition and delivery of KRI over time.

Near miss data was the resource cited by respondents least often. This is more than likely a reflection of the uncertainty in how near miss data is incorporated into economic capital calculations. Less than 25 percent of AMA institutions are incorporating near miss data.
AMA Approaches for Calculating Economic Capital for Operational Risk

The most frequently cited methodologies for calculating economic capital under AMA are:

- Loss Distribution Approach (LDA)
- Structured Scenario Analysis
- Scorecard Approach
- Combination of the above

Among those respondents implementing AMA in their firms, the most common approach is LDA (46 percent).

Loss Distribution Approach

The Loss Distribution Approach (LDA) is the most widely cited method by respondents for calculating economic capital for operational risk. The LDA is a more quantitative method relative to other approaches for calculating operational risk capital, relying heavily on internal loss data and, to a varying extent, external data. LDA bases capital requirements on actual loss experience and qualitative assessment of the internal control environment, providing a more objective calculation than Structured Scenario Analysis or a Scorecard Approach. Of those respondents adopting AMA, nearly half of all EU and North American respondents and one-third of U.S. and Asia-Pacific respondents plan to use the LDA.

On average, LDA programs are reportedly midway through their implementation plan. Respondents using LDA are major users of operational risk information beyond the obvious use of internal data:

- Nearly 85 percent are using external data
- More than 88 percent are using scenario analysis
- More than 58 percent are using KRIs
- Only 46 percent are using business environment and control data

Limited operational loss data is often cited as the reason many firms employ Scenario Analysis or a Scorecard Approach instead of LDA. This year’s survey responses do not support this hypothesis. On average LDA respondents reported their institution had collected 2.8 years of loss data, however Scenario Analysis respondents cited on average their institution had collected 2.7 years of data. In addition while 90 percent of all LDA respondents indicated their firm had at least one year of loss data, 100 percent of Scenario Analysis respondents indicated their firm had one year or more of data. More than 48 percent of LDA respondents have three years or more of loss data.
Structured Scenario Analysis
Structured Scenario Analysis is widely used within all regions according to survey respondents, accounting for 30 percent of all respondents adopting AMA. In this approach, expert judgment within the institution supplements scarce internal data to derive economic capital. Scenario analysis may also be used to adjust the LDA for factors not taken into consideration.

Because the methodology is more judgmental than LDA and less dependent on internal data collection, it is often the first approach adopted by those firms seeking AMA. Structured scenario analysis was identified by 65 percent of firms with ORM programs in place for two to five years. Nearly 70 percent of these firms have between one and three years of data.

Those respondents using the structured scenario approach are the furthest along in implementing their AMA program, with nearly 1 in 3 respondents noting the programs are close to completion. Every respondent planning to use this approach already has a measurement program underway according to survey results.

Scorecard Approach
The Scorecard Approach is the simplest of methodologies, relying on a scorecard structure to assess the capital requirements of the firm. This method is most prevalent in the Asia-Pacific region, but overall accounts for less than 15 percent of all AMA respondents. Firms using this approach tend to have the lowest average number of years of internal data available (1.1 years), and most often have programs in place for less than three years. Overall, only 50 percent of respondents citing the use of the scorecard approach also noted that their programs were less than midway through implementation, versus 20 percent for AMA adopters overall.

Only 9 percent of AMA adopters selected a combination of methods, with LDA most often combined with Structured Scenario Analysis among respondents selecting this option.
Operational Risk Loss Data
While almost every institution surveyed is planning to use internal loss data to calculate economic capital for operational risk, many firms are not yet in a position to do so. Only 53 percent of respondents from AMA institutions report their firm has three or more years of data already collected. Although most institutions will be in a position by the time they adopt the Accord, almost 90 percent of respondents will have three years of data by 2008, as long as they continue to collect loss data.

Institutions adopting the Advanced Measurement Approach must have a minimum of three years of historical data to calculate economic capital for operational risk or any other internally generated operational risk measures for initial compliance. For most countries outside the U.S., an institution intending to adopt the AMA by January 1, 2008, would be required to collect historical loss data from January 1, 2005 forward. U.S. institutions would need to start collecting historical loss data from January 1, 2006 forward to meet the U.S. AMA deadline of January 1, 2009. After implementation, institutions are required to have a minimum of five years of operational risk loss data. An institution is not required to start data collection before January 1, 2005. Institutions may go back and collect data provided that it is “comprehensive in that it captures activities and exposures from all appropriate sub-systems and geographic locations.”

Responses for the 2005 Operational Risk Survey were collected in March and April of 2005, reflecting ORM activity consistent with Basel II deadlines in place at that time. In order to comply with Basel II in the fiscal 2007 period, banks must be in their first year of data collection at the time of the survey. Over 95 percent of respondents from AMA institutions indicated their firm had already started collecting operational loss data. Just under 5 percent of firms have not started loss data collection activities and will have to go back and collect the data. More than 53 percent of respondents of AMA firms say their firm has three or more years of data. The survey did not question the respondent on the comprehensiveness of the data or the number of years of comprehensive data.

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At the time of this survey, regulatory guidance looked to Basel II compliance in 2007 for all jurisdictions but the US, where the target date was January 1, 2008. Subsequent to this survey, deadlines in many jurisdictions are delayed by one year or more.
Even firms with less sophisticated risk management practices who are implementing the Basic Indicator Approach are collecting loss data. Over 86 percent of respondents from institutions planning to adopt the Basic Indicator Approach have collected at least one year of loss data. Only 13 percent of respondents cited their firm has not collected any operational loss data. Even 5 percent of respondents from AMA institutions report their firm has not collected any operational loss data. While the comprehensiveness of loss data from AMA institutions may on average be greater than that of Basic Indicator institutions, Basic Indicator institutions appear to be embracing operational risk.

**Inclusion of Operational Risk Exposure in Economic Capital**

When queried on the inclusion of operational risk in their overall measurement of economic capital, three out of four respondents currently do so (31 percent) or plan to do so in the future (44 percent). Of those with no expectation of including operational risk in their economic capital calculation, nearly 70 percent were respondents from firms with total assets under $25 billion.

As expected, the more sophisticated the measurement approach used, the greater the responses linked to the use of operational risk measures in the calculation of economic capital. Nearly 60 percent of all respondents from AMA institutions are currently including operational risk in their economic capital calculations, with an additional 40 percent planning on introducing ORM in future calculations. By contrast, no respondents expecting to retain Basel I as their regulatory capital methodology currently capture operational risk in their economic capital calculation. It is interesting to note that Basel I adherents, while not required to include operational risk for economic capital purposes, have a higher percentage of respondents planning to include operational risk in future economic capital calculations than respondents implementing the Basic Indicator Approach for Basel II, which does require an operational risk component (60 percent versus 40 percent).
It is also worth noting that regulatory calculation of economic capital for operational risk does not automatically imply that these measures make it into a firm’s economic capital program. More than 50 percent of those respondents using the Basic Indicator Approach and over 20 percent of those adopting the Standardized Approaches have no expectation of including operational risk in internal economic capital calculations. This response represents a serious disconnect with the use tests mandated under Pillar 2 of the Basel II Accord.

Operational Risk Disclosures under Basel II
In Pillar 3 of the new Basel II Accord, regulators have outlined the external disclosure requirements for operational risk management objectives, policies and exposure levels. Information requirements include:

- Strategies and processes;
- The structure and organization of the relevant risk management function;
- The scope and nature of risk reporting and/or measurement systems; and
- Policies for hedging and/or mitigating risk as well as strategies and processes for monitoring the continuing effectiveness of hedges/mitigants.

To date, only 8 percent of all respondents implementing Basel II have implemented the disclosure requirements for operational risk. More than half of respondents adopting Basel II have not yet started implementing the disclosure requirements specified under Pillar 3.

This statistic comes as no surprise given the lack of specific local regulatory guidance on these disclosures and the implementation status of the programs themselves. With most jurisdictions now reviewing final regulations for the adoption of Basel II, respondents may be more focused on the execution of their programs than the design and advance implementation of disclosures about those programs.

For those respondents adopting the Basic Indicator Approach, four out of five respondents noted their firms have not begun efforts to structure their disclosure requirements. Given the implementation status of these programs (80 percent are at initial stages or not yet begun), any efforts to construct disclosures around policies...
and procedures are premature. Similarly, nearly 60 percent of those adopting the Standardized Approaches have not started their disclosure programs – most likely also awaiting completion of key programs before beginning construction of disclosures.

### Status of Basel II Disclosure Requirements Implementation by Basel Approach

<table>
<thead>
<tr>
<th>Basel Indicator Approach</th>
<th>Standardized Approaches</th>
<th>Advanced Measurement Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have not started</td>
<td>7%</td>
<td>11%</td>
</tr>
<tr>
<td>Have only specified disclosure requirements</td>
<td>13%</td>
<td>15%</td>
</tr>
<tr>
<td>Ready to start disclosing</td>
<td>30%</td>
<td>39%</td>
</tr>
<tr>
<td>Are already disclosing</td>
<td>80%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Nearly 11 percent of all AMA respondents indicate that their firm is already disclosing information required by Basel II for operational risk, and another 15 percent of AMA respondents are ready to start disclosing. Only one-third of AMA respondents who are disclosing or are ready to disclose indicate that their firm is more than mid-way through implementation. Apparently, respondents feel comfortable disclosing specifics about their AMA program even though they may only be in the initial stages or midway through implementation.

From a regional perspective, U.S. respondents are the furthest in implementing disclosure requirements for Basel II. Of those adopting Basel II, 43 percent have already specified disclosure requirements, while 14 percent are ready to begin disclosing. Only 36 percent of U.S. respondents have not started disclosure efforts, as compared to Asia-Pacific (69 percent), the EU (58 percent) and Other Markets (56 percent). U.S. responses are largely influenced by the preponderance of AMA adopters, as well as the influence on external disclosure already exerted by other compliance requirements, such as Sarbanes-Oxley.
Operational Risk Management Technology

Key Findings:

- Technology costs have increased for more than 60 percent of survey respondents over the past 24 months, and are expected to continue to climb through 2005.
- Technology to support operational loss databases and risk self-assessment programs is already in place for more than half the participants.
- KRIs and internal reporting are the most frequently identified tools currently being implemented.

Technology plays a critical role in the delivery of operational risk information and analytics. The development of the Basel II requirements and other regulatory initiatives has significantly expanded requirements for loss and other incident data – prompting firms to introduce or expand risk information data marts to accommodate the volume of information required to support the economic capital calculation as well as the active risk management of these exposures.

While the analytical tools under development today rival those in place for credit and market risk capital measurement, they lack the years of data from which those disciplines can draw to substantiate their assumptions and scenario exercises. As a result, we anticipate that there will be continued refinement of operational risk analytical tools as the years of exposure data enrich the analysis being performed. Operational risk calculation models need to be flexible enough to accommodate this metamorphosis, while still meeting the interim measurement requirements of their owners – albeit with more focus in the near term on directional correctness rather than pinpoint accuracy.

As we see from the respondents to the 2005 Global Operational Risk Survey, this all takes investment – and growth in technology expenditures is expected to continue into the foreseeable future.

Change in ORM Technology Expense Over the Past Two Years

Operational risk expenditures related to technology have increased for more than 60 percent of the survey respondents. And more than one-third of respondents surveyed indicated technology expenditures have increased by 10 percent or more over the previous two years. In contrast, only 2 percent of respondents said their firm’s operational risk technology expenditures have decreased over the same period.

Change in Technology Costs Over the Previous 24 Months

<table>
<thead>
<tr>
<th>Decreased by</th>
<th>0%</th>
<th>1%</th>
<th>1%</th>
<th>38%</th>
<th>26%</th>
<th>19%</th>
<th>15%</th>
</tr>
</thead>
<tbody>
<tr>
<td>more than</td>
<td>Decreased by</td>
<td>Decreased by</td>
<td>Decreased by</td>
<td>No change</td>
<td>Increased by</td>
<td>Increased by</td>
<td>Increased by</td>
</tr>
<tr>
<td>25%</td>
<td>10-24%</td>
<td>1-9%</td>
<td></td>
<td></td>
<td>1-9%</td>
<td>10-24%</td>
<td>more than 25%</td>
</tr>
</tbody>
</table>
Regionally, respondents representing firms from North America and the United States have seen the largest increase in technology costs related to operational risk. One-third of respondents from North America have seen increases of 25 percent or more, while one-third of U.S. respondents have experienced increases of 10 to 24 percent. While this expenditure growth is representative of the number of responses from large firms, the significant increase may also be attributable to the fact that North American firms are slightly ahead of their peers in implementing Basel II. In turn, U.S. respondents may be recognizing the technology-intensive nature of the AMA approach to Basel II, given reliance of AMA on loss databases and sophisticated statistical modeling techniques.

Beyond North America and the United States, technology costs have increased at a much slower rate. Over 40 percent of the respondents from the Asia-Pacific region saw increases of less than 10 percent, and as many respondents noted growth rates in excess of 25 percent and experienced declines in expenditure of 25 percent (6 percent of respondents). Nearly 40 percent of EU firms have seen no change in technology costs related to operational risk over the past two years – the driver for total survey responses for this category.

When evaluating changes in operational risk technology costs there is not a clear relationship with the size of the firm. There is some indication that firms with $100 - $250 billion in total assets are seeing the largest increases and firms with less than $25 billion in total assets are seeing the smallest increases.

A relationship does appear with firms adopting Basel II when considering the implementation stage of the operational risk standards. Intuitively, technology costs should increase during implementation. The question is, at what point does the technology expenditure peak, with a resulting slow down or decline in technology expenditures? While costs increase significantly in the initial implementation stages, the largest increases are seen midway through implementation and when implementation is almost complete. Increases decline once implementation is complete, although the number of respondents citing their firm had completed implementation of the Basel II operational risk standards is very small (fewer than 2 percent of all respondents implementing Basel II). Thus, it is premature to gauge the change in technology costs after implementation.

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**Status of Basel II Implementation by Change in Technology Expenditures Over the Previous 24 Months**

<table>
<thead>
<tr>
<th>Status</th>
<th>Increased 1-9%</th>
<th>Increased 10-24%</th>
<th>Increased by more than 25%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have not started</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>implementation stages</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In initial implementation stages</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midway through</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implementation is</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>almost complete</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implementation complete</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Have not started</th>
<th>In initial implementation stages</th>
<th>Midway through implementation</th>
<th>Implementation is almost complete</th>
<th>Implementation complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Change in ORM Technology Expense Over the Next 12 Months
Respondents were also asked to estimate the change in technology costs related to operational risk over the next 12 months. Remarkably, when comparing ORM technology expenditures of the last 24 months to the same respondents’ anticipated change in ORM technology expenditures for the next 12 months, the majority of respondents expect their firms to see further increases or to continue to see no change in technology costs. One-quarter of respondents expect even larger increases this year in technology costs than they have seen in the last two years.

The largest increases are found for firms which are midway through implementation of the Basel II operational risk standards. The largest decreases are found for firms from North America, excluding the United States.

Adoption of ORM Tools
Internal operational loss databases, key risk indicators, self-assessment tools and internal operational risk reporting tools are being almost universally implemented according to respondents. Each tool is being implemented by more than 85 percent of all respondents surveyed. While use was slightly stronger at larger institutions, institutions from virtually all asset sizes are widely implementing these tools. Even the majority of firms with less than $1 billion in total assets are creating operational loss databases.

In examining the trend for introduction of ORM tools, internal loss databases and self-assessment tools are the first tools implemented by operational risk programs (more than 50 percent of respondents). This trend is seen across all geographic regions and sizes of firms. The latter result is particularly interesting given anecdotal concerns over the expense of creating internal databases. For smaller firms, as well as U.S. respondents, internal reporting is equally prevalent as tools already in place.

Internal reporting and key risk indicators (KRI s) are the focus of tool implementation currently underway. With acquisition of data and assessment information, it is logical that ORM managers are now turning to more predictive risk metrics and reporting vehicles.
KRIeX have somewhat lagged other data collection tools in their introduction, largely due to confusion over their definition and use. With the growth of vendor offerings such as KRIeX (offered by RiskBusiness in collaboration with the Risk Management Association in the United States) as well as other trade association consortiums, the content and dialogue around defining the role of KRIeX in operational risk management may be increasing respondents’ comfort level in the investment in this tool. Based on respondents’ selections, KRIeX will be as prevalent as self-assessment, loss databases and internal reporting tools in the future – in place for more than 85 percent of all respondents.

Statistical modeling is prevalent for respondents representing larger firms, with more than 60 percent of firms over $250 billion in total assets or larger developing models in place or under development. More than 30 percent of firms in the next size cluster ($100-250 billion) are developing models, while an additional 30 percent anticipate implementing models in the future (for a total of 78 percent). Surprisingly, more than 60 percent of respondents from firms with less than $10-100 billion in total assets, and more than one in three of respondents from the smallest institutions (<$10 billion) noted that they have or intend to have a statistical tool implemented at some point in the future. This is noteworthy given that only the AMA approach under Basel II requires such sophistication in economic capital measurement. On a related note, expert systems for modeling economic capital are already implemented by primarily the largest firms (22 percent), under implementation for respondents from firms with $100-250 billion in total assets (24 percent), and under consideration for firms with $25-100 billion in total assets (18 percent).

The remaining tools are not as widely used, but we anticipate their use will increase in the future given Basel II measurement and reporting requirements. External loss databases are used mainly by firms with $50 billion or more in total assets. This size differentiation is largely a reflection of the general concerns of smaller institutions as to how reflective these databases are of their business mix and loss experiences. While external compliance reporting tools are being implemented by less than 50 percent of the respondents, this number is expected to increase as the requirements for Pillar 3, “Market Disclosure,” are defined by each region’s regulators.
Obstacles Facing Operational Risk Management

Key Findings:

- Globally, the most significant potential obstacle to successful implementation of ORM systems is overall awareness and knowledge of operational risk issues among general staff.
- No single obstacle was cited by a majority of respondents, indicating that obstacles to successful operational risk management vary widely among respondents.
- Conflicting guidance between home/host regulatory standards was most frequently cited as having “no impact” on ORM program success.
- EU and North American respondents appear to perceive the fewest obstacles to success, while respondents from the Asia-Pacific region have a more extensive list of concerns.

Obstacles for operational risk managers come in a variety of forms – awareness, funding, regulatory intervention, and so on. Many of the challenges are reflective of the relative “immaturity” of operational risk management as a discipline, and the strong desire to accelerate wider acceptance by its proponents. Perhaps more importantly, the obstacles cited by this year’s respondents are indicative of the fundamental nature of operational risk. Ultimately, successful management of this risk requires awareness and intervention by all employees, vendors, clients, and even the municipal infrastructures of communities of the firm in order for ORM programs to be most effective. No other risk discipline is so dependent on such a broad body of participants for its success.

Potential Obstacles to Successful Operational Risk Management

Globally the most significant potential obstacle to the successful implementation of an operational risk management system cited was the overall awareness and knowledge of operational risk issues among general staff. Only North America had fewer than 40 percent of its respondents cite this issue as significant for successful implementation. For the first time, this obstacle outweighed concerns raised in past surveys for measurement and data issues.
There are some notable differences when comparing regional responses. The EU appears to be encountering few if any significant issues, with only overall awareness and knowledge of operational risk issues among general staff selected by more than 40 percent of respondents. In contrast, respondents from Asia-Pacific had the largest number of issues raised as significant by its respondents, largely clustering around data access and implementation issues, as well as concerns for internal management buy-in. Respondents from this region were the only ones to identify lack of clear industry best practices as being a significant issue – demonstrating a strong desire in that region for greater guidance from other practitioners on ORM systems.

<table>
<thead>
<tr>
<th>Global Ranking</th>
<th>Potential Obstacles to Successful Implementation of ORM System</th>
<th>European Union</th>
<th>United States</th>
<th>North America</th>
<th>Asia-Pacific</th>
<th>Other Markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Overall awareness and knowledge of operational risk issues among general staff</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td>2</td>
<td>Difficulty in collating sufficient volume of historical data</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td>3</td>
<td>Cost and time of implementation</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td>4</td>
<td>Lack of clarity from regulators</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td>5</td>
<td>Access to operational risk expertise/talent</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td>6</td>
<td>Inadequate management buy-in</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td>7</td>
<td>Difficulty in modeling operational risk</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td>8</td>
<td>Difficulty in ensuring the quality of the data</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td>9</td>
<td>Difficulty in mixing qualitative and quantitative information</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td>10</td>
<td>Difficulty in accessing/reporting operational data</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td>11</td>
<td>System integration issues</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td>12</td>
<td>Lack of clear best practices from industry leaders and/or professional associations</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td>13</td>
<td>Difficulty in integrating internal and external loss data</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td>14</td>
<td>Conflicting guidance between home/host regulatory standards</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
</tbody>
</table>

Note: Ø = 40 percent or more respondents selected as “high” or “most significant”

Only U.S. respondents recognized concerns over system and data integration issues – reflective of the impact of Sarbanes-Oxley and other compliance initiatives on the desire for greater integration to minimize cost and duplication of efforts.

Unlike the other regions, respondents from the EU and U.S. regions did not identify “lack of clarity from regulators” as a significant concern. This may be more indicative of the highly involved role regulators have taken in advancing clarity through broad dialogue and communications within the EU. The United States, however, has provided less documentation than many of the other regions, but the regulation itself impacts a small segment of the U.S. banking community. As of November 2005, U.S. regulators still had not announced formal Basel II requirements and have indicated changes may be made before final rules are announced. Interestingly, no region had 40 percent or more of its respondents identify “conflicting guidance between home/host regulatory standards” as a significant issue in ORM system implementation.

It is also worth noting which obstacles posed the more significant challenges from the perspective of firm size. While all firms, regardless of size, noted overall awareness and knowledge of operational risk issues as their highest concern, respondents from firms with $100-250 billion in total assets had the highest number of
potential obstacles to attract 40 percent or more respondents – more than twice those of the other size clusters. This may be more reflective of the relevance of these issues to the actual ORM programs offered by these larger firms, than an absence of issues for the smaller institutions. It is also interesting to note that concerns over collecting sufficient data and the cost and time of implementation were shared by respondents from the largest and smallest firms.

<table>
<thead>
<tr>
<th>Global Ranking</th>
<th>Potential Obstacles to Successful Implementation of ORM System</th>
<th>&lt;$10B</th>
<th>$10-25B</th>
<th>$25-100B</th>
<th>$100-250B</th>
<th>&gt;$250B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Overall awareness and knowledge of operational risk issues among general staff</td>
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<td>Ø</td>
<td>Ø</td>
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<td>Cost and time of implementation</td>
<td>Ø</td>
<td>Ø</td>
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<td></td>
<td>Ø</td>
</tr>
</tbody>
</table>

Note: Ø = 40 percent or more respondents selected as "high" or "most significant"

Finally, when viewing obstacles selected on the basis of the relative maturity of the ORM program, several trends are worth noting:

- Overall awareness and knowledge of operational risk issues among general staff is an issue no matter how developed your program is.
- Difficulty in modeling operational risk, access to operational risk expertise and system integration issues decrease over time as programs mature. However, access to operational risk expertise and system integration issues decrease over time as programs mature, but become potential obstacles again for firms with programs in place for more than five years.
- Firms are seeing increasing difficulty in accessing and reporting operational risk data as they mature. This awareness may be more indicative of how far along these programs are in acquiring and managing the data for measurement purposes. Less mature programs may not as yet be fully aware of the issues with data quality.
Regional Observations

European Union (EU)

The European Union represented 45 percent of all survey responses, making the EU the largest of all regions in the survey. The EU responses presented a well-diversified view, both in terms of firm size as well as primary business activity.

![Total Assets](chart)

![Primary Business of Firm](chart)

Notable Regional Findings

- **Regulatory compliance, external fraud, and IT systems failure and other inadequate MIS exposures were identified as the top operational risks facing EU firms.** Inadequate controls and loss or damage to physical assets appear to have the lowest impact on respondents.

- **EU firms have been formally managing operational risk longer on average than any other region.** Almost 60 percent of institutions within the EU have had operational risk management programs in place for at least two years.

- **Reduction in operational losses as well as improved regulatory compliance, business and performance management are most frequently cited benefits of ORM programs.** Most EU institutions do not see greater levels of accountability and optimized allocation of economic capital as significant benefits in operational risk management.

- **EU institutions are employing the Standardized Approach or the Advanced Measurement Approach (AMA) for calculation of operation risk capital.** Less than 13 percent of respondents indicated their firm would adopt the Basic Indicator Approach and less than 2 percent would adopt the Alternative Standardized Approach for operational risk.

- **EU institutions are the farthest along in implementing the operational risk management standards of the Basel II Accord.** Two-thirds of respondents say their firm is at least midway through implementation of the operational risk management standards of the Basel II Accord. Less than 3 percent indicated they have completed implementation.
The United States (U.S.)

Respondents from the United States accounted for roughly 15 percent of total respondents, providing representation predominantly from the largest and the smallest firms.

Notable Regional Findings

- **Customer relationship risk, external fraud and regulatory and compliance risk are the top operational risks facing U.S. institutions.** Respondents cited regulatory and compliance risk most often as the top operational risk faced by their institution and external fraud as the second.

- **A major driver of the development of operational risk management programs is recent prominent accounting scandals and regulatory responses.** More than 96 percent of U.S. respondents cited prominent accounting scandals and regulatory responses such as Sarbanes-Oxley, and more than 80 percent cited that industry association technology and operational risk initiatives are driving development of operational risk management programs.

- **Operational risk management programs in the United States have formed over two stages.** The early adopters of operational risk management created formal programs five or more years ago, accounting for nearly one in four U.S. respondents with ORM programs in place. The late adopters have created operational risk management programs in the last two years, accounting for 43 percent of respondents from U.S. institutions.

- **The significant obstacles for ORM implementation center on practical project management concerns.** U.S. respondents cited cost and time of implementation (64 percent), difficulty in collating sufficient volume of historical data (59 percent), difficulty in integrating internal and external loss data (50 percent), system integration issues (50 percent) and difficulty in modeling operational risk (45 percent) as the most significant potential obstacles to the successful implementation of an operational risk management program at their firm.
North America (excluding The United States)

North American respondents represent firms headquartered in that continent, excluding the United States. Respondents were primarily from Canada, but also represented firms headquartered in the Caribbean. North America and the United States combined represented 29 percent of all survey responses, with North America (excluding the United States) representing almost 14 percent of all responses.

Notable Regional Findings

- More than half of North American respondents, already employing the largest operational risk staff of any region, say their firm is expecting to increase operational risk staff. For respondents expecting additional spend over 83 percent expect increases of 10 percent or more. Globally, of those respondents expecting increases in operational risk staff, only 50 percent expect increases of 10 percent or more.

- One-half of North American firms also are midway through, or have almost completed, implementation of the operational risk management standards of the Basel II Accord. The region’s largest institutions are leading the way as almost all firms at least midway through implementation have at least $100 million in total assets.

- North American firms are heavily relying upon the Standardized Approach to calculate operational risk capital. Almost 50 percent of North American respondents indicated their firm would implement the Standardized Approach. An additional 33 percent of respondents indicate their firm would implement the Advanced Measurement Approach, 11 percent would implement the Basic Indicator Approach and 6 percent would implement the Alternative Standardized Approach.

- Prominent accounting scandals and increased shareholder pressure are helping to drive the development of operational risk management programs in North America. Evidence of the regulatory response to account scandals is the recently released Multilateral Instrument 52-111 Reporting on Internal Control over Financial Reporting in Canada. Other driving factors included: Basel II and domestic regulation, internal best practices, benchmarking exercises and concerns over internal losses.
Asia-Pacific

Asia-Pacific was the most geographically diverse region of those surveyed. Respondents from the Asia-Pacific region represented nine countries, including: India, Pakistan, Japan, Hong Kong (China), Australia, New Zealand and Singapore. Asia-Pacific was the least diverse when considering the primary business area of the firm and the only region without representation in the greater than $250 billion total asset size category.

Notable Regional Findings

- **Access to operational risk expertise/talent** was identified by respondents in this region as the most significant obstacle to successful implementation of their ORM programs. Overall awareness of ORM issues was also highly significant.

- Respondents cited increased shareholder pressure for operational risk management and disclosure as a top factor driving the development of operational risk management programs, next to Basel II.

- **Asia-Pacific institutions are adopting a broad range of Basel II approaches.** Nearly 23 percent of Asia-Pacific respondents indicated their firm would adopt the Standardized Approach, and more than 17 percent of respondents say their firm will implement the Basic Indicator Approach (the largest proportion of any region). Surprisingly, given the small proportion of institutions with more than $50 billion in total assets, almost 23 percent of respondents are adopting the AMA.

- **Asia-Pacific institutions appear to be lagging behind their peers in the implementation of the operational risk management standards of the Basel II Accord.** More than 72 percent of respondents indicated their firm is in the initial stages or midway through implementing the operational risk management standards of the Basel II Accord. No respondents indicated their firm was more than mid-way through implementation.
Other Markets

Other Markets include the Middle East, Non-EU European Countries, Africa, and Central and South America, and represented roughly 15 percent of total respondents. While there were similarities among the responses of the individual groups, the primary motivation for aggregation was to maintain the confidentiality of individual survey respondents.

Notable Regional Findings

- The top operational risks cited within this region are IT systems failure and anti-money laundering. Regulatory compliance was of far less concern to Other Markets respondents, than those from all other regions.

- Terrorist attacks and related business continuity issues, and increased shareholder pressure for operational risk management and disclosure were the top factors driving the development of operational risk management programs, second only to Basel II.

- Respondents cited difficulty in modeling operational risk as the most significant potential obstacle to the successful implementation of an operational risk management system at their firm. More than 40 percent of respondents cited the following: difficulty in collating sufficient volume of historical data, difficulty in ensuring the quality of the data, cost and time of implementation, and lack of clarity from regulators.

- More than 68 percent of respondents say their firm’s view optimized allocation of economic capital as a significant benefit of an operational risk management program. More than 59 percent of respondents chose reduction in operational losses as a significant benefit of an operational risk management program.

- The most popular approach is the Standardized Approach (35 percent) followed by the Advanced Measurement Approach (19 percent). An additional 15 percent of institutions are implementing the Alternative Standardized Approach and the remaining 15 percent are implementing the Basic Indicator Approach.
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