RIMS Executive Report

The Risk Perspective

Enterprise Risk Management Technology Solutions

Risk and Insurance Management Society, Inc.®

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Enterprise Risk Management Technology Solutions

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Introduction

This paper is intended to provide insights to those who are considering deployment of an ERM technology solution. This is not an effort to persuade the reader to do so, nor does it contain recommendations for any one particular type of technology.

Technology solutions should fit the corresponding ERM processes. There are as many variations of ERM, at a detailed level, as there are organizations practicing ERM. On the other hand, functionality of ERM technology solutions is far more consistent across the spectrum of ERM processes. Accordingly, the focus of this paper is on functionality of ERM technology solutions.

General functions of ERM technology solutions are identified below, along with survey results from ERM practitioners and technology providers.

Premise

The premise underlying this paper is that enterprise risk management processes will be customized for every organization that adopts ERM. Further, ERM will be embedded into the business processes of the organizations practicing it and that ERM will not be a stand-alone or static project. Finally and given the previous assumptions, technology should not be the driver for adopting ERM.

For purposes of this paper, ERM is assumed to involve a process covering an organization by which risks are managed to assure achievement of the organization's objectives.[1]

It may further be assumed that organizations with currently deployed and sophisticated ERM processes have technology solutions to support those processes. This paper is therefore intended to assist beginning and mid-level ERM adopters who are considering technology solutions for their new or next phase ERM processes.

ERM Process Components and ERM Technology Solution Functionality

Repository of Information

ERM processes involve identifying risks to the organization.[2] In the course of doing so, information is collected and stored. An ERM technology solution can act as a central data repository. A risk taxonomy (e.g., definitions, classifications, categories and data linkages or relationships) can be developed and embedded into a technology solution to facilitate consistent risk assessments and analysis across the enterprise.

The re-entry of data into systems, when that data already exists in related systems, is inefficient. Ideally, ERM technology solutions should be adopted with an eye towards integrated data storage so that information can be pushed or pulled throughout the organization.

The types of information that may be utilized in ERM processes include the organization's goals and objectives.[3] These presumably exist outside of the ERM process, but they may or may not be compiled in the organization's current systems. If the objectives of the organization and all relevant sub-units already reside elsewhere in its systems, the ERM technology solution should be able to retrieve and utilize that information.[4] If not, the ERM solution could have an interface that mirrors the organizations' other systems used by the ERM adopter population allowing for easy entry of the objectives information.[5]

ERM information may include the organization's processes and hierarchies. The same needs (storage and access) and challenges (single data entry) that pertain to goals and objectives' information apply with equal force to the processes and hierarchies' information. ERM technology solutions should be able to manipulate the

[1] Many of the finer points of ERM, such as a debate about its definition, who should own the process and how it is implemented, are beyond the scope of this paper. Accordingly, broad, general definitions and terminology are employed.

[2] Some organizations include missed opportunities as "risks" in their ERM processes. For simplicity sake, "risk" is used herein instead of "risk and/or missed opportunities".

[3] Most organizations have goals (or objectives) that cascade down to component units who in turn have supporting objectives.

[4] Currently available ERM technology may not be able to satisfy efficiently all the functionality noted herein. Nonetheless, hope springs eternal.

[5] Objectives information might include a list of the objectives, the time period in which to accomplish them and their owner. The organization's sub-units presumably have objectives that cascade down from and support the organization's overall objectives.

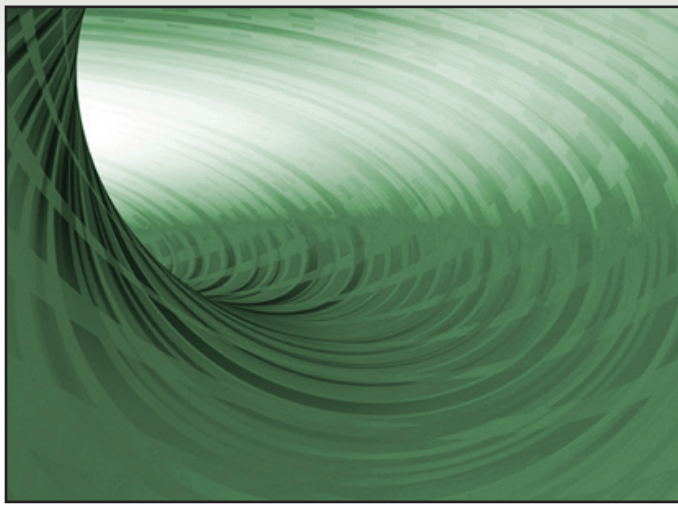
process and hierarchies' information (and any other data) to the extent the ERM process includes it.

ERM processes are often intended to address combinational risks. ERM technology must therefore be able to store interdependency information. This may be either static process flow charts or a database that ties risks to processes. For example, a foundry may ship product to a manufacturing facility that in turn ships product to a distribution center. The organization's ERM technology solution should be able to identify risks to the foundry that are simultaneously risks to the two sister operations. Similarly, risks can have a linear, indirect or combinational relationship. ERM technology solutions should be able to track these relationships.

Data integration using an ERM data model can increase the technology solution's reporting capabilities by showing risks by entity, business, product line, risk or control categories, by manager, policy or procedure or by function.

Obviously, ERM information includes risks.[6] The description of the risk needs to be captured as well as some degree of quantification or qualification of each risk. The description of the risks may be simple text. The quantification or qualification may be far more complicated. Additional complexities arise with larger organizations. For example, if an entity has facilities, units, divisions and a corporate level, its risks could have four different sets of quantifications or qualifications. ERM technology solutions should be able to accommodate this complexity.

Risks are often ranked in an ERM process as to severity (the amount of loss if the bad thing happens or if the good thing fails to happen) and probability (the likelihood that the bad thing will happen or the good thing will not happen). In doing so, the criticality of the business processes at risk should be part of the analysis, whether stated or not. It may therefore be important for an ERM technology solution to have the capability to store and manipulate information as to the criticality of business processes as well as severity and probability rankings. ERM technology solutions could pull pre-existing business process criticality information or rankings from business continuity plans. ERM technology solutions could also facilitate the reverse information flow by accepting input of business process criticality information and push it out to, for example, business continuity planners.



Finally, risks that have been identified should be addressed, (e.g., either mitigated or exploited). Plans to mitigate risks, with timetables, milestones, budgets, and responsible employees, should be built and tracked. Exception reporting and automatic notifications capabilities of ERM technology solutions would encourage end-user enthusiasm for ERM. An ERM technology solution can become a workflow automation tool. Event-driven workflows can be built to include automated kick-off of processes, reminders, triggers and notifications, review and approval processes, and dashboards of tasks and notifications.

Mere storage of ERM related information does little but generate frustration if it is not usable. Analysis of the ERM information requires its manipulation. Technology solutions should not only enable users to manipulate easily the information, but also export the information in the desired format.

Analysis

The heart of ERM processes is the application of basic risk management analytical techniques to risks and opportunities across the organization. The heart of ERM technology solutions is their analytical capabilities, which should be as robust as possible.

ERM technology solutions could have the capability to sort risks by their qualifications, quantifications, business unit, elements of mitigation plans, or cost, and track the values for the reduction (i.e., the savings) in risk. These ERM systems could categorize risks or mitigation plans by the affected business process or unit.

[6] Some organizations view ERM as a tool to identify opportunities as well as risks. Some organizations identify "variables". Whatever terminology is employed, the need to easily capture, store and use the data is constant.

More quantitative ERM technologies might have tools for Monte Carlo simulations for regression analyses, or documenting and tracking confidence and tolerance levels with standard deviations. Operating cash-flow risk quantification, market analysis, credit monitoring or capital modeling can also be integrated into ERM technology solutions.

ERM is useful in tracking combinational/portfolio risks faced by organizations. ERM technology solutions should be able to not only sort or categorize by the identified risks' features, to ensure that many small duplicative risks are recognized, but also to highlight intra- and inter-dependencies affecting the organization. This can lead to improved communications regarding and understanding of risks throughout the enterprise.

As ERM processes develop, organizations often establish and monitor their risk appetite. ERM technology solutions should facilitate this. ERM technology systems may be able to accept input on financial metrics that are used to develop risk appetite or, better still, take data feeds from the organization's financial reporting systems. The amount of risk retained by the organization can be matched with the risk appetite, on an on-going basis, with alerts automatically generated if the amount of risk reaches a threshold percent of the risk appetite.

Finally, ERM technology solutions may be able to generate risk-adjusted financial information. ERM technology solutions should also be able to facilitate cost–benefit analysis of mitigation plans.

Awareness

ERM technology can be a very effective management reporting tool. Line managers can rely on their ERM process to alert their management (or be alerted by their staff) of high priority risks and of mitigation efforts. This allows line managers to focus on other responsibilities and on communications regarding only the highest priority opportunities or challenges.

A data model should improve the enterprise-wide reporting capability of ERM technology solutions. To build a data model, it is necessary understand management's data and information needs. This allows data to be classified and linked in a consistent fashion.

Managers and other stakeholders need to see the results of the ERM processes. ERM technology should have the flexibility to generate management reports that have the look and feel of the other reports commonly used in the organization. Since ERM processes should be embedded in the organization's business practices, ERM reporting should similarly be indistinguishable from other management reporting. Technology solutions should be able to generate risk maps, dashboards, charts or other common ERM displays. Displays obviously should be dependent upon and tailored for the audience, but can include color-coded heat maps, information on control assessments, open issues, loss data, compliance issues or any other metrics of interest to ERM adopters.

ERM processes involve many different users across the entire organization. This in turn requires controls on viewing and authoring rights and other security measures.

As with many IT systems, it is important to consider the capability of possible ERM technology solutions to facilitate knowledge sharing. Users should be able to find readily risks that are similar to those they face to understand possible interdependencies, to see how risks are ranked, and learn the details of mitigation plans of interest. In short, ERM technology solutions should accommodate and fit within a strong comprehensive data warehousing policy.

Monitoring

It is quite likely that both the ERM process itself and mitigation efforts need to be monitored. Information systems can be particularly useful in monitoring business processes. Exception reporting can automatically "accept" ERM activities within a prescribed "norm", highlight risks or mitigation plans that vary from the norm and ease the burden on senior managers who are not involved in the details of the ERM analysis and mitigation efforts.

Some technology solutions include calendaring functions so that milestones in the monitoring process or mitigation plans can be tracked. Efficiencies can be gained if the IT system can also generate email reminders using a protocol for ever-escalating notifications going higher in the organization as the extent of scheduling delays becomes greater.

Portfolio risk exposure and the (hopefully) corresponding risk appetite, to the extent they are developed, should also be monitored within an ERM technology solution.

Measurement

It is often said that success is best achieved when goals and objectives are quantifiably measurable. ERM processes are no different. Information necessary to measure timeliness and effectiveness of ERM activities, as well as risk optimization, should be developed and tracked. Earnings or increase in share value data should be pulled into the ERM technology solution from other systems within the organization, and thereafter utilized and matched against ERM efforts. Whatever measure of an entity's success is utilized, the ERM technology solution should be capable of recording and tracking that measurement.

Technology Options

Survey of Current Users

The TAC undertook a survey of ERM technology users in an effort to identify functionalities addressed and the tools currently used. This survey of users provides information on both topics.

Surveys were sent to RIMS members and the Risk Council of Manufacturers Alliance/MAPI. Six hundred and fifty-one RIMS and MAPI members responded; 49% of whom reported that their organizations had some ERM process in place. Of those with active ERM, 48% used a technology solution.

The results of the user survey highlight the immature nature of the ERM technology market. Desktop applications such as Microsoft Office products were the most commonly cited tools, followed by a variety of other solutions, including customized systems, as shown in Figure 8 (page 10).

Monitoring risks, data storage and analysis are the most commonly identified functionality of the ERM technology solutions employed by the survey respondents. Comparing current usages and desired future usages, the ability to address interdependency of risks was the most sought-after future functionality.

A summary of the results of the user survey are set forth in Appendix A (page 7).

Survey of Current ERM Technology Providers

The TAC undertook a survey of current ERM technology vendors in an effort to identify solutions presently available in the marketplace. This survey identifies products that address one or more ERM functionality.

Surveys were sent to vendors identified by RIMS ERM Center of Excellence, *Business Insurance* lists and various other trade reports. Twenty-eight responses were received.

It should be noted that there was no independent verification of the responses in the survey.

There was less functionality reported within the survey results for the most complex tasks. This should not be too surprising given the relative newness of ERM in general. It is also interesting to look at the self-reported market share for each product and the percentages of functionality identified by the vendors/participants.

For those who are investigating ERM technology solutions, there is other published material for your consideration. Comparative analyses by Forrester and Gartner come to mind. Those often focus on the Governance, Risk and Compliance arena, however. In any event, there can be no substitute for careful vetting and thorough due diligence for anyone looking to purchase a technology solution.

A summary of the results of the Technology provider survey are set forth in Appendix C (page 23).

Conclusion

Technology solutions can provide strong support for an ERM process. The organization's objectives, and the key risks to achieving those objectives, can be made clearly visible to management. Mitigation plans can be systemically approved and monitored. Combinational risks can become more easily identified and managed.

Care must be taken, however, to ensure that technology solutions are user friendly and flexible. Most ERM processes change over time and technology must be flexible to accommodate those changes.

Appendix A: User Survey Results Summary

Question 1: Do you currently have an ERM process at your organization? By Industry

Survey respondents were evenly split between companies above and below $1B in annual revenues, with ERM more prevalent among larger companies.

Revenues	No ERM Process	ERM Process	Grand Total
1 - Less than $100M	88	61	149
2 - $100M-$500M	68	35	103
3 - $500M-$1B	34	33	67
4 - $1B-$5B	88	96	184
5 - $5B - $10B	22	35	57
6 - Greater than $10B	34	57	91
Grand Total	**334**	**317**	**651**

Figure 1: ERM Process by Annual Revenues

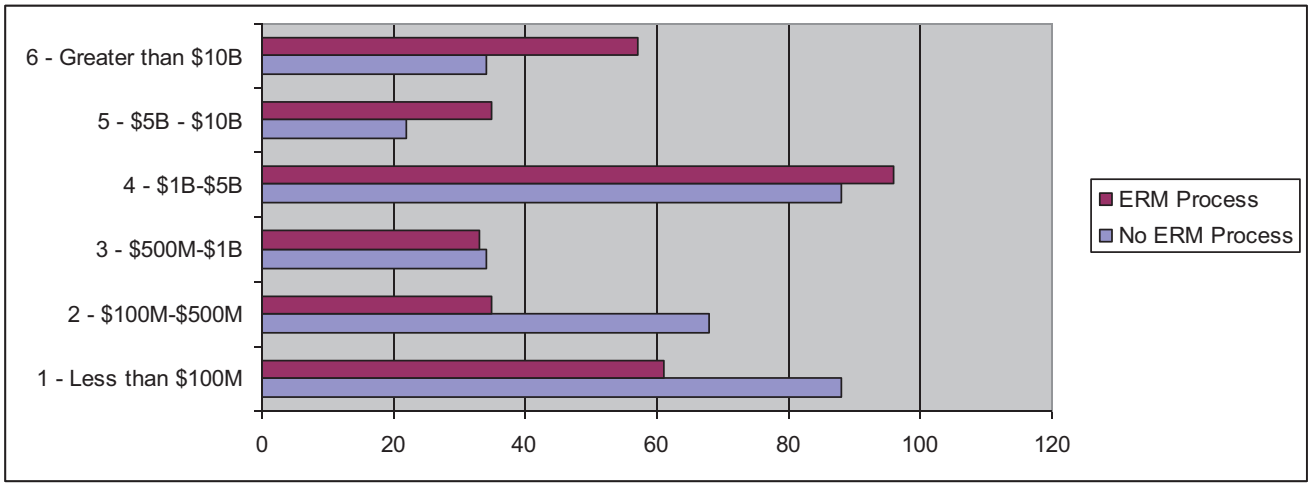
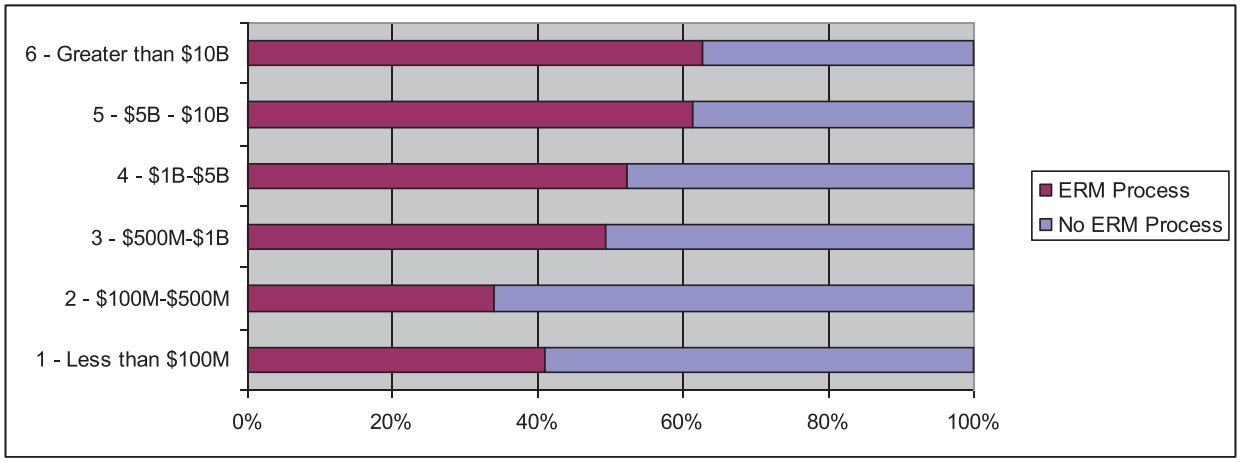


Figure 2: ERM Process by Annual Revenues, as a Percentage of Respondents



Question 2: Who owns this process in your organization? By Industry

The functional area tasked with ERM varies significantly with company size, as measured by annual revenues.

ERM Process Owner	Total
Risk Management	126
Audit/Compliance	19
CRO or VP-ERM	51
Finance/Treasury	49
Legal	11
Other	50
(blank)	11
Total:	**317**

Figure 3: ERM Process Owner

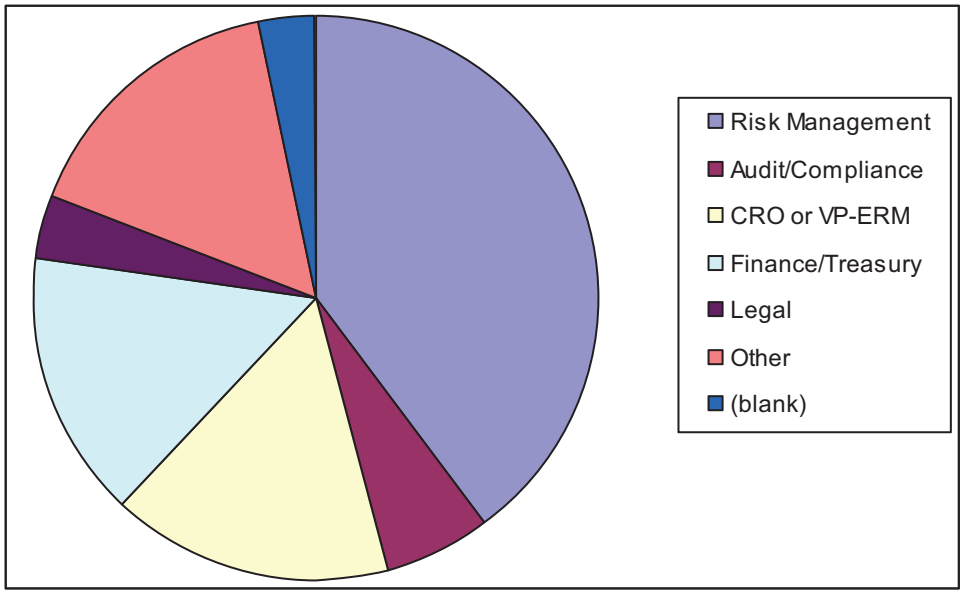
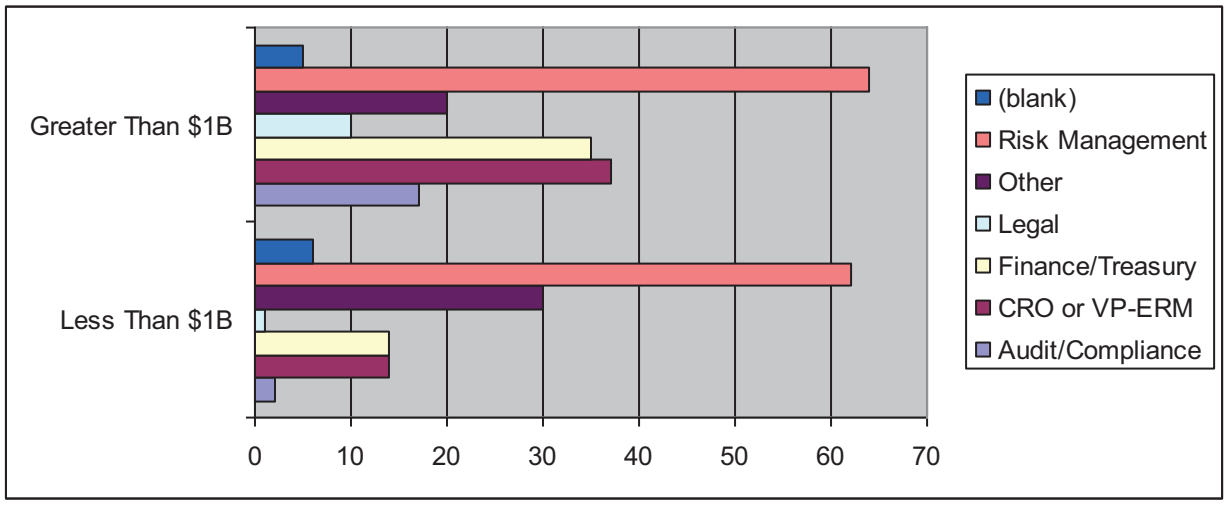


Figure 4: ERM Process Owner, by Annual Revenue



Question 3: Do you use any software in support of your ERM process? By Industry

For Companies With An ERM Process In Place:	Total
ERM Software	149
No ERM Software	168
Grand Total	**317**

Figure 5: Adoption of ERM Software, by Companies with an ERM Process in Place

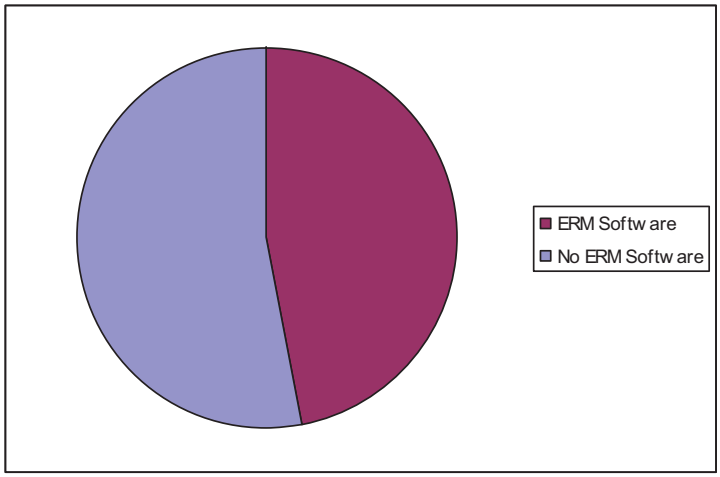


Figure 6: ERM Software Adoption, by Annual Revenues

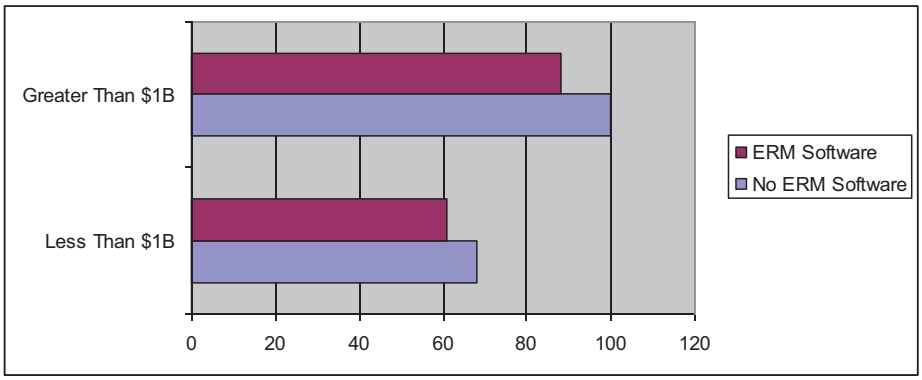
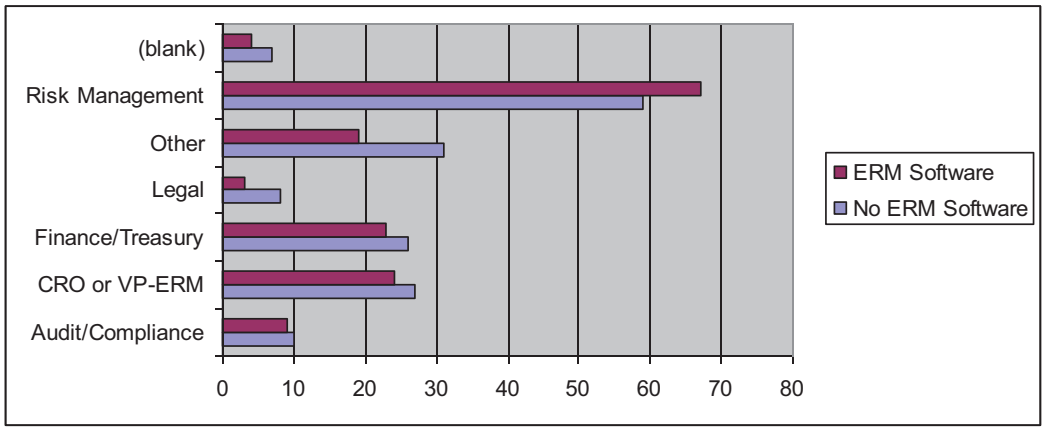


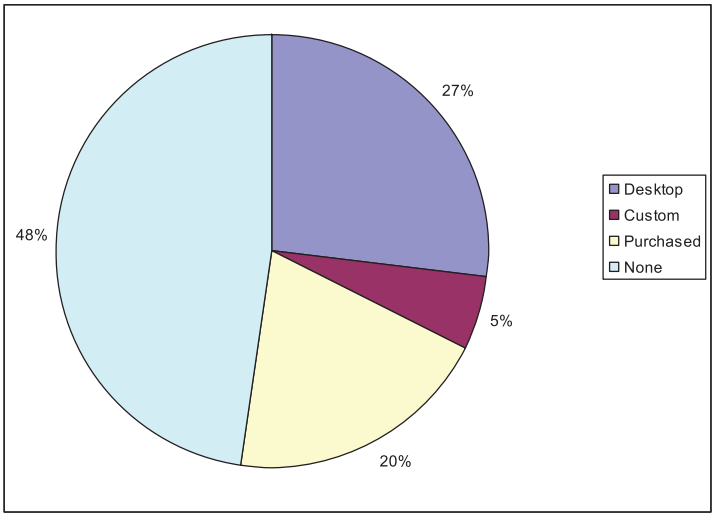
Figure 7: ERM Software Adoption, by Process Owner



Question 4: What software product(s) do you currently use to capture and communicate ERM data? By Industry

27% of firms report developing their own solutions internally, using desktop applications such as Microsoft Office, with 5% developing custom solutions. 20% report using specialized software to support aspects of their ERM program.

Figure 8: Software Selection For Companies with an ERM Process: Summary



Desktop software is defined here as commonly available, general office software, such as Microsoft Excel, Word, PowerPoint and Access; Lotus Notes; and Microsoft SharePoint.

Custom software includes internally and externally developed projects.

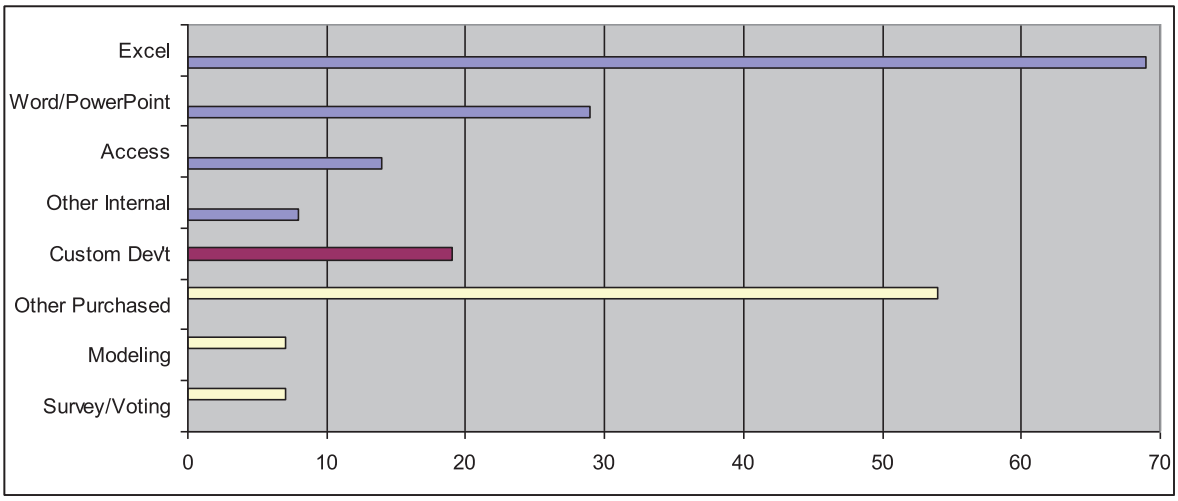
Purchased software includes all other ERM software tools not designated above.

In the broad category of internally developed solutions, Excel was most frequently cited, then Word and PowerPoint, followed by Access. Lotus Notes and SharePoint were included in the "Other Internal" category. Nineteen companies opted to build their own custom system.

Vendor solutions purchased to support Enterprise Risk Management are more difficult to categorize, because the market is in rapid transition, with little consensus among leading analysts on market segmentation. Some vendor systems listed below address a specific function, such as surveys, voting, or data modeling. Several systems based in insurance risk management (RMIS) now offer ERM features, while others approach the ERM market from an operational risk management or compliance background. Some niche players offer standalone ERM systems.

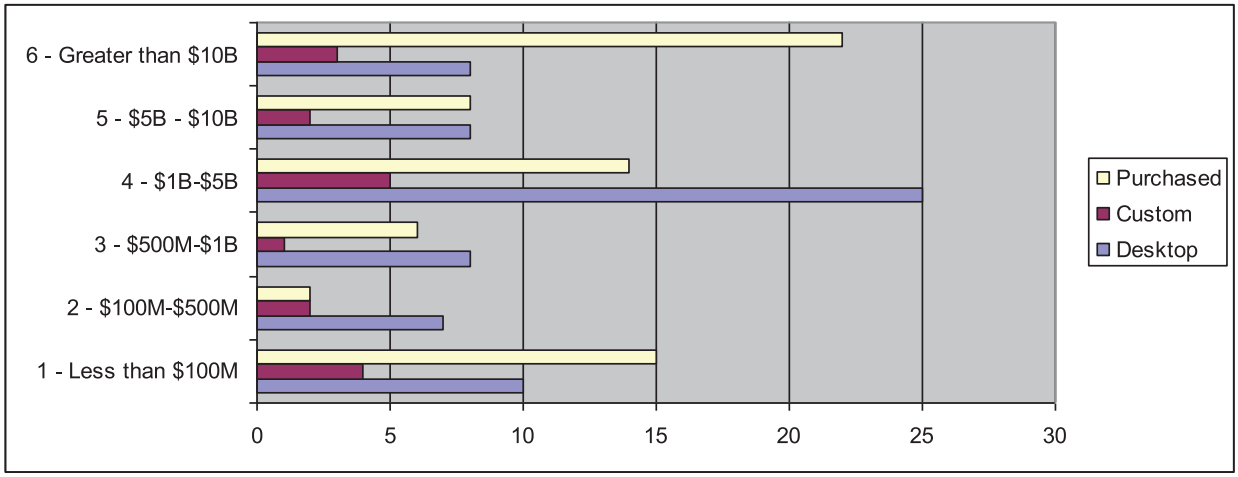
How these markets intersect depends in part on how one defines the "Risk" component in the term Governance, Risk and Compliance (GRC). If "Risk" represents all aspects of risk, then traditional RMIS, ERM, operational risk and compliance systems could all be considered part of a broad GRC market. However, if "Risk" is defined as more narrowly, as operational risk, then ERM software is distinguished from the GRC market by its strategic focus.

Figure 9: Software Selection for Companies with an ERM Process: Detail



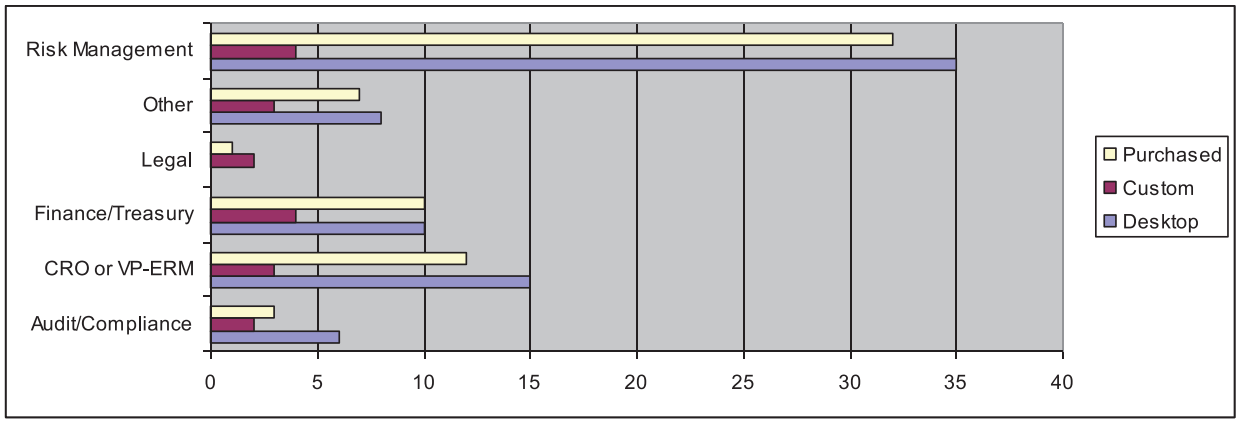
Companies of every size are making use of widely available desktop applications, such as Excel, and building custom tools to fit their needs. Even survey respondents from the smallest companies indicate purchasing software, including GRC products. While some self-selection bias is likely, where representatives from companies already using ERM technology were more likely to complete this survey, it appears to suggest that the ERM software market extends well beyond the largest, publicly-traded firms.

Figure 10: ERM Software Selection, by Annual Revenues



ERM process owners in each functional area appear slightly more likely to build their own solutions using common desktop tools than to purchase software. This area will be interesting to revisit in future research, as the commercial software market for ERM continues to mature.

Figure 11: ERM Software Selection, by Process Owner



Survey respondents using purchased software for ERM listed these systems. While the sample size was relatively small, companies appear to be relying on a wide variety of providers to support their ERM programs.

Figure 12: ERM Software Selection, Excluding General Office Software and Custom Projects

System
@Risk
Bishop Phillips Consulting
Bullseye Software
CS Stars
CURA Software Solutions
LogicERM
Methodware
Open Pages
RCS OpRisk Suite 4.1
Resolver Ballot (voting)
Risk Navigator/GRC (Paisley)
RiskMaster
Riskonnect
RiskWatch
SAP
SAS
Strategic Thought
Survey Monkey
SWORD
Syntex Impact Enterprise

Question 5: What are you currently using ERM technology for? By Industry

Responses from companies currently using ERM software appear to emphasize monitoring, compiling, and measuring risks.

Data	Responses	Ranking
Monitoring & Tracking	133	1
Analysis	120	2
Data Repository	120	(tie) 2
Quantification	118	3
Reporting/Dashboards	117	4
Processes	86	5
Organizational Goals	82	6
Relating Risks and Processes	65	7
Companies with ERM_Software_In_Place	**151**	

Figure 13: Current Applications for ERM Software

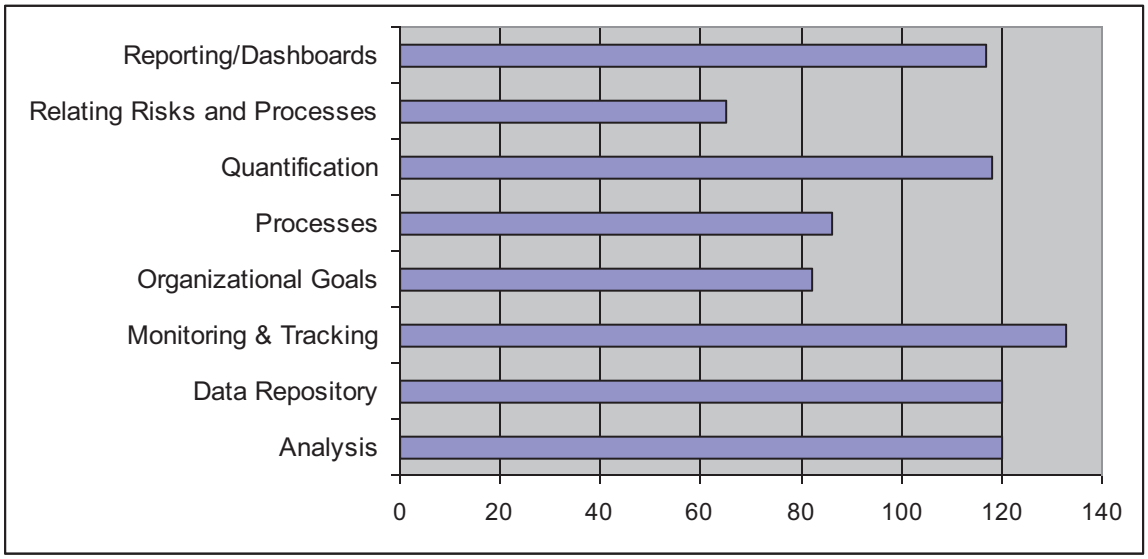


Figure 14: Current Applications for ERM Software, by Annual Revenue

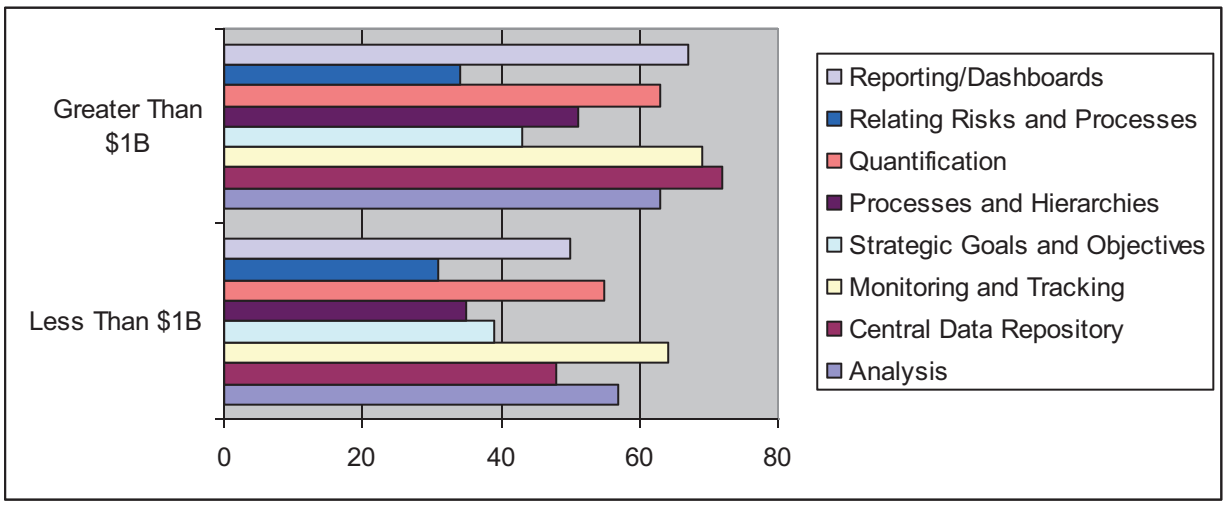
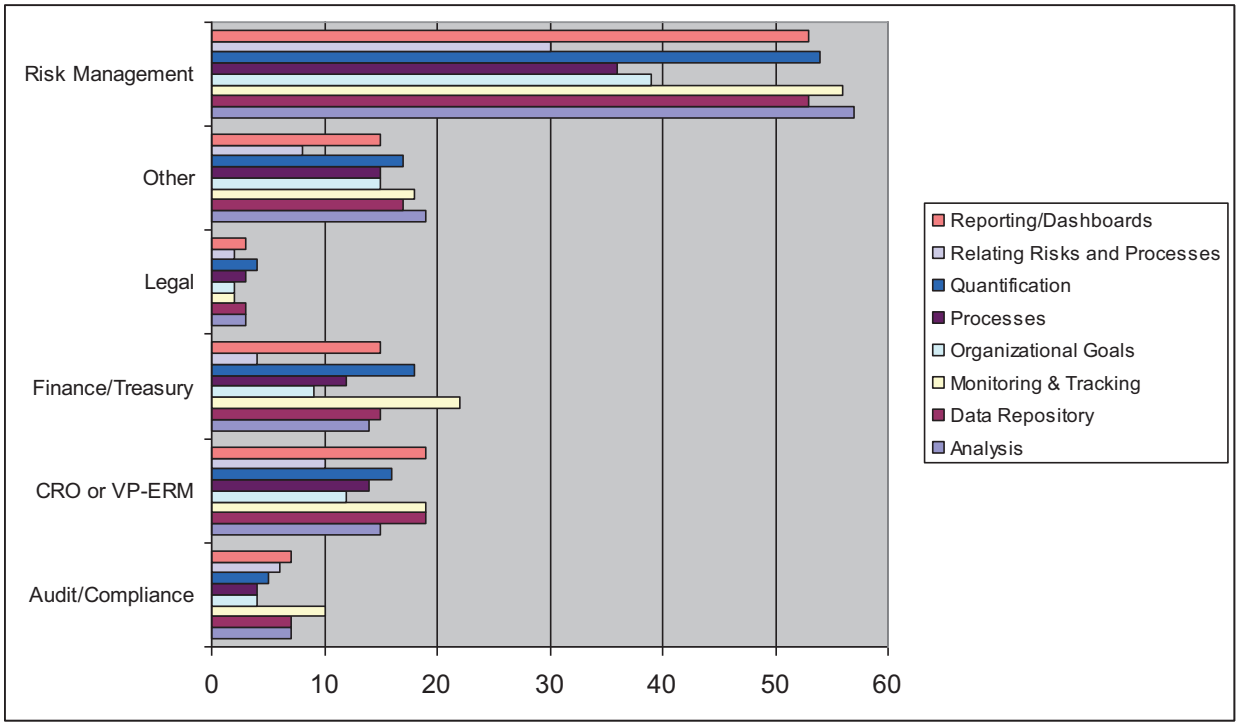


Figure 15: Current Applications for ERM Software, by Process Owner



Question 6: How would you like to use ERM technology in the future? By Industry

Across company size and functional areas, respondents appear to place an increased emphasis on reporting, relative to quantification, in describing their future goals for ERM software.

Data	Responses	Ranking
Monitoring and Tracking	245	1
Reporting/Dashboards	221	2
Central Data Repository	218	3
Analysis	212	4
Relating Risks and Processes	198	5
Quantification	194	6
Strategic Goals and Objectives	178	7
Processes and Hierarchies	158	8
Total Respondents	**651**	

Figure 16: Future Objectives for ERM Software

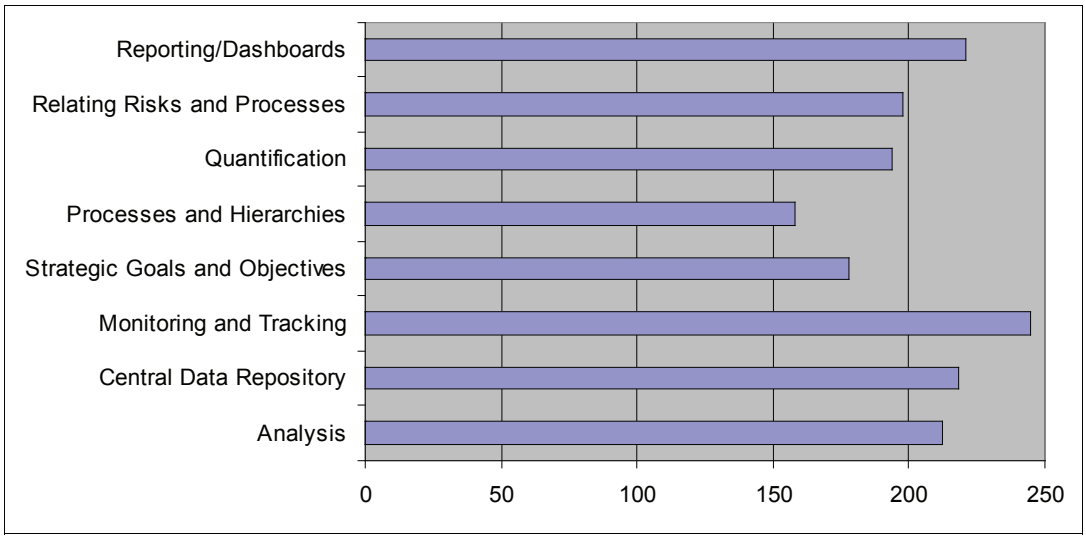


Figure 17: Future Objectives for ERM Software, by Annual Revenue

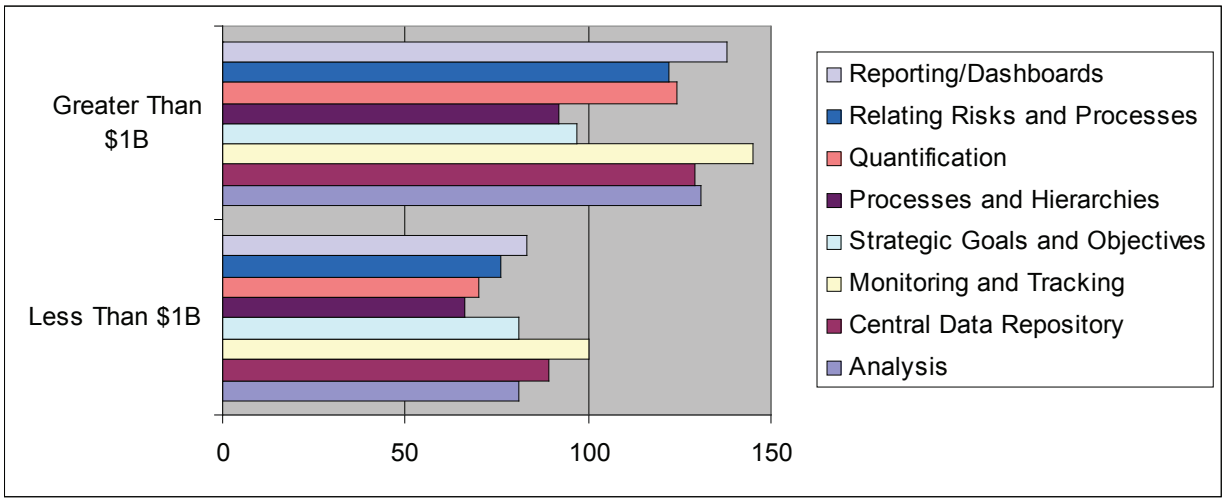
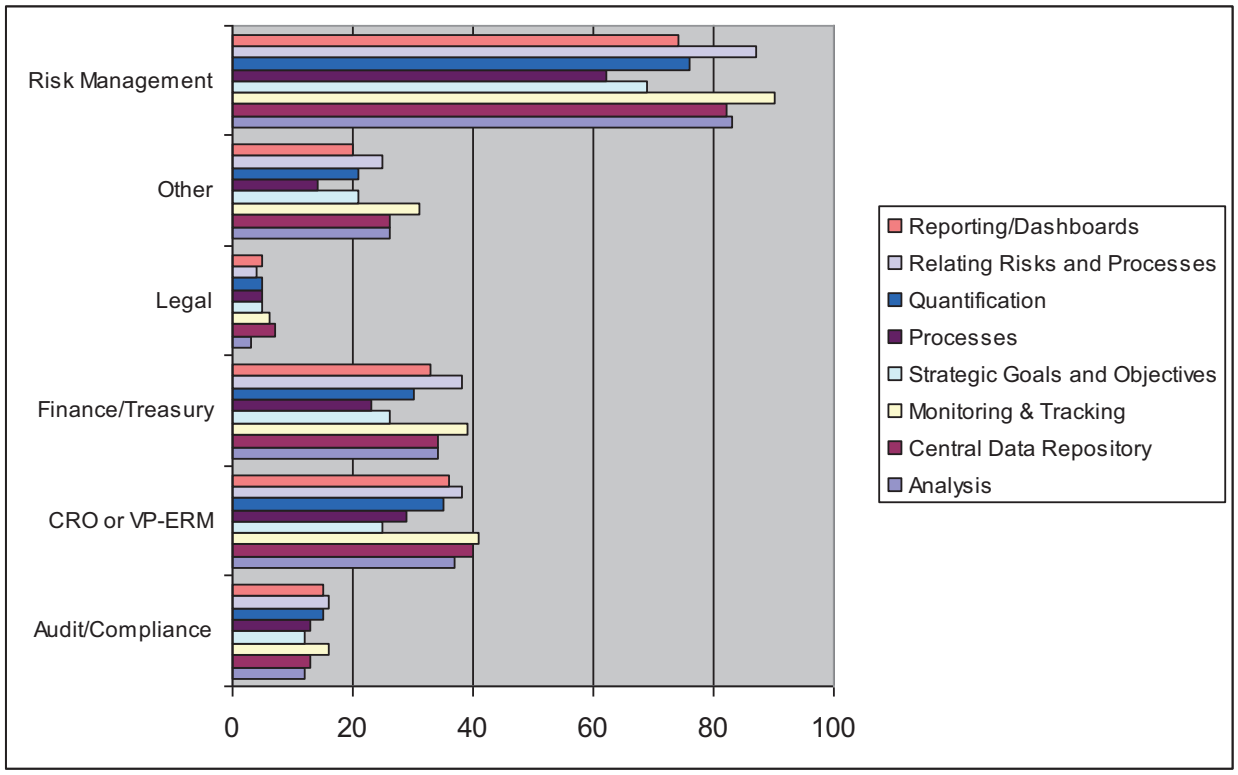


Figure 18: Future Objectives for ERM Software, by Process Owner

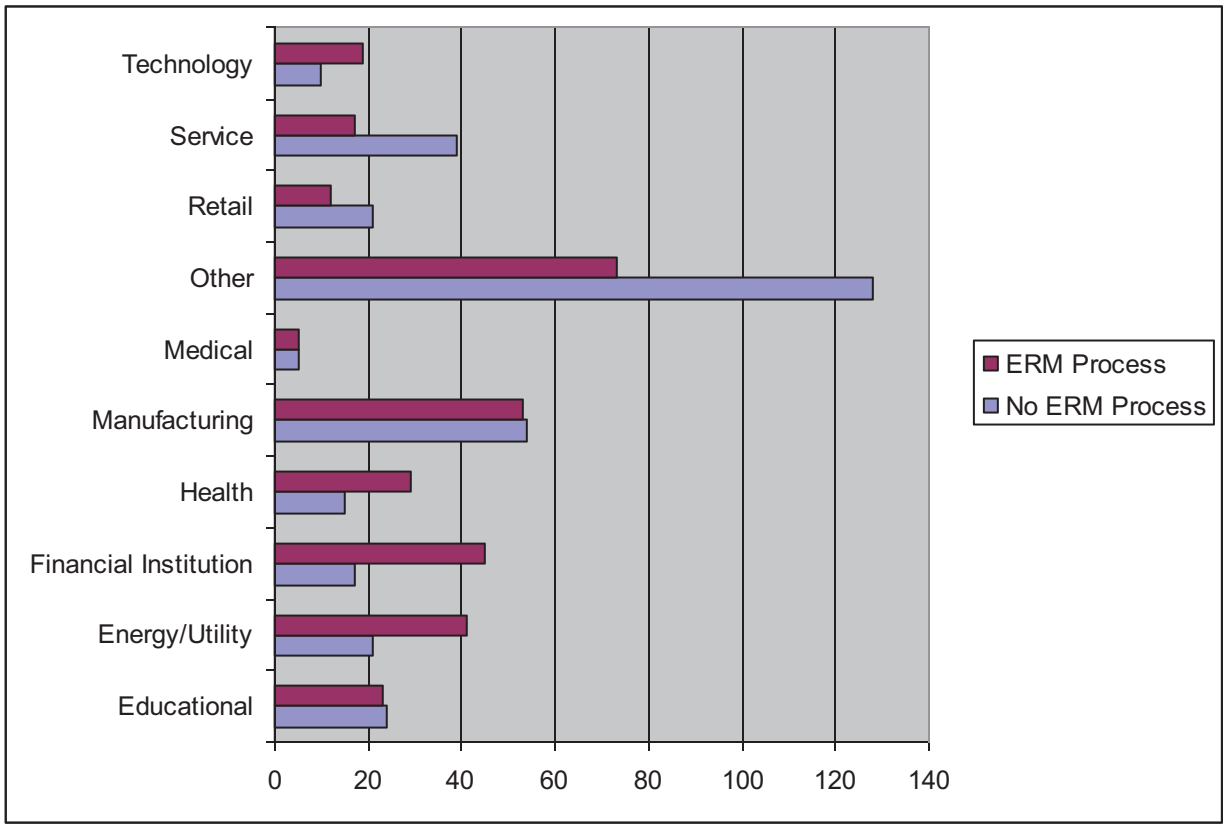


Appendix B: User Survey Results By Industry

Question 1: Do you currently have an ERM process at your organization? Summary

Industry Sector	ERM Process	No ERM Process	Grand Total
Educational	23	24	47
Energy/Utility	41	21	62
Financial Institution	45	17	62
Health	29	15	44
Manufacturing	53	54	107
Medical	5	5	10
Other	73	128	201
Retail	12	21	33
Service	17	39	56
Technology	19	10	29
Grand Total	**317**	**334**	**651**

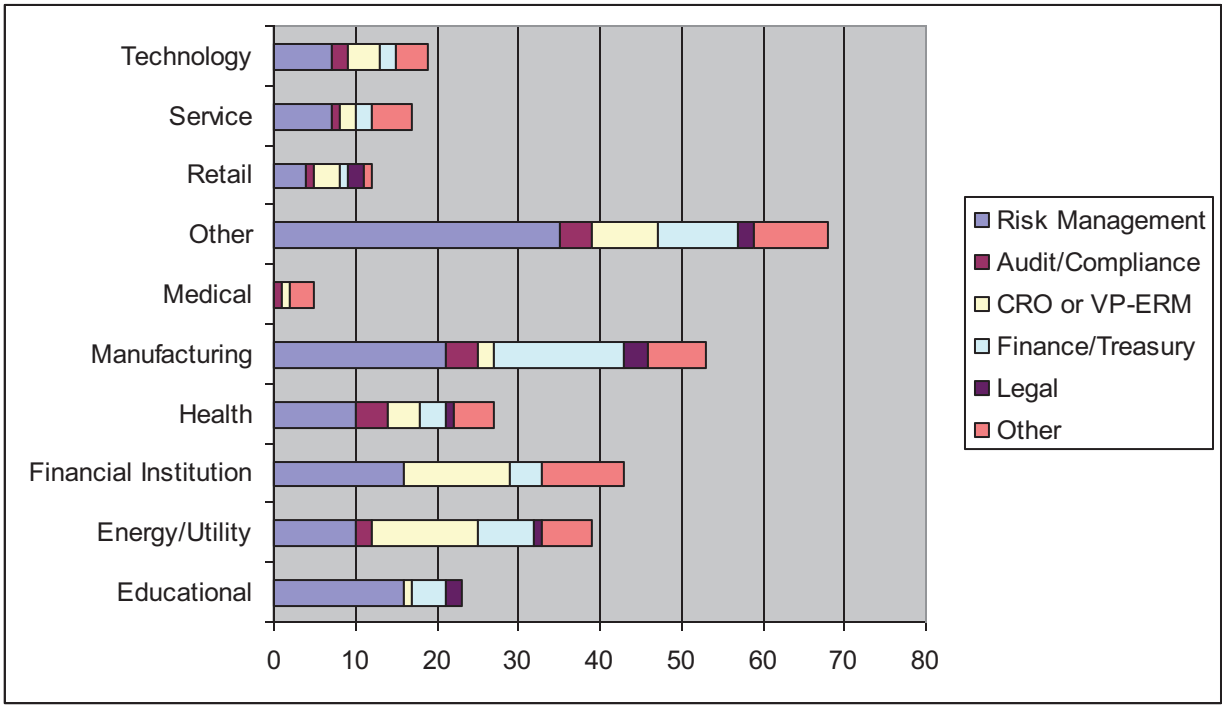
Figure 19: ERM Process, by Industry



Question 2: Who owns this process in your organization? Summary

Industry Sector	Risk Mgt	Audit/ Compliance	CRO or VP-ERM	Finance/ Treasury	Legal	Other
Educational	16		1	4	2	
Energy/Utility	10	2	13	7	1	6
Financial Institution	16		13	4		10
Health	10	4	4	3	1	5
Manufacturing	21	4	2	16	3	7
Medical		1	1			3
Other	35	4	8	10	2	9
Retail	4	1	3	1	2	1
Service	7	1	2	2		5
Technology	7	2	4	2		4
Grand Total	**126**	**19**	**51**	**49**	**11**	**50**

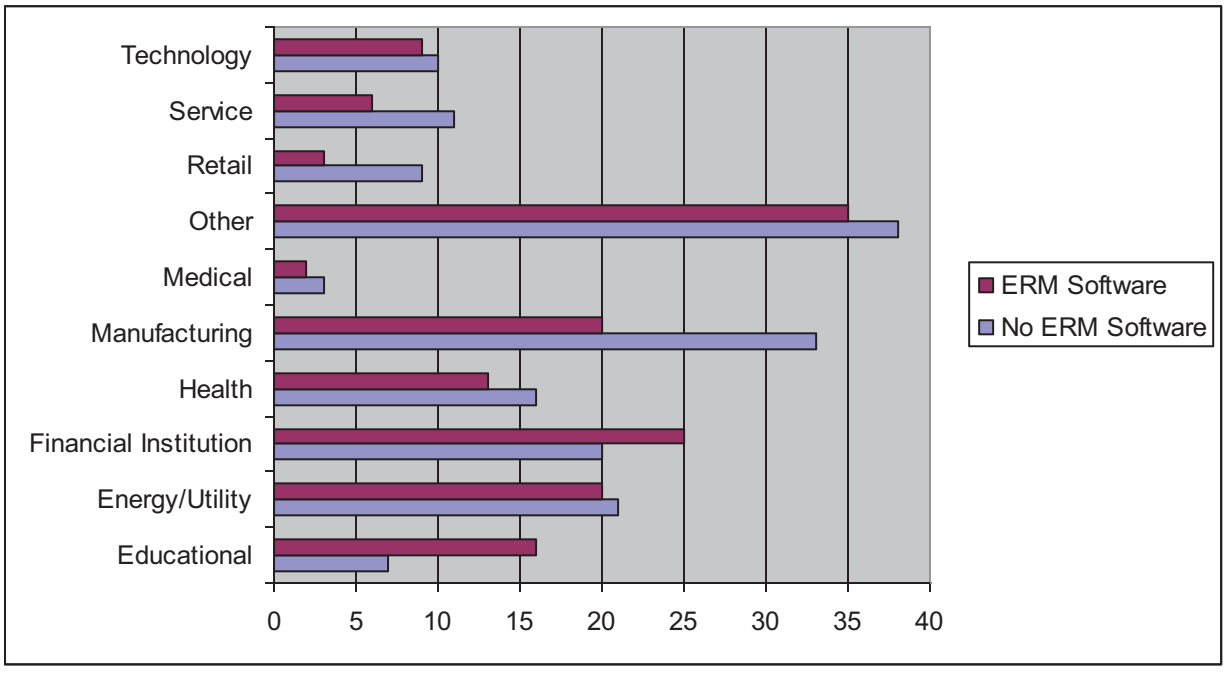
Figure 20: ERM Process Owner, By Industry



Question 3: Do you use any software in support of your ERM process? Summary

Industry_Sector	ERM Software	No ERM Software	Grand Total
Educational	16	7	23
Energy/Utility	20	21	41
Financial Institution	25	20	45
Health	13	16	29
Manufacturing	20	33	53
Medical	2	3	5
Other	35	38	73
Retail	3	9	12
Service	6	11	17
Technology	9	10	19
Grand Total	**149**	**168**	**317**

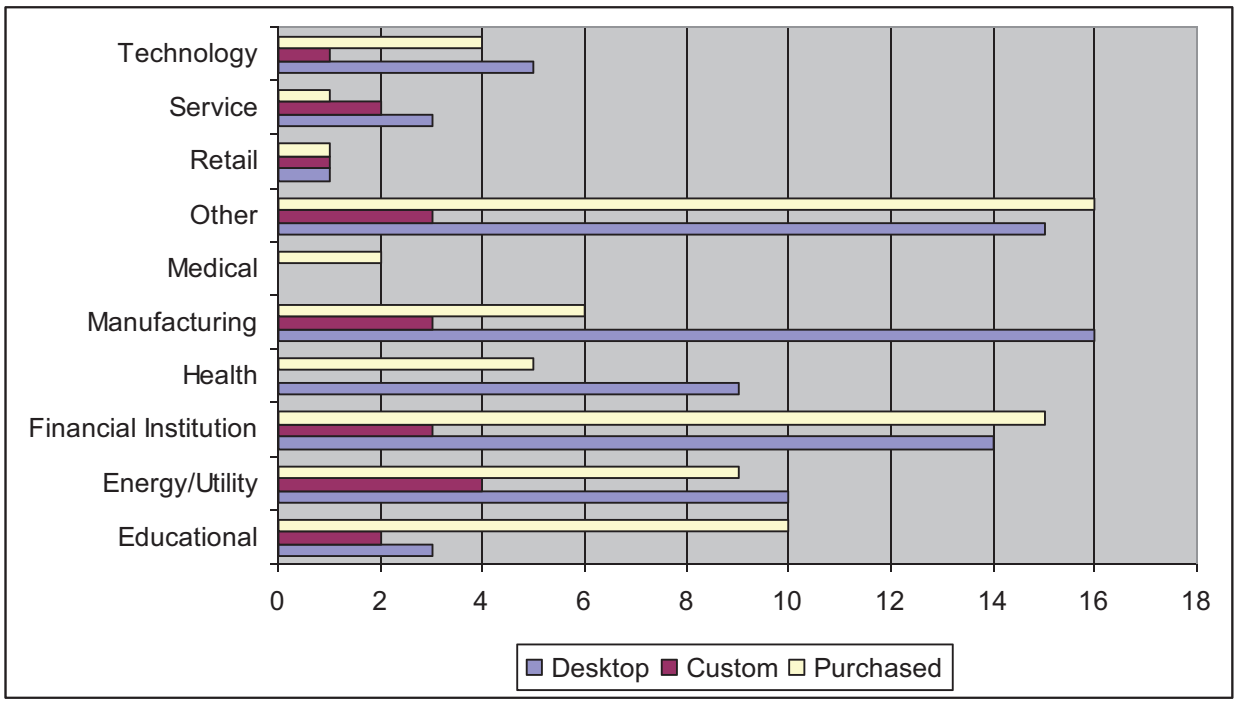
Figure 21: ERM Software Adoption, By Industry



Question 4: What software product(s) do you currently use to capture and communicate ERM data? ***Summary***

Industry_Sector	Desktop	Custom	Purchased
Educational	3	2	10
Energy/Utility	10	4	9
Financial Institution	14	3	15
Health	9	0	5
Manufacturing	16	3	6
Medical	0	0	2
Other	15	3	16
Retail	1	1	1
Service	3	2	1
Technology	5	1	4
Grand Total	76	19	69

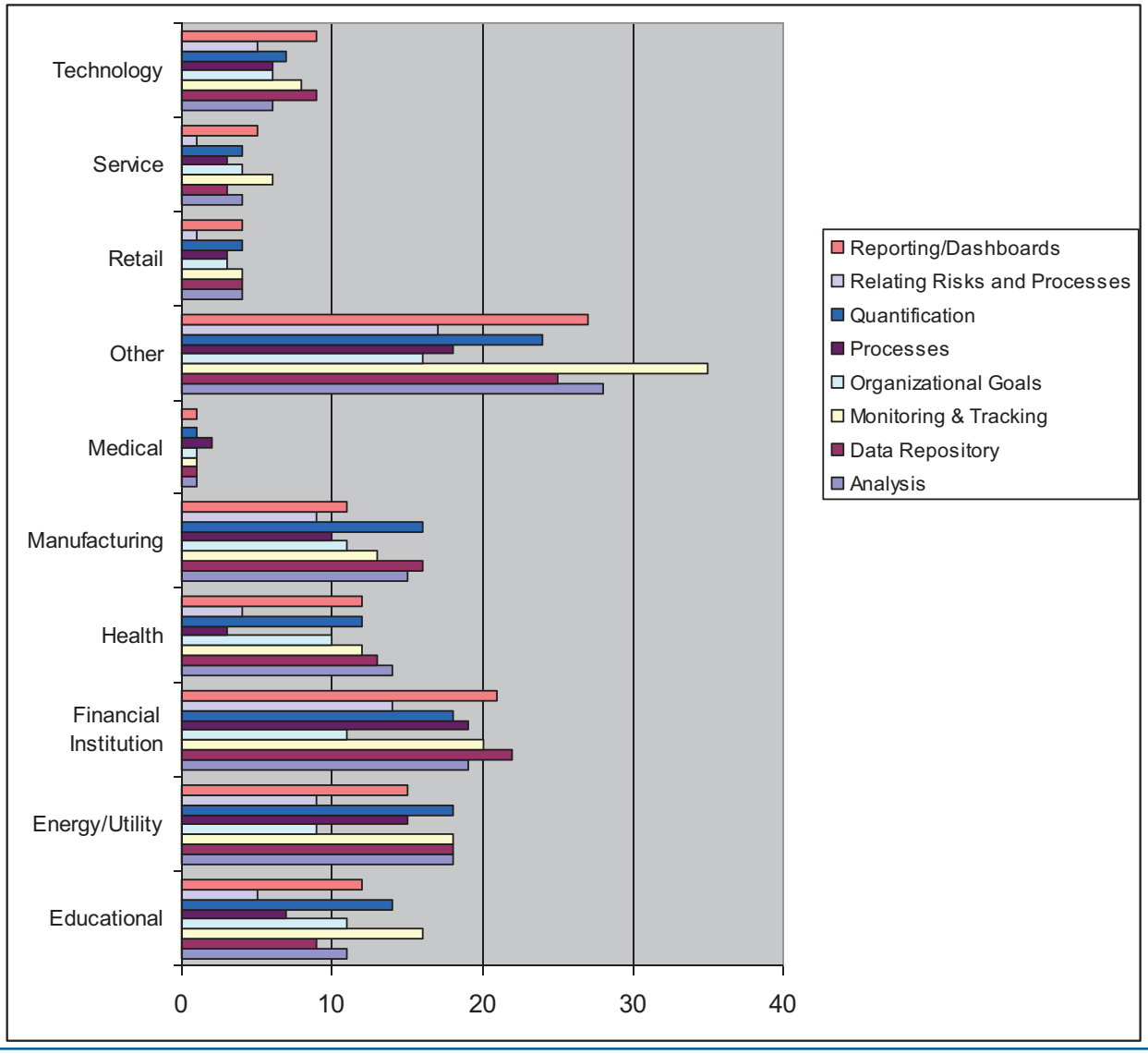
Figure 22: ERM Software Selection, By Industry



Question 5: What are you currently using ERM technology for? Summary

Industry Sector	Analysis	Data Repository	Monitoring/ Tracking	Org. Goals	Processes	Quant-ification	Relating Risks/ Processes	Reporting/ Dashboards
Educational	11	9	16	11	7	14	5	12
Energy/Utility	18	18	18	9	15	18	9	15
Financial Institution	19	22	20	11	19	18	14	21
Health	14	13	12	10	3	12	4	12
Manufacturing	15	16	13	11	10	16	9	11
Medical	1	1	1	1	2	1	0	1
Other	28	25	35	16	18	24	17	27
Retail	4	4	4	3	3	4	1	4
Service	4	3	6	4	3	4	1	5
Technology	6	9	8	6	6	7	5	9
Grand Total	**120**	**120**	**133**	**82**	**86**	**118**	**65**	**117**

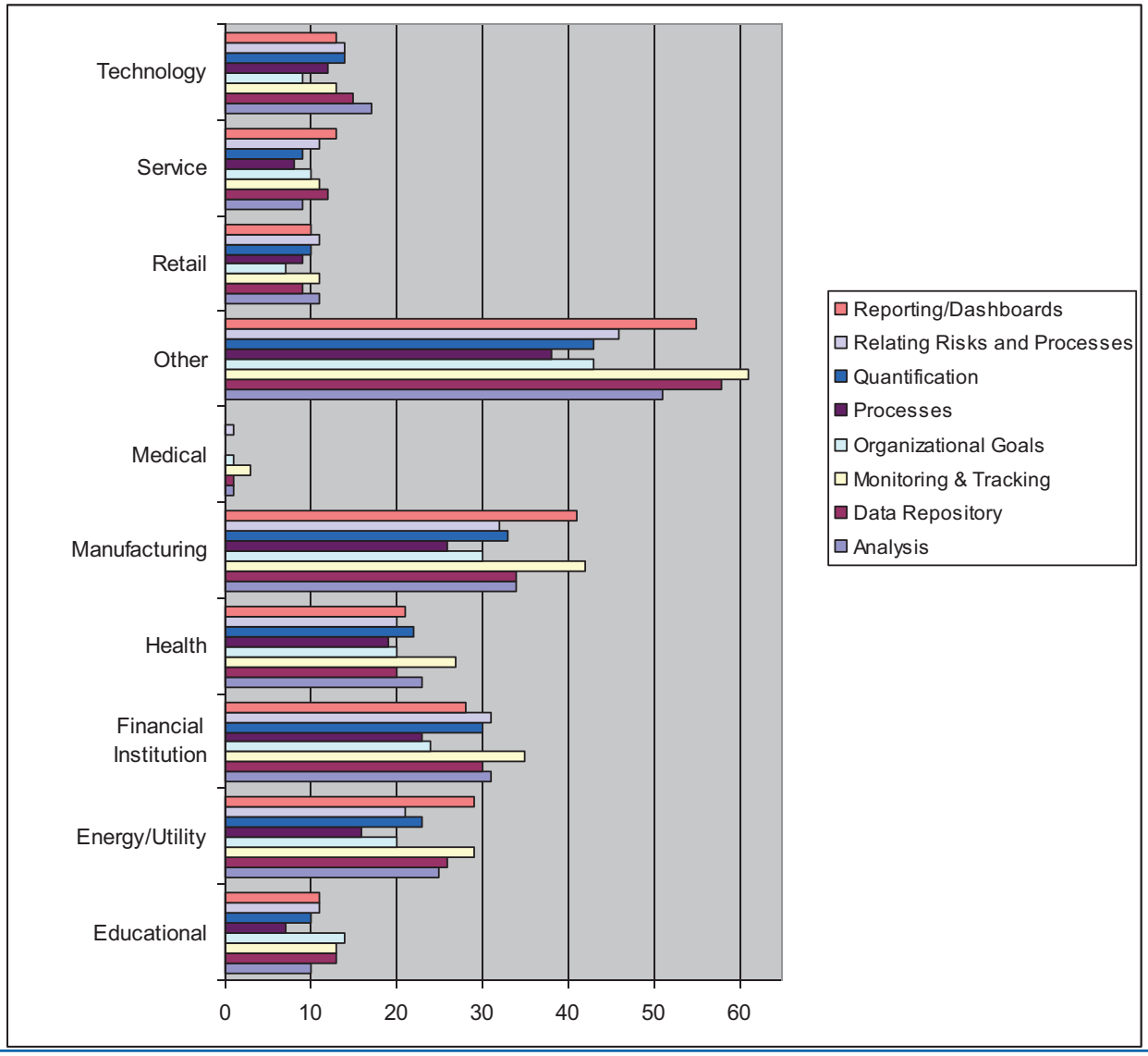
Figure 23: Current Applications for ERM Software, by Industry



Question 6: How would you like to use ERM technology in the future? Summary

Industry Sector	Analysis	Central Data Repository	Monitoring/ Tracking	Strategic Goals/ Objectives	Processes/ Hierarchies	Quant- ification	Relating Risks/ Processes	Reporting/ Dashboards
Educational	10	13	13	14	7	10	11	11
Energy/Utility	25	26	29	20	16	23	21	29
Financial Institution	31	30	35	24	23	30	31	28
Health	23	20	27	20	19	22	20	21
Manufacturing	34	34	42	30	26	33	32	41
Medical	1	1	3	1	0	0	1	0
Other	51	58	61	43	38	43	46	55
Retail	11	9	11	7	9	10	11	10
Service	9	12	11	10	8	9	11	13
Technology	17	15	13	9	12	14	14	13
Grand Total	**212**	**218**	**245**	**178**	**158**	**194**	**198**	**221**

Figure 24: Future Objectives for ERM Software, by Industry



Appendix C: Provider Survey Results Summary

Results presented here are based on self-reporting by each vendor and not verified by RIMS TAC. This summary represents a high-level, snapshot in time and all information should be confirmed with the individual vendors. Technology solutions are an essential tool for capturing and monitoring the information necessary to support an ERM program. However, the broad scope and dynamic nature of business risk makes the practice of ERM more art than science, and the output of any system should always be tempered with sound professional judgment.

Figure 25: Functional Emphasis

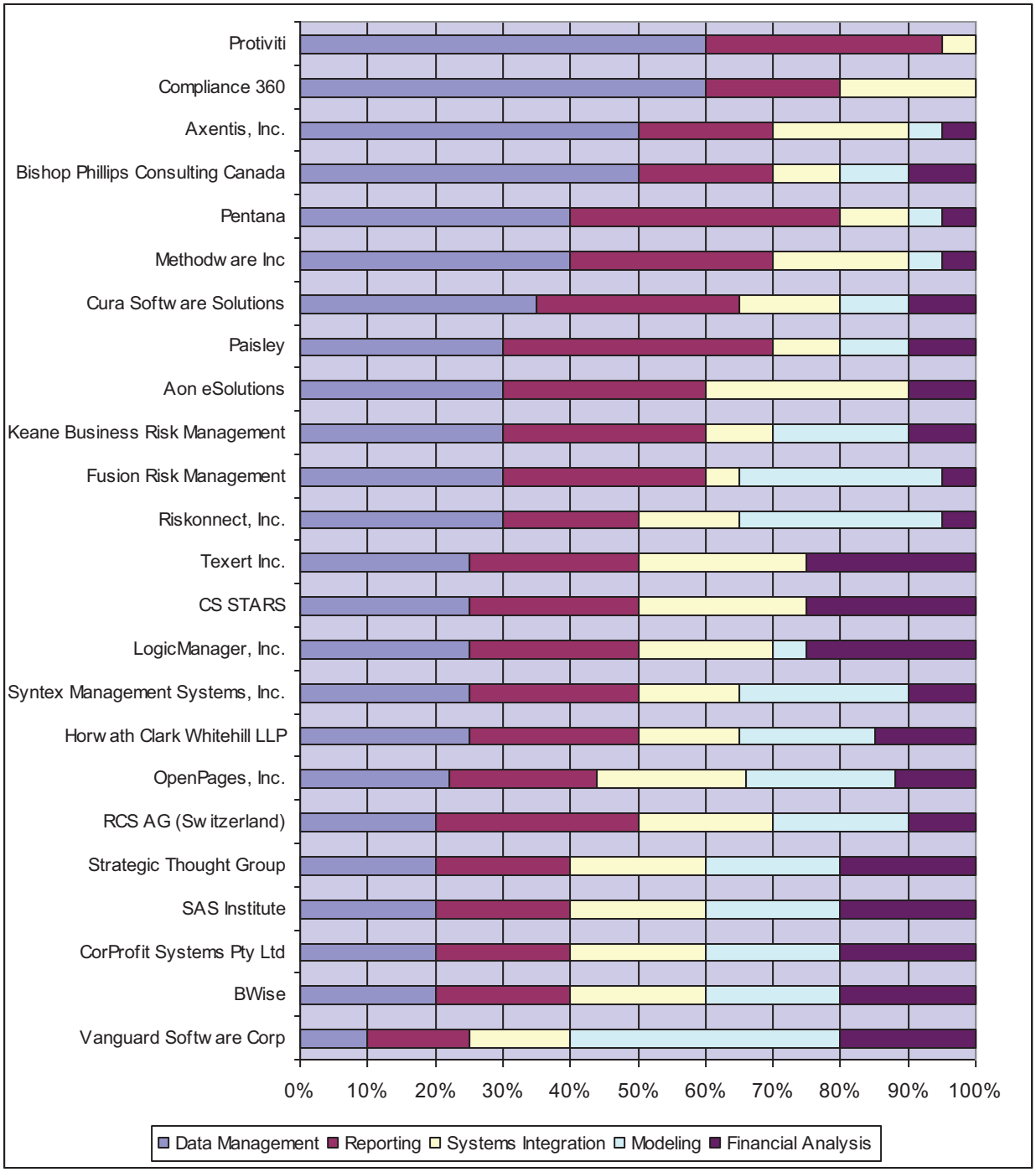
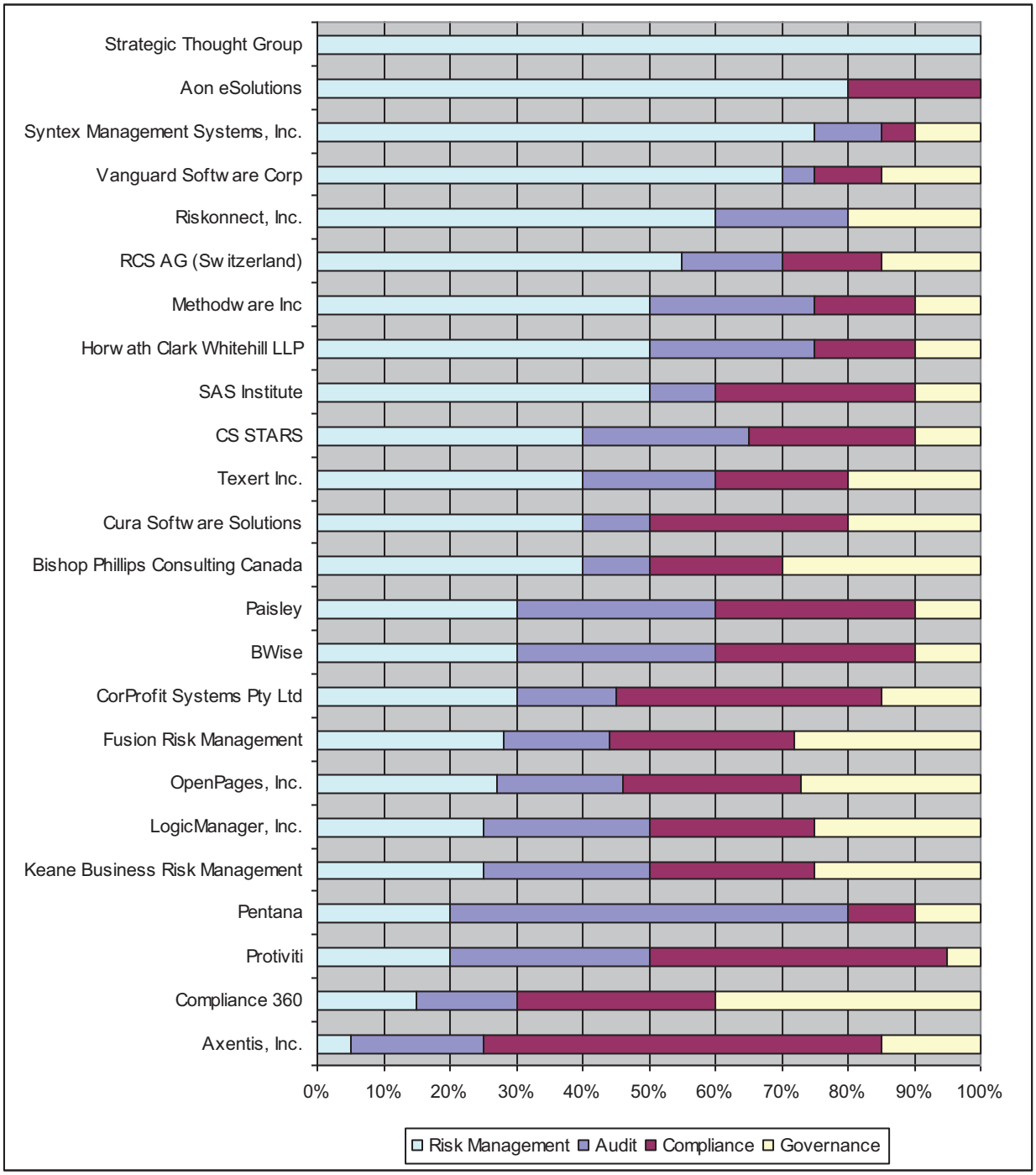


Figure 26: Market Focus



Company	Can your technology solution function as a central risk data repository?	Does your technology solution have the capability to sort risks by their qualifications, quantifications, business unit, elements of mitigation plans or cost, and track the values for the reduction (i.e., the savings) in risk?	Does your technology solution have the capability to store and manipulate information as to the criticality of business processes?	Does your technology solution have the capability to store and manipulate severity and probability rankings of individual risks, including multiple rankings for the same risk?
Aon eSolutions	Yes	Yes	Yes	Yes
Axentis, Inc.	Yes	Yes	Yes	Yes
Bishop Phillips Consulting Canada	Yes			Yes
BWise	Yes	Yes	Yes	Yes
Compliance 360	Yes	Yes	Yes	Yes
CorProfit Systems Pty Ltd	Yes	Yes	Yes	Yes
CS STARS	Yes	Yes	Yes	Yes
Cura Software Solutions	Yes	Yes	Yes	Yes
Fusion Risk Management	Yes	Yes	Yes	Yes
Horwath Clark Whitehill LLP	Yes	Yes	Yes	Yes
Keane Business Risk Mgt. Solutions	Yes	Yes	Yes	Yes
LogicManager, Inc.	Yes	Yes	Yes	Yes
Methodware Inc	Yes	Yes	Yes	Yes
OpenPages, Inc.	Yes	Yes	Yes	Yes
Paisley	Yes	Yes	Yes	Yes
Pentana	Yes	Yes	Yes	Yes
Protiviti	Yes	Yes	Yes	Yes
RCS AG (Switzerland)	Yes	Yes	Yes	Yes
Riskonnect, Inc.	Yes	Yes	Yes	Yes
SAS Institute	Yes	Yes	Yes	Yes
Strategic Thought Group	Yes	Yes	Yes	Yes
Syntex Management Systems, Inc.	Yes	Yes	Yes	Yes
Texert Inc.	Yes	Yes	Yes	Yes
Vanguard Software Corp	Yes	Yes	Yes	Yes

Company	Can your technology solution track the user's business processes and hierarchical information?	Is your technology solution able to accept input on financial metrics that are used to develop risk appetite?	Is your technology solution able to generate risk maps, dashboards, charts or other common ERM displays, heat maps (color-coded), information on control assessments, open issues, loss data, compliance issues and performance metrics?	Can your technology solution be easily integrated with other data systems?
Aon eSolutions	Yes	No	Yes	Yes
Axentis, Inc.	Yes	Yes	Yes	Yes
Bishop Phillips Consulting Canada			Yes	Yes
BWise	Yes	Yes	Yes	Yes
Compliance 360	Yes	Yes	Yes	Yes
CorProfit Systems Pty Ltd	Yes	Yes	Yes	Yes
CS STARS	Yes	Yes	Yes	Yes
Cura Software Solutions	Yes	Yes	Yes	Yes
Fusion Risk Management	Yes	Yes	Yes	Yes
Horwath Clark Whitehill LLP	Yes	Yes	Yes	Yes
Keane Business Risk Mgt. Solutions	Yes	Yes	Yes	Yes
LogicManager, Inc.	Yes	Yes	Yes	Yes
Methodware Inc	Yes	Yes	Yes	Yes
OpenPages, Inc.	Yes	Yes	Yes	Yes
Paisley	Yes	Yes	Yes	Yes
Pentana	Yes	Yes	Yes	Yes
Protiviti	Yes	Yes	Yes	Yes
RCS AG (Switzerland)	Yes	Yes	Yes	Yes
Riskonnect, Inc.	Yes	Yes	Yes	Yes
SAS Institute	Yes	Yes	Yes	Yes
Strategic Thought Group	Yes	Yes	Yes	Yes
Syntex Management Systems, Inc.	Yes	Yes	Yes	Yes
Texert Inc.	Yes	Yes	Yes	Yes
Vanguard Software Corp	Yes	Yes	Yes	Yes

Company	Is your technology solution able to take data feeds from the user's financial reporting systems?	Does your technology solution have a configurable interface that can mirror the user's other systems?	Can your technology solution track event-driven workflows, including automated kick-offs, reminders, triggers and notifications, review and approval processes, and tasks and notifications?	Does your technology solution include calendaring functions that can track milestones in the monitoring process or mitigation plans, and generate email reminders using a protocol for ever-escalating notifications going higher in the user's organization?
Aon eSolutions	Yes	Yes	Yes	Yes
Axentis, Inc.	Yes	Yes	Yes	Yes
Bishop Phillips Consulting Canada		Yes	Yes	Yes
BWise	Yes	Yes	Yes	Yes
Compliance 360	Yes	Yes	Yes	Yes
CorProfit Systems Pty Ltd	Yes	Yes	Yes	Yes
CS STARS	Yes	Yes	Yes	Yes
Cura Software Solutions	Yes	Yes	Yes	Yes
Fusion Risk Management	Yes	Yes	Yes	Yes
Horwath Clark Whitehill LLP	Yes	Yes	Yes	Yes
Keane Business Risk Mgt. Solutions	Yes	Yes	Yes	Yes
LogicManager, Inc.	Yes	Yes	Yes	Yes
Methodware Inc	Yes	Yes	Yes	Yes
OpenPages, Inc.	Yes	Yes	Yes	Yes
Paisley	Yes	No	Yes	Yes
Pentana	No	No	Yes	No
Protiviti	Yes	Yes	Yes	Yes
RCS AG (Switzerland)	Yes	Yes	Yes	Yes
Riskonnect, Inc.	Yes	Yes	Yes	Yes
SAS Institute	Yes	Yes	Yes	Yes
Strategic Thought Group	Yes	Yes	Yes	Yes
Syntex Management Systems, Inc.	Yes	Yes	Yes	Yes
Texert Inc.	Yes	No	Yes	Yes
Vanguard Software Corp	Yes	Yes	Yes	Yes

Company	Does your technology solution have tools for Monte Carlo simulations for regression analyses?	Does your technology solution have the ability to document and track confidence and tolerance levels with standard deviations?	Does your technology solution include exception reporting that can automatically "accept" ERM activities within a prescribed "norm", highlight risks or mitigation plans that vary from the norm?	Does your technology solution have tools to perform market analysis, credit monitoring or capital modeling?
Aon eSolutions	No	No	No	No
Axentis, Inc.	No	Yes	No	No
Bishop Phillips Consulting Canada				
BWise	Yes	Yes	Yes	Yes
Compliance 360	No	No	No	No
CorProfit Systems Pty Ltd	No	Yes	Yes	Yes
CS STARS	No	No	No	No
Cura Software Solutions	No	Yes	Yes	No
Fusion Risk Management	No	No	Yes	No
Horwath Clark Whitehill LLP	No	No	Yes	No
Keane Business Risk Mgt. Solutions	No	Yes	Yes	Yes
LogicManager, Inc.	Yes	Yes	Yes	No
Methodware Inc	Yes	No	Yes	No
OpenPages, Inc.	Yes	Yes	Yes	Yes
Paisley	No	No	Yes	No
Pentana	No	No	Yes	No
Protiviti	No	Yes	Yes	No
RCS AG (Switzerland)	Yes	Yes	Yes	Yes
Riskonnect, Inc.	No	Yes	Yes	No
SAS Institute	Yes	Yes	Yes	Yes
Strategic Thought Group	Yes	Yes	Yes	Yes
Syntex Management Systems, Inc.	No	Yes	Yes	No
Texert Inc.	No	Yes	Yes	No
Vanguard Software Corp	Yes	Yes	No	Yes

Company	Can your technology solution generate risk adjusted financial information and cost – benefit analyses of mitigation plans?	Can your technology solution track the amount of risk retained by the user so that retained risk can be matched against the risk appetite, on an on-going basis, with alerts automatically generated if the amount of risk reaches a threshold percent?	Is your technology solution customizable to adapt to users' particular needs?	Is your technology solution configurable to adapt to users' particular needs?	Are users able to configure your technology solution to adapt to their particular needs?
Aon eSolutions	No	No	Yes	Yes	Yes
Axentis, Inc.	No	Yes	Yes	Yes	Yes
Bishop Phillips Consulting Canada			Yes	Yes	Yes
BWise	Yes	Yes	Yes	Yes	Yes
Compliance 360	No	Yes	Yes	Yes	Yes
CorProfit Systems Pty Ltd	Yes	Yes	Yes	Yes	Yes
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Cura Software Solutions	Yes	Yes	Yes	Yes	Yes
Fusion Risk Management	Yes	Yes	Yes	Yes	Yes
Horwath Clark Whitehill LLP	Yes	Yes	Yes	Yes	Yes
Keane Business Risk Mgt. Solutions	Yes	Yes	Yes	Yes	Yes
LogicManager, Inc.	Yes	Yes	Yes	Yes	Yes
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Paisley	No	No	No	Yes	Yes
Pentana	No	No	Yes	Yes	Yes
Protiviti	Yes	Yes	Yes	Yes	Yes
RCS AG (Switzerland)	No	Yes	Yes	Yes	Yes
Riskonnect, Inc.	Yes	Yes	Yes	Yes	Yes
SAS Institute	Yes	Yes	Yes	Yes	Yes
Strategic Thought Group	Yes	No	Yes	Yes	Yes
Syntex Management Systems, Inc.	No	Yes	Yes	Yes	Yes
Texert Inc.	No	Yes	Yes	Yes	Yes
Vanguard Software Corp	Yes	No	Yes	Yes	Yes

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