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Building Enterprise Agility One Rule at a Time!

Predictive Risk Analytics: The Internal Auditor's Guide to Complexity Management

Abstract

The world of Predictive Risk Analytics (PRA) is an exciting one. PRA software applications have incredible power. The applications are extraordinarily good at finding patterns in large data sets that exist around the enterprise. For instance if a prospective PRA software solution can assist us in determining where potential enterprise issues exist or where they may arise, that's a huge opportunity. One typical area of enterprise risk are those business processes that are considered to be "brittle". A brittle process is one that is prone to failure for reasons such as poor technology integration, "single points of (legacy system) failure", inadequate training, etc. A brittle process may be likely to break under an unforeseen stress load. PRA software applications leverage sophisticated business rule logic on the order of "expert systems" to diagnose brittle processes and apply similar machine logic to many other types of business challenges. But, of all of these software application types, this article will home in on one area that holds the most promise for enhancing Enterprise Risk Management programs. This is area of complexity management analytics that is being applied to common business challenges using newly cultivated human skills and new software based services, in tandem.

Introduction

Management around the world has clear and compelling incentives to implement capable Enterprise Risk Management (ERM) practices within their organizations. But this is no easy task to achieve successfully. Nor is it easy to sustain ERM practices. Once the initial "program push" is over, practices often go awry or begin to lose their clout. No matter whether they are obligated by law, or by industry standards, the challenge of implementing a successful ERM program is one that should not be taken for granted. However, even after considerable time and dollars have been invested in getting risk assessment and risk management processes and practices in order, the results are often far less than what were initially anticipated. Feedback from many auditors and governance, risk and compliance (GRC) professionals overseeing these programs is that the risk practices are falling short. Not by a little, but by a lot. In fact, there are now, as of 2014, many people who are wondering whether they can improve their company's ERM practice performance or whether it would be better to scrap their present programs and start all over again.¹

One management alternative that is holding great promise for the enhancement and improvement of existing ERM programs is the application of *Predictive Risk Analytics* that both complements and enhances an existing ERM program. On the one hand, Predictive Risk Analytics enables management to couple newly emerging technology tools with ERM practices and processes in order to reengineer the basic ERM approach and address a number of challenges and obvious shortfalls that have plagued most ERM program initiatives.

¹ Increasing Complexity Creates Challenges for Risk Management;
<http://erm.ncsu.edu/library/article/complexity-challenges-risk#.VBs7VfldVaU>

The insertion of Predictive Risk Analytics technology, like any major investment must be based on a strong business case. This is also true when ERM processes and practices are in need of reengineering or revamping. But when these two needs converge, in parallel, significant and impressive achievements in risk assessment acumen are possible. In fact, many firms have started to take notice of this new trend.

The new approach, Predictive Risk Analytics technology insertion coupled with ERM practice reengineering, signals a sea change opportunity for firms who are struggling with their ERM program initiatives. Billions of dollars and significant strategic shareholder value is at risk. Because so many companies are struggling with the adoption of good ERM practices, executive management needs to 1.) audit their existing ERM programs, 2.) look at the compelling incentives for ERM program retuning or reengineering, and 3.) determine which PRA technology makes best business sense for assisting and enabling core ERM skill sets across an enterprise's work force. This paper examines a new Predictive Risk Analytics application that we believe holds the best promise for enhancing or reengineering an ERM program. The focus is on Predictive Risk Analytics for complexity management.

Introduction to Predictive Risk Analytics for Complexity Management

Predictive Risk Analytics for complexity management assessment is rising to the top of the PRA solutions heap. It's an appealing solution alternative that can enhance, augment or even replace some existing risk management and assessment practices. The reason is that PRA for complexity management has the potential to address the top 5 industry challenges that are of strategic significance to shareholder value creation and asset value protection:

1. **Security Management:** Determine the fragility of critical enterprise infrastructure to cyber threats and other attacks.
2. **ERP Management:** Unlock the dormant value of ERP data in ways that human minds cannot comprehend due to complex data patterns that complexity management PRA is designed to spot.
3. **Resilience Management:** Identify points of enterprise fragility in order to shore them up and build resilience.
4. **Portfolio Management:** Reduce the risk of overly complex projects and programs as well as those that are underachieving, costly, late or poor quality.
5. **Complexity Management as an Enhancement to Risk Assessment:** Replace outdated risk assessment practices and leverage complexity management technology to identify critical complexity risks across functions, processes, and systems.

Trends

Companies are aware of the need to leverage analytics when it comes to risk assessment because current ERM practices lack the level of specificity that is often needed in protecting critical infrastructure. Wouldn't it be good to know of an impending danger in order to prevent the derailing of a business process or critical function. In essence, we need to find a better way to increase business "predictability". In our increasingly turbulent times and under rapidly changing business architectures and regimes, increasing predictability is less possible than ever before. This means that management needs to place greater emphasis on more frequent diagnoses of potential business failure points. Risk ratings done once a year cannot "measure up", literally,

in these times. Monthly assessments and improved communication between Chief Risk Officers (CRO's) and CEO's is mandatory, too.

When we get down to the specifics of building an enterprise-wide process to address Enterprise Risk Management, we need to anticipate the use of Predictive Risk Analytics. Together, ERM and PRA technology have huge implications for labor overhead cost reduction as well as for risk assessment skills improvements. They also provide an attractive opportunity to reduce the cycle time in assessing risks in real time prior to a catastrophic event occurring. Today, the coupling of ERM practices with PRA technology insertion is considered to be a very "good practice". But this awareness is only in it's infancy. Chief Audit Executives, Internal Auditors and Governance Risk Compliance (GRC) professionals need to get the word out to executive management; "There really is a better way!".

What's the Problem?

Managers around the world have a pretty good understanding of the role of risk assessment as an operational practice. They know that they need to protect the assets of their organizations, in parallel with growing the business and revenue. These drivers are basic principles for the creation of shareholder value. However, in recent years, risk assessment practices have taken on some negative connotations. The primary issue tends to be aimed squarely at how companies assess and measure risk. Believe it or not, the wide majority of companies are using risk assessment techniques that are outdated! The reason is primarily tied to the fact that they're using mathematically invalid scalar measurement approaches. For instance, most firms use ordinal values (for example, High / Medium / Low or 1-5 scales) in spreadsheets and other tools to rate and calculate a risk score. These approaches are worse than having no risk assessment programs at all!² This is only one negative aspect. The many shortfalls of risk assessment practices in place at many organizations around the world cause additional concerns. Risk management professionals often realize that their risk assessment program may need to be reengineered, or scrapped altogether, due to the massive waste of dollars expended every day, but they don't speak up because they have no proven alternatives to replace the existing regime.³

Another mission-critical drawback of the majority of risk assessment practices, is that while many risk professionals feel that risk assessment and risk management are, indeed, important, in creating a risk aware culture, it is easier said than done. There's a huge gap in understanding as to how a risk management program should help executive management and the workforce to:

- 1. Improve critical thinking**
- 2. Foster a new understanding of how to enhance an individual's abilities in complex problem solving, and**
- 3. Strengthen judgment and decision-making**

Another drawback is that humans are poor performers when it comes to projecting risky business scenarios and dealing with negative predictions and negative consequences. In fact, people are subject to this fundamental foible. It's a documented fact that most managers exhibit high levels of

² Request our white paper entitled "The Proposed Global Standard for Risk and Control Self-Assessments". This paper outlines the basics needed for risk assessment rating systems in an easy-to-read and easy-to-understand format.

³ Read Hubbard, Douglas W. 2009. The Failure of Risk Management: Why it's Broken and How to Fix It. John Wiley & Sons, Inc.: Hoboken: NJ.

over confidence in rating risks and mitigating them.⁴ So your risk assessment results are likely to not be reliable due to a number of inherent human biases.

Obviously, there is a lot of room for improvement. But based on the money that companies are spending on their risk programs and the relatively poor levels of risk management effectiveness, many executives and governance, risk and compliance (GRC) professionals are asking whether there's a better way to help the enterprise workforce to overcome their, potentially fatal, over-confidence biases? Can technology help us to become more effective? The answer is a resounding YES!

What is Complexity Management?

The science of complexity management makes it possible to measure the complexity of a business and then take action to reduce the complexity, making it more efficient, profitable and less vulnerable. All of these attributes can and should be measured; critical complexity, resilience, infrastructure robustness, etc.. The basic practices of successful ERM programs (ie. frequent assessment and reporting) remain viable, but not necessarily how risk exposure is measured. A better way is to diagnose excessive business complexity. This approach can then, in turn, improve and enable critical thinking, complex problem solving, decision-making and judgment.

Some of complexity theory's leading experts make a living advising companies and practically applying the ideas behind complexity theory to business areas such as corporate investment.⁵ Organizations putting the theory into practice include Xerox's Palo Alto Research Center (PARC), Applied Biosystems, and the United States Marine Corps. Complexity theory offers companies the opportunity to create new markets and establish new ways to spread emerging knowledge throughout the company—enabling the organization, as a whole, to respond faster and better to ongoing change.⁶

Highly fragile systems stem from excessive complexity. Plus, when we add uncertainty into the mix we have this enlightening equation to guide us toward a new risk assessment awakening:

$$\text{Complexity} \times \text{Uncertainty} = \text{Fragility}$$

Predictive analytics, especially Predictive Risk Analytics for complexity management, offer an especially attractive solution for complementing and enhancing an ERM program using this basic rule.

⁴ Kahneman, Daniel. 2011. Thinking Fast and Slow. Farrar, Strauss and Giroux: New York. The book, builds a great business case on this point.

⁵ J. Doyne Farmer and Norman Packard,

⁶ For a lot more detail on this subject, please refer to "Reference for Business; Encyclopedia of Business 2nd Edition" found on the web by Wendy H. Mason and Hal P. Kirkwood, Jr. which can be found at: <http://www.referenceforbusiness.com/management/Bun-Comp/Complexity-Theory.html>.

Making the Business Case for Organizational Change

The bottom line business objectives are 1.) to infuse an Enterprise Risk Management (ERM) program initiative with complexity management best practices and 2.) leverage technology enablers to augment human decision-making capabilities. The end-goals are to create strategic shareholder value both financially and operationally. These objectives have the power to significantly increase Return On Assets (ROA) if we can help the workforce to build and enhance these 3 risk-related skills:

- 1. Improve critical thinking**
- 2. Foster a new understanding of how to enhance an individual's abilities in complex problem solving, and**
- 3. Strengthen judgment and decision-making**

How to Take The Next Step in Transforming Your ERM Program

Although the detailed reasons for enhancing an existing Enterprise Risk Management program, or revamping risk assessment practices altogether, are beyond the scope of this overview document; we are sure that you will want to know how to go about getting the answers for your organization. The **Complexity Management Audit Work Program (CM-AWP)** addresses these needs and provides a proscriptive approach for addressing human, business and technology change across an enterprise. It is available from RuleSphere at <http://www.RuleSphere.com> for a nominal fee. It contains an important Control Self-Assessment for publicly traded companies that use the COSO standard or similar internal control framework.

Because the key issue is often not knowing how to get started, our customers have asked us for advice on implementing a Predictive Risk Analytics program for complexity management that guides them from "soup to nuts" (i.e. business charter to strategic value assessment after the program has been in place for a year).

The CM-AWP resource can be used by your firm's Chief Audit Executive (CAE) and other C-level roles, Internal Audit, and Governance Risk Compliance (GRC) professionals. It provides detailed step-by-step guidance for implementing complexity management practices and technology enablers to enhance or augment ERM programs or, in specific instances, to replace risk assessment practices altogether.

By applying our Complexity Management Audit Work Program, an organization has the potential to pursue and achieve a radical transformation in order to build the 3 mission-critical workforce skills and capabilities identified above.

The bottom line is that complexity management practices drive shareholder value in a way not thought possible at the beginning of the 21st century. Now, in 2014, the combination of machine thinking coupled with ERM is viewed as a pragmatic approach towards helping a workforce to contend with the limitations that human minds are not equipped to handle. Plus, the coupling of ERM with PRA technology helps us to address the 3 other mission-critical ERM program components: business continuity, business resilience and disaster avoidance and recovery.

If You Have Questions

If you have any comments or questions, or would be interested in exploring complexity management in more detail and applying it to your specific business challenges, please contact RuleSphere.

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